



Independent Technical Commissioning Services
DGS Project No. 401-62 Phase 1

*McCormick Center Renovations
Bloomsburg University
400 East Second Street
Bloomsburg, Columbia County, PA*

TECHNICAL SUBMISSION

April 15, 2022

150 Monument Road
Suite 101
Bala Cynwyd, PA 19004

T. 215.279.5950
F. 215.558.5767

www.wrightcx.com



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F 215.558.5767

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April 15, 2022

Cara Desert, RA, MPM
Design Project Manager I Educational Division
Department of General Services I Public Works I Bureau of Capital Projects Design
Arsenal Building
1800 Herr Street
Harrisburg, PA 17103

**RE: Independent Technical Commissioning Services
Project No. DGS 401-62 Phase 1
Bloomsburg University McCormick Center Renovations
400 East Second Street
Bloomsburg, Columbia County, PA**

Dear Cara:

Thank you very much for presenting Wright Commissioning (WCx) with the opportunity to provide independent technical building systems commissioning services for the design and construction stages of the Bloomsburg University McCormick Center Renovations project, located at 400 East Second Street in Bloomsburg, Columbia County, PA.

WCx strives to be committed and responsive to our clients by meeting their needs and exceeding all expectations. Our team is ideally suited to provide commissioning services for this project and has proven capabilities on programs and projects similar to this one. We are confident that our team will deliver superior, value-added services through our emphasis on team collaboration and a proactive approach to problem-solving.

Our qualifications include:

- We are a truly independent representative whose core business is commissioning. We do not practice design or engage in contracting. Therefore, we have no conflicts with the design or construction. Our focus is to understand the design objectives and deliver sustainable systems that meet and exceed those objectives, while maintaining the highest level of quality.
- WCx is a NEBB certified commissioning firm. As managing member of the firm, I am a NEBB certified Commissioning Professional with over 20 years of building commissioning experience.
- Our experience with the commissioning of various higher education facility renovation projects, some of which are highlighted in this proposal.
- Our experience working within the e-Builder system platform on various Pennsylvania DGS projects.
- WCx is authorized by various agencies to provide professional commissioning services, including being a Federal GSA schedule holder, a commissioning provider for the Pennsylvania DGS and PASSHE (Pennsylvania State System of Higher Education), the New Jersey DPMC and SDA, and the Maryland Stadium Authority (MSA).
- WCx is a certified Minority Business Enterprise (MBE) and Woman's Business Enterprise (WBE).

On behalf of the WCx team, thank you again for your interest and consideration. If you should require additional information, please don't hesitate to contact me directly. My office phone is ext.135, cell phone is 267-414-3150 and e-mail is will.wright@wrightcx.com.

Sincerely,

A handwritten signature in blue ink, appearing to read 'William A. Wright'.

William A. Wright, LEED AP, ASHRAE CPMP, NEBB CP, CEM, CQM
Commissioning Authority



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SECTION 1: RELEVANT PROJECT EXPERIENCE

Temple University Pearson & McGonigle Halls (Size)

Philadelphia, Pennsylvania



Owner

Temple University

Architect

H2L2/CVM Joint Venture

Size / Completion

140,000 SF / 2012

Construction Cost

\$48,000,000

Project Reference

Alan Hawryluk
Senior Project Manager
267.844.2387
alanhawr@temple.edu

The \$48 million modernization of Pearson and McGonigle halls, at Broad Street and Montgomery Avenue, created an additional 140,000 square feet of space and features intramural and club sport courts, exercise space, a climbing wall, classrooms, faculty and coaching staff offices, upgraded dance studios, new men's and women's basketball practice courts and a new atrium for retail opportunities on North Broad Street.

A highlight of the renovation is a basketball practice facility built atop the current structure. The nearly 26,000 square foot complex contains separate men's and women's practice courts, locker rooms, recruiting lounges, coaches' office, film study area, sports medicine center and weight room.

WCx provided LEED fundamental commissioning of energy systems in addition to MEP and fire protection engineering services and energy modeling.

Rowan University Rowan Hall Renovation (Size)

Glassboro, New Jersey



Owner

Rowan University

Size / Completion

95,000 SF / 2016

Project Reference

Erin Bisceglia
Project Manager
Rowan University
856.256.4824
biscegliae@rowan.edu

Project Duration

Approx. six months

Dollar Value of Contract

\$199,500

Architect / Engineer N/A

Henry M. Rowan Hall is home to Rowan University's College of Engineering, offering graduate and undergraduate degrees in mechanical, electrical, civil, environmental, computer, chemical and biomedical engineering. It was a state-of-the-art facility when it opened in 1998, with one resource channel serving as a technology spine and another supplying gases and liquids needed for lab work; flexible teaching labs outfitted with potable smart benches and significant sustainable features.

To optimize the systems' performance of the complex building after several years of use, Rowan engaged WCx to provide technical retro-commissioning, testing and balancing and energy consulting services. WCx reviewed the existing operations and maintenance documentation; interviewed users of the building; physically tested the systems under a variety of extreme conditions and issued a report with recommended solutions to optimize the efficiency of the building.

Villanova University St. Augustine Center Renovation (Size)

Villanova, Pennsylvania



Client

Villanova University

Size / Completion

96,000 SF / 2014

Construction Cost

Unknown

Client Contact

Jim Matthews, Project Manager

610.519.4425

jim.matthews@villanova.edu

In the early 1990s, the St. Augustine Center (SAC) for the Liberal Arts and Sciences unified the College of Liberal Arts and Sciences under a single roof for the first time in the history of Villanova University. Located at the core of the campus, SAC contains departmental offices, seminar rooms and classrooms.

In summer 2012, the University began an HVAC and building automation system upgrade involving replacement of fan coil units and a controls retrofit for VAV boxes, air handling units, and central heating and cooling plants. Because the building was to remain occupied for the duration of the project, the renovations occurred in three distinct phases over a three-year period.

WCx was hired by the University to provide building systems commissioning services for the entire upgrade and retrofit project. Systems commissioned included cooling tower, chiller, chilled water pumping system, steam to hot water heat exchanger, heating hot water pumping system, ventilation, make up air and exhaust systems, and VAV boxes. Test and balance repeatability verification was also performed.

Princeton University Peyton Hall Renovation (Scope)

Princeton, New Jersey



Owner

Princeton University

Architect

Ford 3 Architects

Engineer / Contractor

Princeton Engineering
Group / Hunter Roberts
Construction Group

Size / Completion

34,355 square feet /
2016

Construction Cost

\$4 million

Client / Project

Reference

Laura Carlson
609.258.5417
lc10@princeton.edu

Designed in 1966, Peyton Hall houses Princeton's Department of Astrophysical Sciences, including laboratories, faculty offices, lecture and seminar rooms, a library and two telescopes on the roof. The University recently expanded the modern two-story building within the original footprint, and engaged Wright Commissioning to improve life safety, mechanical / electrical / plumbing systems, and restore the elegant limestone arches of the façade.

Edmund D. Bossone Research Center (Scope)

Philadelphia, Pennsylvania



Owner

Drexel University

Architects

Coscia Moos Architecture
Payette Associates

Engineer

Dimitri J. Ververelli, Inc.

Completion

2016

Construction Cost

\$8.8 Million

Project Reference

Nicholas Haas, PE
215.571.4368
nph22@drexel.edu

Project Duration

2015-2016

Dollar Value of Contract

\$116,725

Located at the gateway of Drexel's urban campus, the Bossone Center makes a powerful statement about the university's place on the vanguard of technology research and education. The seven-story atrium at ground level leads to a 280-seat lecture hall, student café, exhibition lab and electron microscope suite. New and renovated flexible labs on the upper levels are located around a common gathering space and outdoor terrace with a landscaped garden. Facilities include wet and dry labs for multidisciplinary research and computer-based telemetry stations for data gathering and analysis.

Engaged in 2015, WCx provided commissioning services for the fit-out of two laboratory areas on the 1st Floor, Rooms 105 and 106, as well as larger renovated areas on the 3rd, 5th and 6th Floors.

The College of New Jersey STEM Phase 2 (Scope)

Ewing, New Jersey



Owner

The College of New Jersey

Project Duration

Approx. six months

Project Completion

2016

Dollar Value of Contract

\$124,710

Project Reference

Dave Matlack

609.771.2874

matlack@tcnj.edu

STEM Phase 2 included interior renovations to the Science Complex and the Biology Building. The Science Complex is an existing three-story building with a north and a south wing and includes a penthouse and partial basements. The north wing is primarily used by the Chemistry Department and the south wing is primarily used by Math and Physics. The Biology Building is a three-story building with a partial basement. A significant portion of the third floor of both buildings is mechanical space.

WCx was hired by The College of New Jersey to provide its re-commissioning platform of investigating and optimizing HVAC systems throughout the building to improve comfort and operation, indoor air quality and energy efficiency. WCx provided discovery and recommendations, which included any remedial repairs, schematic basis of design and scope of work for any capital improvements.

To optimize the systems' performance of the complex building after several years of use, The College of New Jersey engaged WCx to provide technical re-commissioning, testing and balancing, and energy consulting services. We reviewed the existing operations and maintenance documentation; interviewed users of the building; physically tested the systems under a variety of extreme conditions; and then issued a report with recommended solutions to optimize the efficiency of the building.

Rutgers University Business School (Complexity)

Piscataway, New Jersey



Owner

Rutgers University

Architect

TEN Architectos

Size

155,000 SF

Construction Cost

\$85,000,000

Project Reference

Georgia Kyrifides, PE
Senior Director, Capital Construction
(848) 445-2508
gkyrifides@facilities.rutgers.edu

Project Duration

February 2014-November 2015

Dollar Value of Contract

\$212,500

Rutgers University's \$85 Million, 155,000 square foot Business School building was opened for the fall semester of 2013. The iconic building serves as the gateway to the Livingston campus, reflecting the burgeoning prominence of the Rutgers Business School. The state-of-the-art facility accommodates up to 3,200 undergraduate business students for the first time in one building.

Noted as one of the most technologically advanced academic buildings, the new business school is equipped with \$4M worth of technology and a Global Financial Center and trading floor. Much of the technology was built into the classrooms and lecture halls to enhance teaching and learning. Open lounges and team rooms are scattered about for students and faculty to congregate in, as well as 91 Wi-Fi internet access points around the five-story building to meet the demands of business education.

Sustainable features can be found throughout the building, including extensive daylighting, low VOC and efficient fixtures. A geothermal well field was designed and installed to heat and cool the building, and two solar fields generate some of its power.

WCx was hired by Rutgers University to provide its retro-commissioning platform of investigating and optimizing HVAC systems throughout the building to improve comfort and operation, indoor air quality and energy efficiency. WCx is providing discovery and recommendations, which will include any remedial repairs and schematic basis of design and scope of work for any capital improvements.

UPenn WARB and Electrical Substation No. 2 (Complexity)

Philadelphia, Pennsylvania



Owner

University of Penn

Size / Completion

53,500 SF / 2020

Client/Project Reference

Mark Breitenbach

215.898.0665

breitenb@upenn.edu

The project involves design and construction of a new academic building, incorporating a new above ground electrical substation, on the campus of the University of Pennsylvania in Philadelphia, PA that will be located at the northeast corner of 37th Street Walkway and Spruce Street. The building will be comprised of five stories and approximately 53,500 square feet, with approximately 47,000 square feet of academic and research space on the upper four levels and approximately 6,500 square feet of ground level (and penthouse) space for equipment.

The construction period for this project was broken into two distinct phases. The first phase included the substation, foundation and portions of the loading dock. The second phase involved the academic building to be constructed above and around the substation.

Systems QA/QC'd and commissioned by WCx included the following:

- o 13.2 kV switchgear
- o 125 DC battery system
- o Automatic transfer switch
- o Power monitoring system, including linkage to remote monitoring and control site
- o Switchgear remote HMI and controls
- o Penn network interface and connection
- o OCC interface

Widener Communications Building (Complexity)

Chester, Pennsylvania



Client

Widener University

Size / Completion

32,000 SF / 2014

Construction Cost

Unknown

Client Contact

Jerry Pasquariello, Director of

Physical Plant

610.499.4184

cjpasquariello@widener.edu

This new three-story, LEED-registered building will house communications, computer sciences and informatics with the intent to highlight technology via exterior and interior video walls, a visible television studio, mainframe computer rooms and computer research labs. The design concept was for the building to act as a gateway, or portal, to the main quad by allowing students to enter campus through an open air space cutting through the first floor of the building. This portal frames the view of Old Main, an iconic building on campus. As one approaches, the proposed building exterior incorporates traditional materials such as lime stone, field stone, and slate, while the center of the portal (main building entries) surrounds building users and passersby with vibrant video walls.

The project has a goal of LEED 2009 for New Construction certification per the requirements of the USGBC.

Systems commissioned by WCx include split-system air handling units, gas-fired hot water boilers and pumping, finned-tube radiators, VAV terminal units with hot water reheat coils, energy recovery, exhaust, split-system a/c units, normal and emergency power systems, load balancing, lighting controls including daylight harvesting, plumbing systems and HVAC Test and Balance.

SECTION 2: PROJECT UNDERSTANDING AND APPROACH



PROJECT UNDERSTANDING

The McCormick Center building is comprised of a 1984, three-story, 81,967 GSF original classroom, studio and lab building and a 2006, two-story, 22,790 GSF classroom and lecture hall addition. The original building will be completely gutted and renovated. The 2006 addition will remain as is except for minor mechanical work. A new entrance façade will be constructed facing the quadrangle. The windows and doors of the original building will be replaced or modified as feasible, relative to costs. A third floor addition to the original building will include the shell only, for future build out, and will be constructed as feasible, relative to costs. The departments to be housed include Media and Journalism, Instructional Media Services, Communications Studies, selected College of Education departments, Sociology, Social Work, Criminal Justice and Nursing.

The purpose of the independent technical commissioning services is to provide systematic documented confirmation that the building systems and assemblies achieve the highest level of functional integrity and reliability and are in compliance with the design intent and performance requirements of the owner and occupants. This process covers design, installation, start-up and operation of the building's systems and assemblies, and is accomplished through coordination and efforts of the owner, designers, contractors and commissioning authority.

PROACTIVE TEAM APPROACH

WCx's commissioning services employ a technical approach and static inspection process, and not just a report process. This technical approach and static inspection process do not require installing contractors to perform any of the information gathering and reporting found in many other commissioning processes. The only efforts required from the contractors are to operate their purchased/installed equipment and perform the start-ups as required per the project specifications.

SCHEDULING AND STAFFING

WCx schedules and coordinates all commissioning activities concurrently with the project schedule. WCx will meet with the Prime Contractors to work commissioning activities into the schedule as a team and also establish protocols for any subsequent changes to the schedule.

Our onsite presence will begin when MEP/FP rough-in begins, and will continue through acceptance of the project by Pennsylvania DGS. From the onset, our team will typically visit the site once a week during installation activities to verify the installations and also attend any regular project team meetings. Our team's presence will increase through construction and during equipment start-up, as we will participate in all start-ups for the major equipment. During performance verification, our team's presence will be enhanced to scheduled consecutive days until all systems are verified.

COLLABORATIVE EFFORT TO PROBLEM SOLVING

Our goal, as a team, is to provide a facility to the owner which is both functional and meets the design intent. We work to ensure all building systems function properly as designed and that a clear understanding of these systems has been portrayed and understood by all parties. This goal is accomplished through coordination and cooperation from all parties, both on and off site.

Our approach in reaching that goal differs from most commissioning firms in the industry. Most firms provide paperwork for the contractors and subcontractors to fill out based upon their respective disciplines. We do this paperwork ourselves during our site visits. Each system is commissioned



from start to finish - from installation to turnover. We ensure all equipment functions properly at the time of start up with all necessary parties present. We do not believe in starting the commissioning process after the equipment has been started up and is operating (known as 'functional testing'). As issues arise throughout the construction process, we work to inform all appropriate parties for a quick resolution. Our approach can be defined as proactive.

Our approach is carried out each day we are on site during construction. As systems are being installed, we assist in ensuring all the necessary components are in place for proper system operation. If something is found to be damaged/missing/inaccurate, it is brought to the attention of that discipline's foreman and the Prime Contractor, and avenues to a resolution are discussed. Often, the CxA will make recommendations to assist in reaching those resolutions. Each day on site results in a report generated and distributed to the project team. This daily field report encompasses the activities performed on site, as well as any issues found and discussed with the team. The report will also provide a project status update related to the ongoing construction commissioning process.

As issues arise, they are carried on a commissioning issues log. This active document will list the description of the issue, the date it was found, the discipline responsible and a space for response and status update of the issue. This document is distributed as items are updated and/or added. This helps the project team stay engaged on each item and focus on its resolution.

The CxA is involved in all startups and balancing of major equipment throughout the project. We request that all necessary parties be present during this time. Equipment startup is the best time to work out any manufacturer kinks in the system. With all disciplines present, any issues that arise during startup can be addressed on site, at that time. This is a proactive way to ensure each piece of equipment will function properly once under control. It will facilitate performance verification and mitigate post-occupancy errors and faults in equipment operation.

As controls for the facility systems are finalized, the CxA will work in cooperation with the controls contractor to test the systems according to the design sequence of operations. We want to ensure that all systems are functioning properly to satisfy the building's needs. The CxA will posture the systems as necessary to satisfy those needs.

On every site visit, our team provides a detailed report itemizing the day's activities. The commissioning team is always available by phone or e-mail should any questions arise. We believe in being an active part of the construction and post-construction processes, and insist on being engaged with the team from start to finish.

SYSTEMS TO BE COMMISSIONED

- **Building Automation System (BAS)** – the HVAC system controls will be tested and verified, including calibration of devices, point mapping, verification of sequences of operation and graphics
- **HVAC/R Equipment, Components and Systems**
- **Exhaust Equipment, Components and Systems**
- **Air and Hydronic Test and Balance Verification**
- **Electrical Systems**
 - Normal power distribution



- Lighting controls system
- Emergency power systems, including generator and automatic transfer switching
- Emergency generator load test and capacity report, including available load

- **Plumbing Systems**
 - Domestic hot water system
 - Fixtures

- **Protective Systems**
 - Fire sprinkler
 - Fire alarm

- **Communications Systems**
 - Voice/data system
 - Sound/video system

- **Electronic Safety and Security Systems**
 - Security system
 - Alarm system
 - Detection system

DESIGN PHASE

1. Develop the Owner's Project Requirements (OPR) document and criteria provided to the design team.
2. Review the Basis of Design (BOD) document for consistency with the OPR. Provide written comments.
3. Prepare a preliminary commissioning plan that outlines the extent of the commissioning process to accomplish the OPR.
4. In coordination with the project design professionals, prepare and format the required specification sections for systems to be commissioned and submit to the design professionals for inclusion in their final submission.
5. Perform design review of MEP/FP concepts for the Interim Construction Document submission (drawings, specifications).
6. Perform back-check and design review of MEP/FP concepts for the Construction Document submission (drawings, specifications).
7. Perform back-check and design review of MEP/FP concepts for the final Bid Set submission (drawings, specifications).

CONSTRUCTION AND ACCEPTANCE PHASES

1. Prepare and submit a construction phase commissioning plan to the owner and the project commissioning team, before the first construction phase commissioning meeting. Execute the commissioning process as described in the contract documents and approved commissioning plan. This includes preparation of agendas, attendance lists, arrangements



for meeting facilities and advance notice to participants for each commissioning event. The commissioning authority will act as chair at commissioning events and ensure execution of the agenda items. The commissioning authority shall prepare meeting minutes for commissioning events and send a copy to the owner, commissioning team members and attendees within five business days of the event.

2. Schedule the construction phase commissioning coordination meeting at the owner or construction field office at a time that is suitable to the contractors, the design professionals and the owner. At this meeting, the complete commissioning process and construction phase commissioning plan will be reviewed in detail. Tentative schedules will be established for building systems orientation and installation verifications, O&M submittals, owner training seminar, pipe and duct system flushing and testing requirements, start-up, test and balance (TAB) work and performance verification testing.
3. Receive and review the equipment submittals for systems to be commissioned. Provide written comments.
4. Receive and review the installation, operations and maintenance (O&M) manuals submitted by the contractors for systems to be commissioned. Ensure that they follow the specified outline and format. Request revisions to achieve accuracy. Provide written comments.
5. Check equipment installation against contract documents for adequate accessibility for maintenance and component replacement or repair. Provide and complete field installation verification reports for each component and system. Maintain a master issues log and installation record, indicating status for each item. Provide written progress reports. Provide assistance in issue resolution.
6. Witness equipment, subsystem and system installation, start-up and testing for systems to be commissioned. Develop and perform functional performance test reports for start-up of systems to be commissioned.
7. The functional performance tests will include point-to-point tests for automatic control systems. Prior to these tests, the controls contractor shall complete the installation and conduct a test and calibration of each point on the system. The commissioning authority and controls contractor shall verify the system point-to-point test. Each point shall be verified as to its operational status and recorded on the functional test report.
8. Maintain a master issues log for any deficiencies, indicating status for each item. Provide written progress reports. Provide assistance in issue resolution.
9. Prior to the field test and balance work, meet with the TAB contractor. The TAB contractor is to outline the TAB procedures and get agreement from the HVAC design professional and the commissioning authority. Ensure that the TAB contractor has the forms required for proper data collection and understands their importance and use. Ensure that the TAB contractor is certified and will be using calibrated instrumentation. Ensure that the TAB contractor is clear on the expectations for commissioning TAB observation and reporting.
10. The commissioning authority will select up to 100 percent of the balance readings for repeatability by the TAB contractor. If more than three of the first ten readings on any system do not repeat, the TAB contractor shall rebalance the system before re-verification of the TAB work. The TAB contractor shall mark all damper settings, record all pressure settings



and mark all target grilles used in proportional balancing to assure repeatability of the readings. The TAB contractor shall be prepared to provide current calibration certificates for all instrumentation used in the TAB work.

11. Develop and conduct the performance verification tests for systems to be commissioned. The test data, along with the installation verification, start-up and functional test sheets, will be included in the commissioning report. The performance verification tests are designed to demonstrate that each system performs to the design intent and owner's requirements. Each test includes data trends or data logs that record operating conditions during set point and other changes to the system. Tests are documented on the performance verification reports.
12. Receive and review record drawings for accuracy with respect to the installed and commissioned systems. Request revisions to achieve accuracy. Provide written comments.

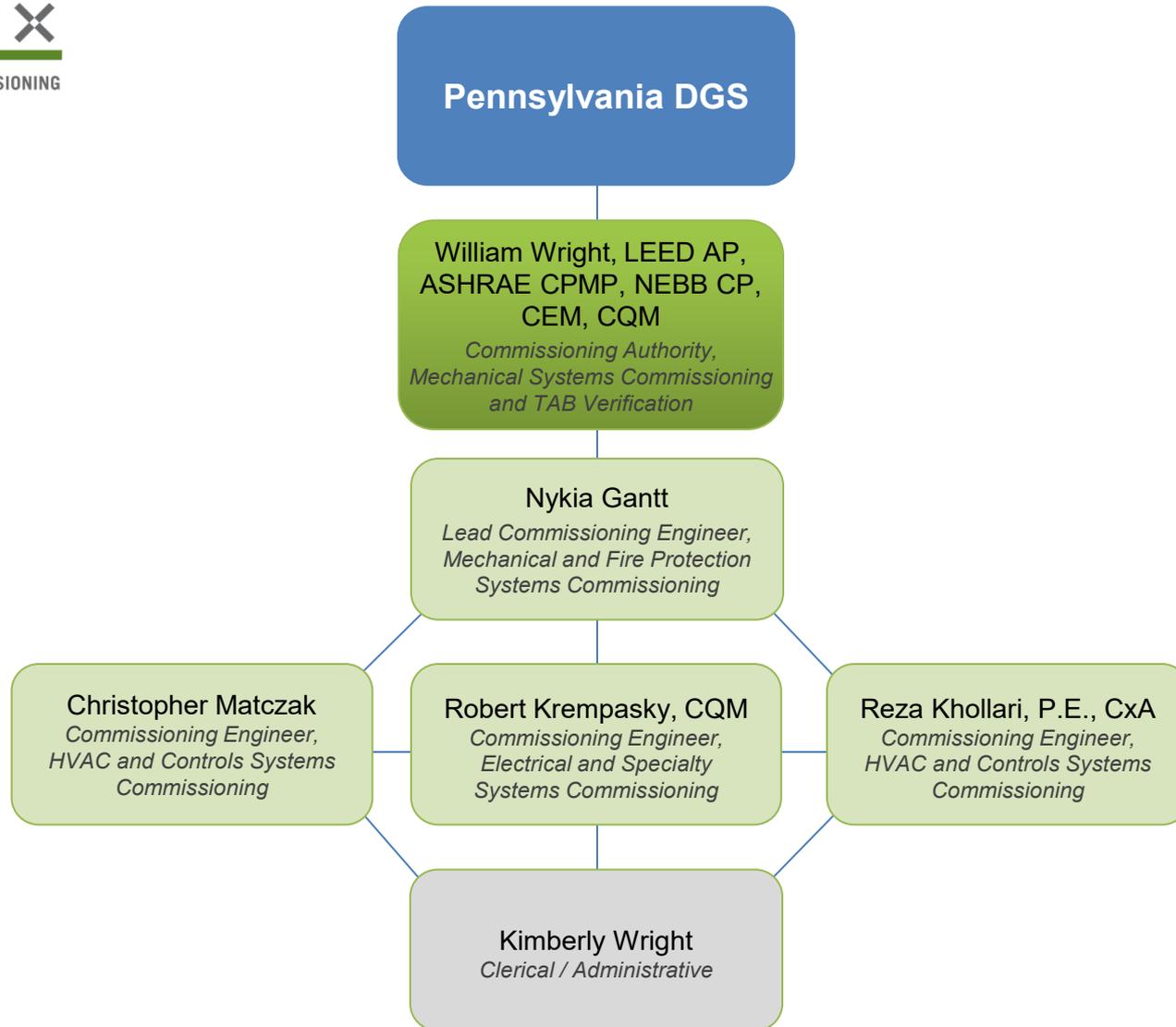
OCCUPANCY AND OPERATIONS PHASES

1. Ensure that O&M manuals and other as-built records for commissioned systems have been updated to include modifications made during the construction phase. Request revisions to achieve accuracy. Provide a report detailing any discrepancies found.
2. Training coordination for commissioned systems and documented verification of operator training. The training sessions are to be attended by the facilities staff and end users, the commissioning authority and the contractors and equipment vendors as required by the contract documents. The format will follow the outline in the specifications and commissioning plan, with partial classroom and partial hands-on training in the field.
3. Assist in the development of the Systems Manual for commissioned systems. This manual provides for a standardized arrangement of O&M documents verified for application to the actual equipment installed. The documentation is integrated into one package to facilitate building operation and maintenance. The commissioning authority shall issue a complete electronic, bookmarked PDF book of the Systems Manual for use by the facilities staff.
4. Prepare a commissioning report for commissioned systems. Installation, start-up, functional test and performance verification reports shall be included in the report, along with an up-to-date commissioning issues log. The report will also contain an executive summary.

POST OCCUPANCY/WARRANTY PHASE

1. Repeat performance verification tests to accommodate opposite-season testing and supervise any corrections of performance deficiencies. Publish an addendum to the commissioning report.
2. Perform ongoing post-occupancy visits as required to address space use needs, system issues, and to verify performance of commissioned systems. These scheduled visits will be coordinated with facilities personnel in order to review any issues, function of the systems, and to continue to optimize the systems based on end-usage and seasonal affects.
3. Publish a 10-month-post-occupancy warranty report detailing current status of the commissioned systems, including any performance issues.

SECTION 3: PROJECT TEAM





WILLIAM WRIGHT, LEED AP, ASHRAE CPMP, NEBB CP, CEM, CQM

Commissioning Authority, Mechanical Systems Commissioning and TAB Verification

William has more than 20 years of direct industry experience in building systems commissioning and retro-commissioning, LEED commissioning and administration, HVAC test and balance and energy management. His experience includes testing and certifying Class 1 cleanrooms for one of the world's largest semiconductor manufacturers, as well as operating a commissioning and HVAC test and balance franchise in Hawaii. Previously, Will held a management position at a prominent engineering firm in Dallas, Texas that performed building commissioning, IAQ testing and HVAC test and balance for major construction projects.

Project Experience

Comcast Center, Philadelphia, PA - Provision of retro-commissioning and facility oversight services to the building engineer and operations and maintenance staff at this 1.25 million SF, 58-story tower, the tallest in Philadelphia. (Ongoing)

Monaco, Jersey City, NJ – Retro-commissioning of a newer building that has two 55-story, approximately 860,800 square foot residential towers with a total of 611 rental apartments. (Ongoing)

Rutgers University Business School, Piscataway, NJ - \$85 Million, 155,000 SF Business School building. WCx was hired to provide its retro-commissioning platform of investigating and optimizing HVAC systems throughout the building to improve comfort and operation, indoor air quality and energy efficiency, as well as providing discovery and recommendations, which will include any remedial repairs and schematic basis of design and scope of work for any capital improvements. (Ongoing)

Marbella South, Jersey City, NJ - Commissioning for a new, 39-story, 360,800 SF residential tower. Commissioning services will address building controls, HVAC systems and equipment, HVAC test and balance verification, lighting controls and the domestic hot water system. (Ongoing)

The Wistar Institute, Philadelphia, PA - Commissioning services for the HVAC and building automation systems, electrical and emergency power systems, lighting controls, UPS systems, life safety systems, plumbing systems and security system. (2014)

West Pharmaceutical Services, Exton, PA - Commissioning of new 170,000 SF global corporate headquarters containing administrative and R&D space. The project is LEED registered. (2012)

1919 Market Street (project currently in construction phase)

The project involves construction of a new, mixed-use luxury multifamily tower of approximately 473,000 gross square feet. The building will have 30 floors, an attached six level parking garage and 321 residential units.

Journal Square Plaza 3 (project currently in construction phase)

The project involves constructing a new 13-story building, approximately 221,000 square foot multi-family residential tower. A total of 240 rental units are planned.

Education and Certification

Pacific University, Bachelor of Arts

ASHRAE Commissioning Process Management Professional; Associated Air Balance Council (AABC) Certified Test and Balance Technician; National Environmental Balancing Bureau (NEBB) Certified Building Systems Commissioning Professional; National Balancing Council (NBC) Certified Test and Balance Professional

Memberships

ASHRAE; Association of Energy Engineers; Building Commissioning Association; Delaware Valley Green Building Council; Green Building Association of Central Pennsylvania; NEBB Mid-Atlantic Chapter; Pennsylvania Energy Services Coalition; U.S. Green Building Council



NYKIA GANTT

Lead Commissioning Engineer, Mechanical and Fire Protection Systems Commissioning

Nykia has 18 years of mechanical systems design experience, commissioning and retro-commissioning, construction methodology and trades, facilities operations and forensic investigations of critical building systems gained through hands-on experience as well as project oversight and delivery. Prior to joining the WCx team, Nykia held a position as a mechanical design engineer at CRB Consulting Engineers, where he gained extensive experience designing HVAC and plumbing systems. Nykia graduated from Drexel University with a B.S. in Mechanical Engineering.

Project Experience

Rowan Hall HVAC Retro-Commissioning, Glassboro, NJ – to optimize systems' performance of this complex building after several years' use, Rowan engaged WCx to provide technical retro-commissioning, testing and balancing, and energy consulting services. We reviewed the existing operations and maintenance documentation; interviewed users of the building; physically tested the systems under a variety of extreme conditions; and then issued a report with recommended solutions to optimize the efficiency of the building. (2016)

Princeton University Peyton Hall Renovation, Princeton, NJ – Peyton Hall houses Princeton's Department of Astrophysical Sciences, including laboratories, faculty offices, lecture and seminar rooms, a library and two telescopes on the roof. The University recently expanded the modern two-story building within the original footprint, and engaged WCx to commission improvements to life safety, and mechanical / electrical / plumbing systems. (2015)

Swarthmore College NPPR Residence Hall, Swarthmore, PA – WCx is providing commissioning services for the college's 120-bed suite-style residence hall consisting of three connected "cubes" of three, four and five stories. Commissioning services include the BAS, HVAC, normal and emergency power, lighting, plumbing, fire protection, renewable energy and conveying systems. (Current)

Rutgers University Business School, Piscataway, NJ – Retro-commissioning platform of investigating and optimizing HVAC systems throughout the building to improve comfort and operation, indoor air quality and energy efficiency. B+W is providing discovery and recommendations, which will include any remedial repairs and schematic basis of design and scope of work for any capital improvements. (Current)

M1 Retro-Commissioning, Jersey City, NJ – Retro-commissioning of the 55-story East and West towers of the M1 residence buildings. Services include evaluation, testing, adjusting and correcting system operations to meet the owner's current facility requirements. Recommendations will be geared toward optimizing operating efficiency, indoor comfort and environmental quality as well as recommendations for minimizing future cost events. (Current)

Education and Certification

Drexel University, Bachelor of Science in Mechanical Engineering



CHRISTOPHER MATCZAK

Commissioning Engineer, HVAC and Controls Systems Commissioning

Chris has 10 years of professional and commissioning experience. He is experienced as a project manager and engineer, and has provided construction and start-up support on commissioning projects. Prior to joining the WCx team, Chris held a position as a controls specialist and programmer at Honeywell International, where he installed and programmed projects, reviewed drawings and specifications and coordinated with clients to design building automation systems to meet their specifications. Chris graduated from the Pennsylvania College of Technology with a B.S. in Building Automation Technology.

Project Experience

Independence Blue Cross Tower, Philadelphia, PA – Retro-Commissioning services for variable air volume, packaged air handling units and BAS. (2015-2016)

1919 Market Street, Philadelphia, PA - The project involves construction of a new, mixed-use luxury multifamily tower of approximately 473,000 gross square feet. The building will have 30 floors, an attached six level parking garage and 321 residential units. *LEED Registered* (2015-2016)

TD Bank Atrium Building, Cherry Hill, NJ – Retro-Commissioning services on two 120-ton split system rooftop air handling units, fan powered VAV terminal units, split system A/C units and BAS controls. (2016)

SugarHouse Casino Phase 1A Expansion, Philadelphia, PA – Commissioning services for a 160,000 SF casino and ballroom expansion, plus 560,000 SF parking garage facility. Systems commissioned include the automatic temperature control system, HVAC equipment, exhaust equipment, plumbing equipment, electrical systems as well as air test and balance verification. (2015-2016)

NTM Engineering, Philadelphia, PA – Commissioning services for a 15,000 SF office fit-out. Commissioning of HVAC, BAS, exhaust equipment, air and hydronic TAB verification, and electrical systems and plumbing systems, during the design, construction and post-occupancy phases. *LEED Registered with LEED Platinum Goal* (2015-2016)

PHA Collegeview, Philadelphia, PA – Commissioning services for mechanical and electrical upgrades project. Systems commissioned include new BAS, new HVAC equipment and new plumbing equipment during the construction and post-occupancy phases. (2015-2016)

400 Arlington Boulevard, Logan Township, NJ – Commissioning of HVAC, exhaust equipment, air TAB verification, electrical systems and plumbing systems in a new 210,600 SF warehouse. Services provided throughout design, construction and post-occupancy phases. *LEED Registered* (2015-2016)

Education

Pennsylvania College of Technology, Bachelor of Science in Building Automation Technology



ROBERT KREMPASKY, CQM

Commissioning Engineer, Electrical and Specialty Systems Commissioning

Robert brings more than 35 years of experience with commissioning, retro-commissioning and systems troubleshooting in electrical power plants, labs and other facilities to WCx. He is responsible for the implementation and execution of commissioning and building optimization, and construction QA/QC projects for commercial, educational and medical facilities, laboratories, data centers and mission critical spaces.

Prior to joining the WCx team, Robert held a position at PSEG as Plant Operations Manager at Keys Energy Center in Brandywine, Maryland, where he oversaw the start-up and commissioning of a 780 MW power plant. Robert also has extensive experience with HVAC and HVAC controls systems during his career, from his time at Abbott Laboratories and Siemens. Additionally, Robert is a certified Construction Quality Manager.

Project Experience

The Wistar Institute, Philadelphia, PA – Commissioning of a 90,000 SF new research tower and relocation of vivarium space. Critical elements include electrical, mechanical and plumbing systems replacement and / or upgrade (2014)

College of Charleston, Charleston, SC - Commissioning of a new laboratory up-fit project within the existing science center building as well as developing an SOP for future testing of the fume hoods. (2013)

Hospital of the University of Pennsylvania, Philadelphia, PA - Retro-commissioning services to optimize the chilled water systems and develop and implement actions to improve control and performance (2013)

Comcast Center, Philadelphia, PA - Provision of facility oversight services to the building engineer and operations and maintenance staff at this 1.25 million SF, 58-story tower, the tallest in Philadelphia. (2013)

Shore Memorial Hospital, Somers Point, NJ - New 380,000 SF, four-story addition that doubled inpatient capacity. Commissioning addressed a 14-OR surgical suite, a 12-bay imaging suite, a sterile processing department and a new central utility plant. (2012)

University of Pennsylvania School of Medicine, Philadelphia, PA - Test and balance services for the Smilow Translational Research Center, a 531,000 SF science and research building. Commissioning services were provided for various tenant fit-outs. (2011)

Temple University MERB, Philadelphia, PA - Commissioning of lab fit-outs at the 11-story Medical Education and Research Building, a LEED Silver project. (2010)

University of Rochester Medical Center, Rochester, NY - Commissioning of gross anatomy medical lab and morgue, which feature laminar flow autopsy tables, stainless steel ductwork and monitored negative pressure rooms. (2010)

Verizon Data Center, Carteret, NJ - Commissioning, testing and balancing of all mechanical and electrical systems at this 200,000 SF, highly secure site that handles the New York Stock Exchange. (2010)



REZA KHOLLARI, P.E., CxA

Commissioning Engineer, HVAC and Controls Systems Commissioning

Reza has extensive experience in writing commissioning test documentation, requirements and pass/fail criteria for new and existing facilities. He is very knowledgeable in testing requirements for certification. His familiarity with laboratory design standards such as National Institute of Health (NIH) Design Requirement Manual (DRM), Biosafety in Microbiological and Biomedical Laboratories (BMBL), and relative ASHRAE, ASME, ASTM and CSA standards have made him a key player in numerous laboratory and containment design projects and commissioning/certification of these types of facilities throughout his previous roles and experiences.

He possesses detailed and technical knowledge of HVAC (Heating, Ventilation, and Air-Conditioning), Plumbing, Fire Protection, Sterilization and Decontamination engineering, and extensive experience in design and engineering that renders him well-suited for this position. Most recently, he was employed by Stantec as a "Senior Mechanical Engineer", where he was responsible for the engineering, design and peer review for hospitals, healthcare facilities and higher educational facilities. Prior to that he has been involved in engineering, design and peer review of power houses, chiller plants and mechanical systems for pharmaceutical, biocontainment, semi-conductor and government facilities.

Project Experience

University of Pennsylvania College House at Hill Square, Philadelphia, PA. Mixed use dormitory and commercial development to serve as the Chestnut Street gateway to the Penn Campus. This 180,000 square foot project will house 350 students and will incorporate principles of sustainable design and construction, and will be LEED certified.

University of Pennsylvania Quadrangle HVAC Study, Philadelphia, PA. Comprehensive retro-commissioning investigation, survey and analysis of HVAC systems and their ability to control moisture in historic dormitories.

University of Pennsylvania Archives and Record Center, Philadelphia, PA. Relocation of the archives and record center to 3401 Market Street. This 13,000 square foot, state-of-the-art facility includes strict temperature and humidity control standards, redundant power, enhanced air filtration and ultra-violet light controls.

University of Pennsylvania Mayer Residence Hall, Philadelphia, PA. Design and commissioning services for heating, ventilation and air-conditioning systems replacement, and energy performance upgrades.

Swarthmore College Scott Arboretum, Swarthmore, PA. Commissioning of new greenhouse, offices, volunteer and activity building for the Arboretum. Systems include an innovative HVAC system with heat pumps connected to the waste campus chilled water. The project has achieved LEED NC Gold certification.

Cornell University Noyes Community and Recreation Center, Ithaca, NY. Construction of a 31,000 square foot community building with fitness, gymnasium, café and multipurpose areas. Project incorporated principles of sustainable design and construction.

Cornell University West Campus Residential Initiative, Ithaca, NY. New residence halls House 4 and House 5 each hold student rooms, faculty apartments, common spaces, a dining and kitchen/servery area, and support space. The \$72 million project added 450 beds.

Haverford College, Haverford, PA. New integrated athletic center with gymnasiums, fitness center, squash, fencing, multipurpose, locker rooms and other support spaces including detailed energy, emissions and LEED analyses.

Education and Certification

Ryerson University, Bachelor of Science in Mechanical Engineering
Licensed Professional Engineer (P.E.), U.S. and Canada

Memberships

ASHRAE Member since 2010
ASME Member since 2010

SECTION 4: CERTIFICATIONS AND CREDENTIALS

NOTICE OF SMALL DIVERSE BUSINESS VERIFICATION



The Department is pleased to announce that
WRIGHT COMMISSIONING LLC

has successfully completed the Pennsylvania Department of General Services' process for self-certification as a small business under the Commonwealth's Small Business Contracting Program, and is verified as a Small Diverse Business with the following designation(s):

BUSINESS TYPE(s):

Building Design Services

CERTIFICATION NUMBER: **410911202111-SDB-MW**

CERTIFICATION TYPE: **SMALL DIVERSE BUSINESS**

ISSUE DATE: **11/23/2021**

EXPIRATION DATE: **11/17/2023**

RECERTIFIED DATE:

A handwritten signature in black ink that reads "Kerry L. Kirkland". The signature is written in a cursive style with a large, looped "K" and "L".

Kerry L. Kirkland, Deputy Secretary
Bureau of Diversity, Inclusion & Small Business Opportunities

NOTICE OF SMALL BUSINESS SELF-CERTIFICATION



The Department is pleased to announce that
WRIGHT COMMISSIONING LLC

has successfully completed the Pennsylvania Department of General Services' process for self-certification as a small business under the Commonwealth's Small Business Contracting Program, with the following designation:

BUSINESS TYPE(s):

Building Design Services

CERTIFICATION NUMBER: **410911202111-SB**

CERTIFICATION TYPE: **SMALL BUSINESS**

ISSUE DATE: **11/17/2021**

EXPIRATION DATE: **11/17/2023**

RECERTIFIED DATE:

A handwritten signature in black ink that reads "Kerry L. Kirkland". The signature is written in a cursive style with a large, looped "K" and "L".

Kerry L. Kirkland, Deputy Secretary
Bureau of Diversity, Inclusion & Small Business Opportunities



Certification

THIS IS TO CERTIFY THAT

Wright Commissioning, LLC

HAS MET ALL REQUIREMENTS FOR NEBB CERTIFICATION
IN THE FOLLOWING DISCIPLINE

Whole Building Systems Technical Commissioning

March 31, 2022

Expiration Date

3452

NEBB Certification Number

FOR THE NEBB BOARD OF DIRECTORS

NEBB President

NEBB President-Elect



NEBB Certification Board

NEBB Certified Professional

William A. Wright

HAS MET ALL THE NEBB REQUIREMENTS FOR
NEBB CERTIFIED PROFESSIONAL STATUS IN

Whole Building Systems Technical Commissioning - HVAC Systems



This Certificate, as well as individual affiliation with a NEBB Certified Firm and associated NEBB Certification stamp are REQUIRED to provide a NEBB Certified Report. Participation in the NEBB Quality Assurance Program requires that the holder of this certification also be affiliated with a NEBB Certified Firm.

March 31, 2022

Expiration Date

23651

NEBB Certificant Number

Stanley Fleischer
NEBB Certification Board Chairman

Cynthia Heath
NEBB Certification Director



NEBB Certification Board

NEBB Certified Professional

William A. Wright

**HAS MET ALL THE NEBB REQUIREMENTS FOR
NEBB CERTIFIED PROFESSIONAL STATUS IN**

Whole Building Systems Technical Commissioning - Plumbing Systems



This Certificate, as well as individual affiliation with a NEBB Certified Firm and associated NEBB Certification stamp are REQUIRED to provide a NEBB Certified Report. Participation in the NEBB Quality Assurance Program requires that the holder of this certification also be affiliated with a NEBB Certified Firm.

March 31, 2022

Expiration Date

23651

NEBB Certificant Number

NEBB Certification Board Chairman

NEBB Certification Director



NEBB Certification Board

NEBB Certified Professional

William A. Wright

HAS MET ALL THE NEBB REQUIREMENTS FOR
NEBB CERTIFIED PROFESSIONAL STATUS IN

Whole Building Systems Technical Commissioning - Fire Protection Systems



This Certificate, as well as individual affiliation with a NEBB Certified Firm and associated NEBB Certification stamp are REQUIRED to provide a NEBB Certified Report. Participation in the NEBB Quality Assurance Program requires that the holder of this certification also be affiliated with a NEBB Certified Firm.

March 31, 2022

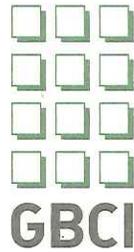
Expiration Date

23651

NEBB Certificant Number

NEBB Certification Board Chairman

NEBB Certification Director



GREEN BUILDING CERTIFICATION INSTITUTE

HEREBY CERTIFIES THAT

William Anson Wright

HAS ACHIEVED THE DESIGNATION OF

LEED® ACCREDITED PROFESSIONAL

BY DEMONSTRATING THE KNOWLEDGE OF GREEN BUILDING PRACTICE
REQUIRED FOR SUCCESSFUL IMPLEMENTATION OF THE LEADERSHIP IN ENERGY
AND ENVIRONMENTAL DESIGN (LEED®) GREEN BUILDING RATING SYSTEM™.



Chairman

October 31, 2008

Date Issued

S. Richard Fedrizzi, President and CEO



American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

*To all whom these presents shall come
Greetings:
Be it known that*

WILLIAM A. WRIGHT

*having successfully completed all requirements and criteria has been
certified as a*

Commissioning Process Management Professional

*and has accordingly been awarded all the rights, honors, and privileges
thereunto appertaining.*

Gordon Holness
ASHRAE President 2009-2010

Jeff Littleton
Executive Vice President

August 4, 2009

Date



The Association of Energy Engineers
certifies that

William A. Wright

*has completed the prescribed standards for certification,
has demonstrated a high level of competence and ethical fitness
for energy management, and is hereby granted the title of*

CERTIFIED ENERGY MANAGER[®]

Valid

February 4, 2019 to December 31, 2022

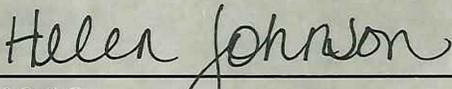
CEM

21947





CEM Board Chairman



CEM Director



**ANSI Accredited Program
PERSONNEL CERTIFICATION
#1088**

U.S. ARMY CORPS OF ENGINEERS

USACE LEARNING CENTER
HUNTSVILLE, ALABAMA



CERTIFICATE

William Wright

NAB-08-20-09051

has completed the Corps of Engineers and Naval Facility Engineering Command Training Course

CONSTRUCTION QUALITY MANAGEMENT FOR CONTRACTORS - #784

Beltsville

02/06/2020

NAB /WA 1CEU:0.8 LU:8POH:8

Salvatore Vitale

Location

Training Date(s)

Instructional District/ NAVFAC

CQM-C Manager

Jason Hummel / Paula Furman

Salvatore.Vitale@usace.army.mil

410-962-2967

VITALE.SALVATORE.1094560566

Digitally signed by VITALE.SALVATORE.1094560566
Date: 2019.08.12 07:22:57 -04'00'

Facilitator/Instructor

Email

Telephone

Facilitator/Instructor Signature

Jeffrey P. Dziedzic
Chief, USACE Learning Center

THIS CERTIFICATE EXPIRES FIVE YEARS FROM DATE OF ISSUE



hereby certifies that

Reza Khollari

Wright Commissioning, LLC

has met all prerequisites demonstrating independence and the technical, management, and communications skills required to implement the commissioning process in new and existing buildings, and passed the necessary examination to be awarded this certificate in recognition of their qualifications as an ACG

Certified Commissioning Authority

Registration number: 1020-1864 . This certificate, valid only for the year 2020, is renewable on an annual basis upon meeting all requirements noted in the CxA Candidate Handbook.



Justin F. Garner, P.E., CxA
Certification Council Chair



RECOGNIZED PROGRAM

MEETS U.S. DEPARTMENT
OF ENERGY GUIDELINES



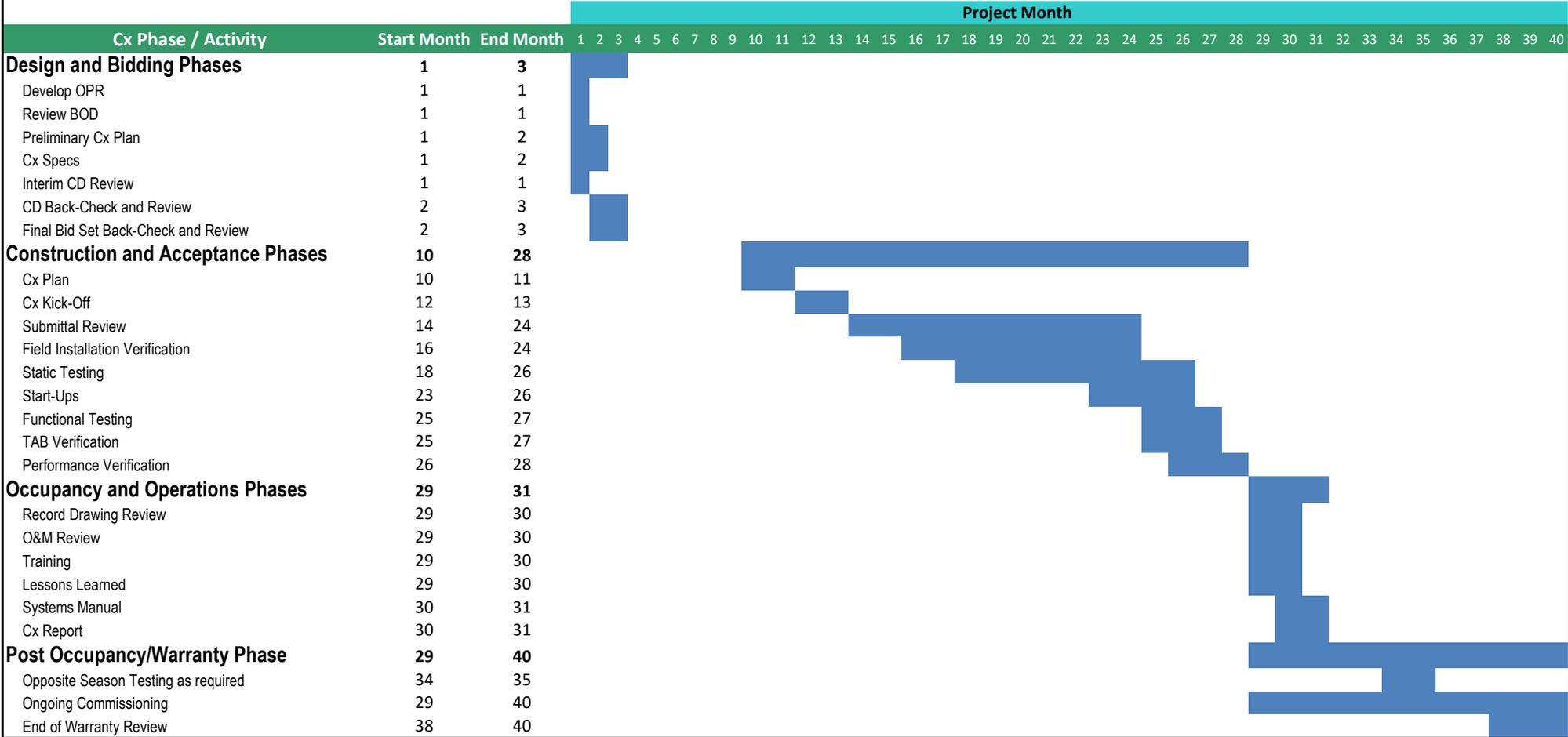
ISO/IEC 17024
Personnel Certification
Program #1215

Ray Bert
ACG Executive Director

SECTION 5: WORK PLAN/SCHEDULE

McCormick Center Renovations Preliminary Commissioning Schedule

Project Start Date: April, 2022



COMMISSIONING HOURS MATRIX -- McCormick Center Renovations

Phase / Activity	Staff	Hours
DESIGN AND BIDDING PHASES		
Develop OPR	Commissioning Authority	12
Review BOD	Lead Commissioning Engineer	17
Preliminary Cx Plan	Commissioning Engineer	17
Cx Specs	Clerical/Administrative	11
Programming Review		
SD Review		
DD Back-Check and Review		
CD Back-Check and Review		
Design and Bidding Phases Hours:		57
CONSTRUCTION AND ACCEPTANCE PHASES		
Develop construction phase Cx plan	Commissioning Authority	24
Cx kick-off meeting	Lead Commissioning Engineer	130
Equipment submittal review	Commissioning Engineer	130
Field installation verification	Clerical/Administrative	52
Ductwork and piping static testing		
Equipment start-up		
Maintain issues log		
Functional performance testing		
Air and hydronic TAB verification		
Construction and Acceptance Phases Hours:		336
OCCUPANCY AND OPERATIONS PHASES		
Record drawing and O&M manual review	Commissioning Authority	4
Owner training seminar	Lead Commissioning Engineer	12
Develop systems manual	Commissioning Engineer	10
Prepare Cx report	Clerical/Administrative	10
Occupancy and Operations Phases Hours:		36
POST OCCUPANCY/WARRANTY PHASE		
Opposite-season testing	Commissioning Authority	4
Ongoing commissioning	Lead Commissioning Engineer	12
10-month warranty review visit	Commissioning Engineer	10
	Clerical/Administrative	10
Post Occupancy/Warranty Phase Hours:		36
TOTAL HOURS:		
		465

SECTION 6: GEOGRAPHIC PROXIMITY



GEOGRAPHIC PROXIMITY

Wright Commissioning's office in Philadelphia, PA, is approximately 120 miles from the project site. The drive is approximately 2 hours, depending on route and traffic. As WCx is close in proximity, travel time will not be billed.

150 Monument Road
Suite 101
Bala Cynwyd, PA 19004

T. 215.279.5950
F. 215.558.5767

www.wrightcx.com