TECHNICAL SUBMISSION

RENOVATIONS TO THE KEYSTONE BUILDING

Project No. DGS C-0948-0107 PHASE 1

pennsylvania
DEPARTMENT OF GENERAL SERVICES

RESPONSE TO REQUEST FOR QUOTE

Submitted by:

aramark
ENGINEERING
SOLUTIONS

2400 Market Street
Philadelphia, PA 19103

INTRODUCTION LETTER

July 18, 2025

Re: Commissioning Agent Services for DGS C-0948-0107 Ph. 1, Keystone Building Renovations

To Kati Woodling:

We are pleased to respond and provide a proposal and cost estimate for Commissioning Agent Services during the design review and construction phase stages of the Department of General Services Project No. DGS C-0948-0107 Ph. 1, Keystone Building Renovations.

Aramark is familiar with the DGS requirements for design and construction and has worked on many projects for DGS. Currently, Aramark is providing commissioning services for the PA State Museum that is at 400 North Street with essentially this same team, and also for the following other DGS projects: District 9 Blair County Offices, North Central Secure Treatment Unit, the PA State Police Academy, Penn West CalU Science Building, and the Plymouth Meeting – Horsham RC to name a few.

Frank Snyder, Jr., P.E. is proposed as the project manager for this project. Frank is a mechanical engineer with more than 37 years' experience and has the technical knowledge on MEP, AV, and IT systems to perform commissioning on this type of project. In addition, his close proximity (32 miles) allows flexibility for on-site presence. Frank will be supported by Manas Vaidya and Tim Russ – both who have home offices less than 1 mile from the Keystone Building; and Allison Bailey, P.E. Chris Skalski, P.E., BCxP will provide client relationship support and issue resolution as needed. All members of this team have prior experience working on PADGS projects.

We understand from review of provided documents that there are several important items with regard to this project, and we have provided further details within our project understanding. This project involves complex IT and AV infrastructure that will require specialized commissioning oversight. Sound isolation and acoustic performance are critical to the functionality of the studio and editing spaces. The Cx Agent will be expected to place particular emphasis on the performance testing of sound-related components and systems. Experience with media production environments, IT-heavy facilities, and acoustic commissioning will be key to the successful execution of the project.

We look forward to continuing and strengthening our relationship with the Department of General Services. Should you have any questions regarding this proposal, please contact Chris Skalski, Senior Manager, directly at 484-368-4180 or via email at skalski-christopher@aramark.com.

Sincerely,

Brian Lee, P.E.
Vice President, Engineering Solutions
Authorized Signatory of Aramark Management Services Limited Partnership

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A. CONTRACTOR PRIOR EXPERIENCE

For more than 40 years, Aramark Engineering Solutions has demonstrated proven expertise in developing and implementing energy management programs that promote sustainability and conserve energy. We bring a customized approach based on the individual drivers of each organization. As one of the largest third-party commissioning agents in the United States, our unique operational expertise distinguishes our service from our competitors.

Our commissioning philosophy is guided by the following three tenets:

1. Provide a facility that operates to support the program.
2. Verify systems achieve peak efficiency.
3. Confirm building infrastructure is readily maintainable by the operators.

Our services will further facilitate a seamless transition to the operations group and provide a technical resource to support building operations.

Experience At A Glance

Total Projects Commissioned: **1,200+**

Total GSF Commissioned: **90+ Million**

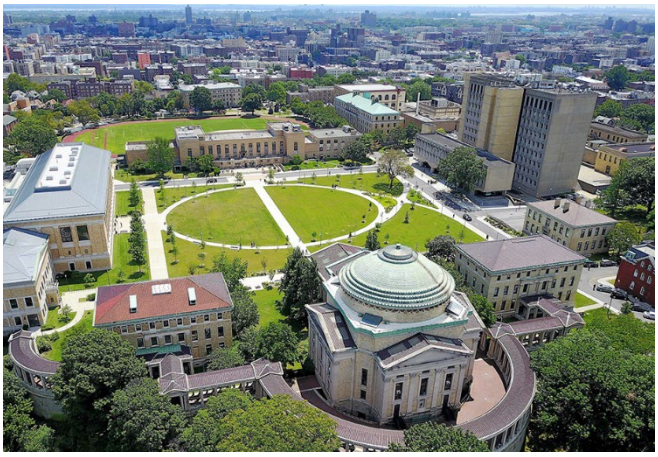
Constructed Value of Commissioned Projects: **$11.5 Billion**

FACILITIES COMMISSIONED

- Large classroom, academic, and computer facilities
- Recreation centers (athletic & aquatics)
- Campus & performing arts centers
- Museums, libraries & cultural institutions
- Science, research, vivarium, BSL3 and laboratory
- Residential halls
- K-12 Schools and Campuses
- Heating, cooling plants and major electric infrastructure
- Retro-commissioning of existing buildings and systems

Select Aramark Commissioning Clients

- Air Products, Inc. HQ
- City University of New York
- Centenary College
- Drew University
- Edinboro University
- Franklin & Marshall College
- George Washington University
- Institute for Advanced Study
- NYS Office of Mental Health
- Ohio State University
- Penn State University
- Princeton University
- Rutgers, State University of New Jersey
- State of Pennsylvania (PADGS)
- University of Pittsburgh
- University of Kentucky
- University of Pennsylvania
- Washington College
- West Chester University
- West Virginia University



MARYLAND STADIUM AUTHORITY
M&T BANK STADIUM RENOVATIONS

LOCATION:
Baltimore, MD

CONTACT:
Kelly Smulovitz
Project Manager
ksmulovitz@mdstad.com
(410) 812-3947

GROSS SQUARE FEET:
300,000

PROJECT COST:
$430 Million

CX SERVICES:
Submittal Reviews, Installation Inspections, Witness Contactor Testing, Equipment Start-up Witnessing, Pre-functional Testing, TAB Review, Performance Verification, Training Support and Verification, Systems Manual, Post Occupancy Review.

ARAMARK FEE:
$681,819

SCHEDULE:
January 2024 -December 2026

Aramark was selected to commission the M&T Bank Stadium Renovation Projects in four phases. For the 2024 phase, projects included:

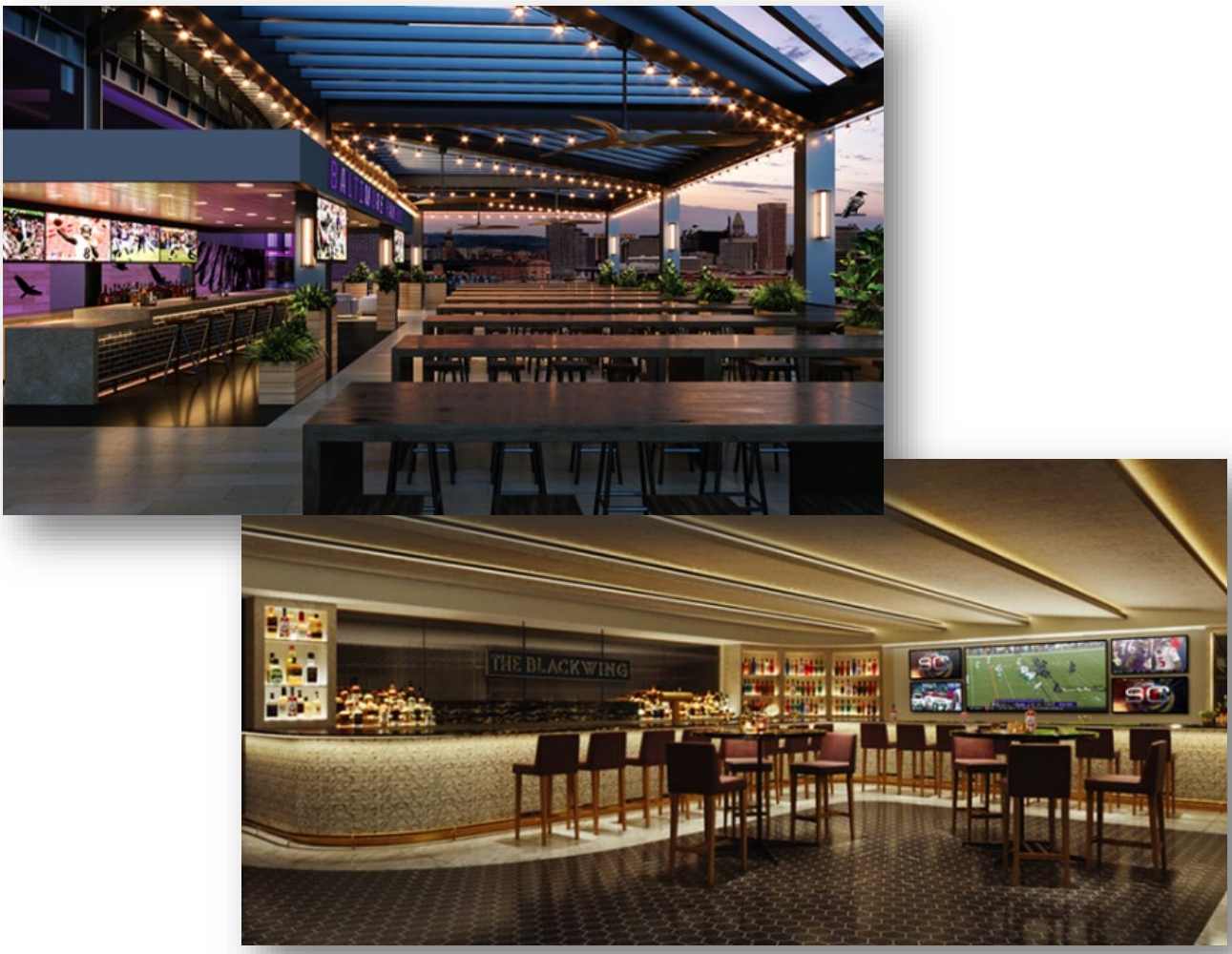
- Club Level Renovation – Replace all existing mechanical equipment on club level, renovate restrooms, and replace all finishes / lighting throughout.
- Suite Level Hallways and Entrances - Replace all existing mechanical equipment on suite level hallways and replace all finishes / lighting throughout.
- Chairman Suites – Completely renovate the current press level and turn it into suites, a large kitchen, and a lounge space. All associated MEP and finishes are included. The new space is approximately 30,000 SF.
- Press Relocation – Relocate the press from the current press level to lower suite level. All associated MEP and finishes included. The new space is approximately 9,000 SF.
- Miller Lite Building – Replace the tent in the SE corner with a two-story beer hall. First floor will be enclosed with glass and the second floor will be an outside rooftop bar. Building is approximately 13,000 SF.

SYSTEMS COMMISSIONED:

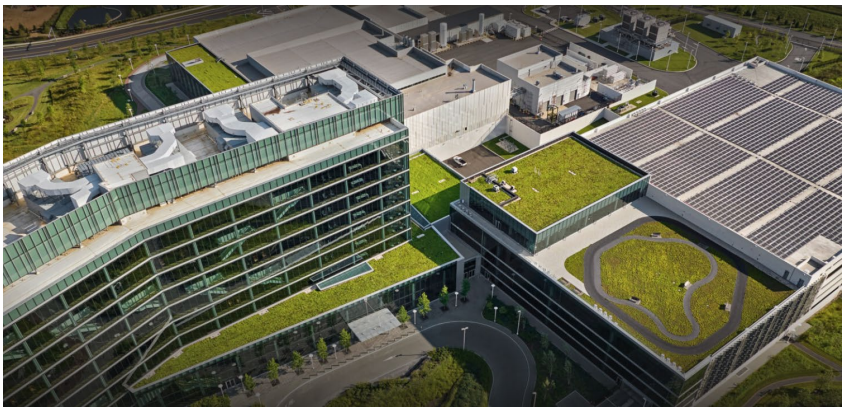
The new MEP systems included AHUs, DOAS units, energy recovery modules, make-up air units, air-cooled condensing units, VRF systems, heat pumps, ductless split AC units, terminal heaters, pumps, exhaust fans, VFDs, DDC Control Systems, lighting controls, emergency generator, automatic transfer switch, chiller plant, heating water plant, domestic hot and cold water system, Audio visual systems, and lightning protection.

COMMISSIONING RESULTS:

- **Equipment Accessibility –** Several locations identified with inadequate maintenance accessibility for Air terminal unit, fan coil units or air handling unit components. This resulted in a project team review and comprehensive walk-through and action plan to address the specific units that needed to be relocated and were addressed.
- **Fire Alarm Control Issues –** Fire alarm control programming issues that didn't shut down air handling units as required were identified. These issues were reviewed, addressed by fire alarm and automatic temperature controls contractor and retested.
- **Air Handling System Diversity & Terminal Unit Airflow Issues -** During functional testing and opposite season testing greater than 15-20% of terminal units experienced low airflows when controlling to air flow and space temperature set points. This resulted in space temperature alarms and complaints. The existing air handling unit systems are being reviewing and sizing for system diversity factor to address.
- **Space Temp Control Issues** were identified during functional testing and opposite season testing requiring various action items to address
- **ATC Control Loop Tuning Issues** – Several units experienced automatic temperature control loop tuning issues that required correction and retesting.



AIR PRODUCTS AND CHEMICALS, INC.
GLOBAL HEADQUARTERS BUILDING



LOCATION:
Allentown, PA

GROSS SQUARE FEET:
460,000

CONSTRUCTION COST:
$350 Million

CX SERVICES:
Submittals Review
Installation Inspections
Performance Verification
Operations Training & Coordination

CONTACT:
Mike Clark
Facility Manager
Global Headquarters
Air Products and Chemicals, Inc.
610 481-2398

ARAMARK FEE:
$406,904

SCHEDULE:
2020-2023

Air Products is a world leader in supplying gases and chemicals for industrial uses and in the supply of liquefied natural gas process technology and equipment. The global headquarters is a place to drive innovation of products that improve the environment and make their customer's processes better. Their goal was to create a first-class office environment for their employees to enjoy coming to work and are proud of what they do.

The project consists of a campus comprised of three major components: a 10-story administration building office tower (9 stories above grade and a basement level), a 130,000 square foot Research & Development Building, and a parking garage for 1800 cars. A Well-Being Center with Fitness Center and outdoor track is located on a portion of the upper level of the parking garage. Commissioning was incorporated into the project early in the construction phase and continued through substantial completion between October and December 2021 and into the Warranty phase of 2022 through substantial completion for this phased project.

This scope was unique in that they requested to test 100% of terminal units in the Admin/Office building where typically a 25% sampling rate is used on similar building projects reflecting Air Products comprehensiveness.

It was a tremendous team effort to make it through the sensor verification process of over 400 VAVs and close to 200 FPBs. Since this process was not completed with the direct assistance of the control contractor, the issues list quickly became extensive. The largest effort was to resolve an ongoing problem with the reheat valve controls which impacted all 9 floors.

COMMISSIONING RESULTS:

From early construction through functional testing and issues resolution as of July 2022, there were a total of over 780 commissioning deficiencies noted.

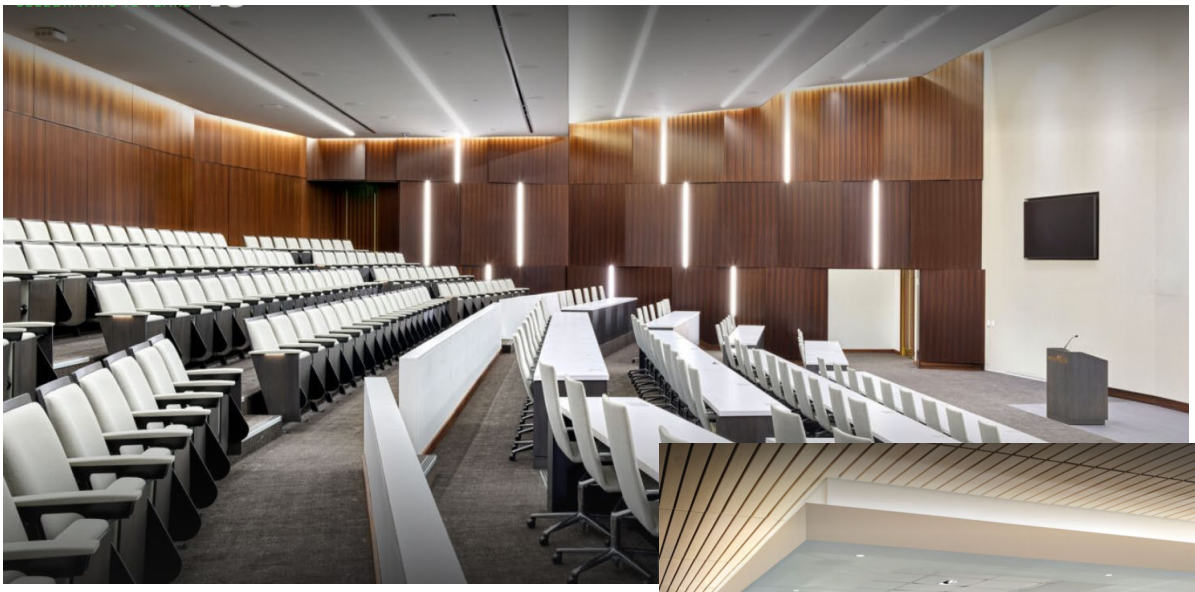
The design review process identified issues related to energy efficiency system operation, thermal comfort, and operations and maintenance that were integrated into the construction process. The submittal process helped identify discrepancies in submittal conformance with design that were reviewed with design team and allowed updates by construction team. A sampling of issues identified are noted

below. These issues were proactively identified and communicated with the team using the construction manager project software for quick resolution by the construction team.

- Building envelope issues related to incorrect curtain wall installation; curtain wall testing identified remediation of sections and missing panels.
- HVAC variable air volume box reheat coils were found piped backwards, volume dampers were not installed, etc.
- Hot water boiler plant testing ensured correct sequencing of condensing boilers and pumping schemes and identified a bad transformer in boiler control panel requiring replacement and flow switch operation.
- Electrical issues related to safety were identified with arc flash labeling, installation issues with transformers, switchgear, grounding bonding jumpers, wiring methods were identified.

HVAC SYSTEMS ISSUES:

Following substantial completion of the Air Products Global Headquarters project in Spring 2022, there were a few lingering HVAC system issues. Aramark Engineering Solutions was engaged by Air Products to conduct a building pressurization analysis, retesting/issues resolution, final sequence of operation testing, and opposite season testing. The retesting and issues resolution identified action items, resolution by contractor, and backchecking of issue resolution for several issues. The final sequence of operation testing verified Admin Building Smoke Purge testing, building pressurization sequence modifications implemented by Honeywell, and new BCU-3 sequences. Opposite season testing verified HVAC system operations in fall “shoulder” season and winter heating/humidification operation.



PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES
QUEHANNA MOTIVATIONAL BOOT CAMP – BUILDING D ADDITION

This project includes the construction of single story, approximately 12,000 square feet of a New Addition to existing building D at the Quehanna Motivational Boot Camp for the Pennsylvania Department of Corrections. The new building addition will consist of public lobby area, administration offices, multipurpose hall, visitation hall, and services spaces.

The one-floor building will include one RTU, several wall heaters, and electrical and plumbing systems. The project is currently in the beginning stages.

LOCATION:
Karthaus, PA

GROSS SQUARE FEET:
12,000

CONSTRUCTION COST:
$4.85 Million

CX SERVICES:
Submittals Review
Installation Inspections
Performance Verification
Operations Training

CONTACT:
Daniel S. Hemphill
Project Coordinator
717-678-3759

SCHEDULE:
2023-In progress (est. 2024)

The systems and equipment to be commissioned are:

- Protective systems including fire suppression and fire alarm systems.
- Plumbing systems including domestic hot water systems.
- Heating, ventilating, air conditioning and refrigeration systems (HVAC) including heat generation, refrigeration, ventilation, and HVAC control systems.
- Electrical systems including power distribution, lighting, and controls, and emergency generator systems.
- Communications systems including voice/data and sound/video systems.
- Electronic safety and security systems including security, alarm, and detection systems.

This project is currently finishing construction installation. Some of the issues identified include:

- Spare conduits were blocking access to the VAV power/control panels. Coordination required to maintain access.
- A wire support for the suspended ceiling grid was observed to be preventing 90° opening of the VAV doors in the Training Room 129.
- VAVs observed to be installed without gasketed bottom side access doors.
- Victaulic sprinkler head hoses were not being installed in accordance of FM Global requirements as required in the specs. Hoses installed per FM are required to have a 7" bend radius and are limited on number of 90-degree bends based on length of hose. Most hoses installed to date need to be reworked to meet requirements. Issue applies throughout project as necessary.

QUEENS COLLEGE
KING HALL TV PRODUCTION STUDIO

The TV production studio at Queens College is located in King Hall, Room 106, and is part of the Media Studies Department. Officially known as the Television and New Media Facility, it serves as a hands-on learning environment for students enrolled in media production courses or those working on departmentally approved independent projects. Originally built in the 1960's, the studio had never been renovated. The studio modernized the equipment and infrastructure in a $1.5 million renovation. The project involved a full "gut" and required all new lighting grids, soundproofing, HVAC systems, and digital production and editing equipment. These upgrades transformed the studio into a modern, industry-standard facility capable of supporting both academic instruction and professional-level production.

COMMISSIONING SUCCESS:

Aramark worked with the team to help them mitigate mechanical noise. Aramark recommended sequence of operation changes utilizing Critical Zone Reset to lower the fan speed resulting in a quieter environment.

PROJECT LOCATION:
Queens, NY

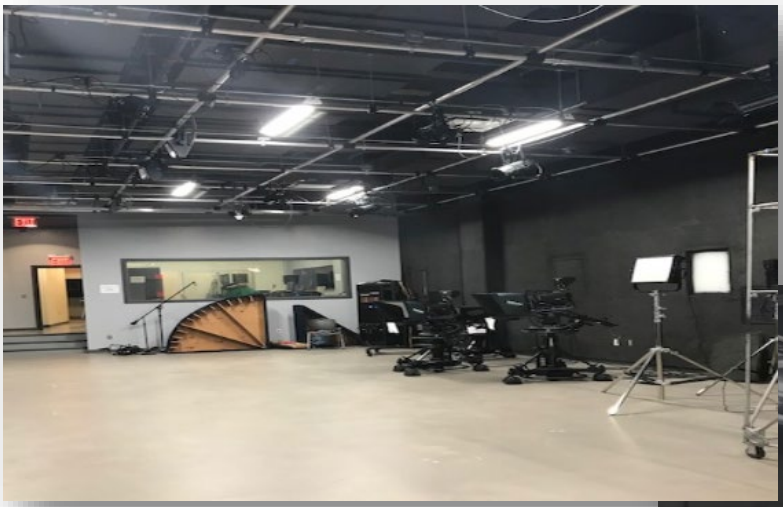
OWNER/PROJECT CONTACT:
Zeco Krcic, Ed.D., MPA
646-664-2624
zeco.krcic@cuny.edu

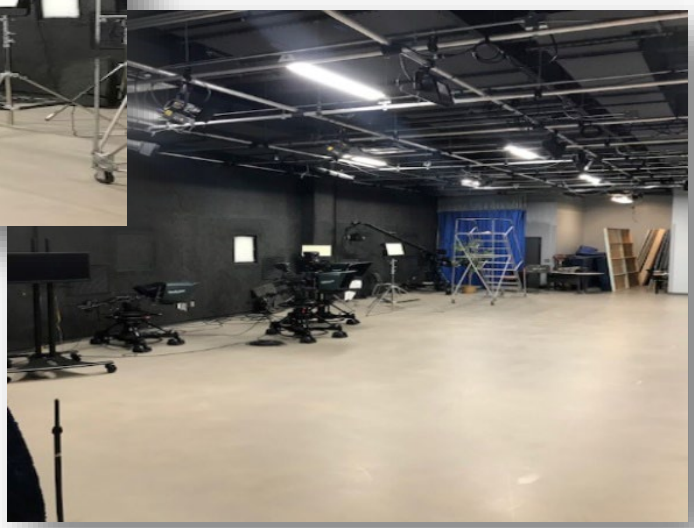
CX SERVICES:
Installation Inspections
Performance Verification
Issue Resolution

ARAMARK FEE :
$8,867

CONTRACT/ACTUAL COMPLETION DATE :
2020

GROSS SQUARE FEET:
3,250





PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES
FORT INDIANTOWN GAP NEW YOUTH CHALLENGE CENTER

This project consists of a new approximately 15,500 GSF multi-purpose facility which will include a gym/multi-purpose area, full-service kitchen, restrooms and hand washing stations, a physical exercise room, health suite, loading dock and building support and storage spaces. It will be located adjacent to the drill field and their living quarters, the new facility will serve as the "hub" for the 150 cadets for their meals, physical fitness, lectures, graduation, and other public events.

LOCATION:
Lebanon County, PA

GROSS SQUARE FEET:
15,500

PROJECT COST:
$4 Million

CX SERVICES:
MEP, building envelope, building automation review, post occupancy analysis, HVAC&R technical requirements review, coordination of testing and balancing services

CONTACT:
Paul Hadginske
717-787-6482
phadginske@pa.gov

PROJECT SCHEDULE:
2021-2023

SYSTEMS COMMISSIONED:

- Protective Systems including Fire Suppression and Fire Alarm Systems.
- Plumbing Systems including Domestic Hot Water Systems.
- Heating, Ventilating, Air Conditioning and Refrigeration Systems (HVAC) including Heat Generation, Refrigeration, Ventilation, HVAC Control Systems, and Building Management System(s).
- Electrical Systems including Power Distribution, Lighting, and Controls, and Emergency Generator Systems.
- Communications Systems including Voice/Data and Sound/Video Systems.
- Electronic Safety and Security Systems including Security, Alarm, and Detection Systems.

COMMISSIONING RESULTS:

Select issues that were identified and successfully resolved include:

- All RTUs - it was observed in the gas firing cabinet that low voltage control wiring and pressure switch poly tubing was in direct contact with burner elements and also the hot flue gas piping. Without corrective actions, the internal wiring of the units would have failed causing the units to no longer or function or even catch on fire.
- Independent isolation shutoff valves needed to be added to all gas-fed kitchen equipment downstream of the reducers. Properly including the local manual shut-off hand valves per the design enables on-site personnel to manual shut-off the gas feed to each individual piece of gas served equipment in the kitchen for maintenance and safety purposes.
- MAU interface was not complete. Interface module needed setup to talk to the hood as the unit was not currently under control via the BMS. The corrective actions ensured proper communications with the BMS.
- Control wiring for RTU-5 duct smoke detection and control found never to be landed and shutdown sequencing inoperable. Correction of this issue ensures proper operation of the FA and smoke safety shutdown system in the need of a life safety event.

PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES
NORTH CENTRAL SECURE TREATMENT UNIT – HVAC UPGRADES

The North Central Secure Treatment Unit is a juvenile justice facility on the grounds of Danville State Hospital located in Danville, PA and is operated by the Department of Human Services Office of Children, Youth, and Families. The Bureau of Juvenile Justice Services operates the buildings to provide treatment, care, and custody services for adjudicated youth. It includes an Admissions Building (male program), Green Building (female program) and Reed Building (female program). The Green and Reed buildngs can be occupied by 24 residents in each building. All buildings are enclosed by security fencing.

In each Building, the HVAC equipment has reached the end of its operational life and is failing.

Goals of the project:

- Replace aged and failing equipment.
- Improve energy efficiency.
- Provide system redundancy.
- Improve environmental control, safety, and comfort.
- Improve the serviceability of the systems.

LOCATION:
Danville, PA

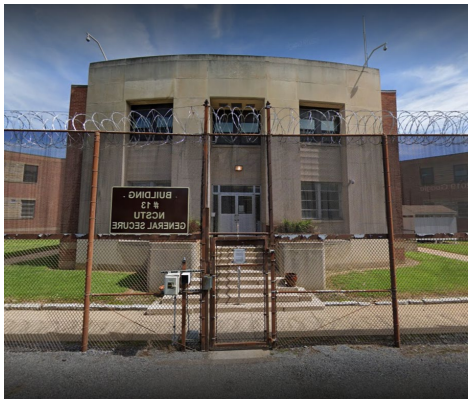
GROSS SQUARE FEET:
80,027

CX SERVICES:
Develop Owner's Project Req, Cx Plan, Cx Specs, Functional Test Forms, Final Cx Report
Design Review
Submittal Reviews
Site Inspections
Pre-Fx Checklists
Functional Testing
Owner Training

CONTACT:
Erin M. McCulley, RA, LEED AP BD+C
Department of General Services
(717) 346-5959

SCHEDULE:
2023-In progress (est. 2025)

We have provided comments regarding the design phase and have identified 10 items that need to be reviewed. The comments include:



- Aramark found that multiple times it stated that all supply air terminals are 250 CFM unless otherwise noted however, there was nothing noted. Clarification was requested on how the same CFM satisfies all spaces regardless of size, occupancy, equipment, and exterior load.
- The plans for the Green building call for roof mounted exhaust fans but the schedules show fans only for the Reed building.
- Duct plans and exhaust fans were not shown for the Reed building.
- All AHUs are scheduled with the same CFM and OA CFM, Clarification was requested again on how the same units satisfy all spaces regardless of size, occupancy, equipment, and exterior load.
- The MBH as schedule for the AHU HW coils is not consistent with the CFM, EAT/LAT and GPM EWT/LAT scheduled.

B. PROJECT UNDERSTANDING AND APPROACH

PROJECT UNDERSTANDING

Constructed in 2000, the Keystone Building is a nine-story, 800,000 SF facility serving as the headquarters for the Pennsylvania Department of Transportation. A new daycare space and a micro market are currently under construction with completion expected in September 2025.

The relocation of Commonwealth Media Services (CMS), a full-service multimedia and marketing agency supporting all Commonwealth agencies, is the center of this commissioning project. The CMS will be re-located from 333 Market Street to the Keystone Building. The existing CMS currently occupies 12,675 SF and includes office, studio, and storage areas and 33 staff members. The CMS work is highly technical and media-intensive, involving audio-visual production, broadcasting, and digital media delivery. The move to the new space is time sensitive to ensure continuous support for agency communications and media production. It involves complex IT and AV infrastructure requiring specialized commissioning oversight. Our team proximity and technical expertise helps to facilitate all on-site commissioning activities.

Sound isolation and acoustic performance are critical to the functionality of the studio and editing spaces. As such, the commissioning agent will be expected to place particular emphasis on the performance testing of sound-related components and systems. Experience with media production environments, IT-heavy facilities, and acoustic commissioning will be key to the successful execution of this project.

The commissioning process will place emphasis on system details pertaining to acoustics starting with the OPR and design review activities. For example, vibration isolation, sound attenuation, duct sizes, air velocities, diffuser throw characteristics to name a few. Wall and ceiling material noise reduction properties and potential for exterior noise interference shall be reviewed.

For AV and IT, some challenges to work through with the team are control systems integration of the systems with equipment from multiple manufacturers and network and IP configuration. During construction, we will focus on cable management with the high quantity of cabling required. With the technology intensive spaces, there will be high density electrical and cooling loads to account for. Sizing of respective equipment serving the space and system and the operation will be verified at peak load and through a larger than typical range of low to part load conditions.

PROJECT APPROACH

It is evident that in order to truly assist in the short- and long-term success of this project, our commissioning plan requires a unique and varied blend of technical, operational, and engineering expertise. The challenges involved in the construction of this project focus around:

1. Project schedule
2. Complex building systems
3. Increased integration of systems and components
4. MEP technical expertise
5. Project turnover and operations expectations

We are familiar with these significant challenges through our extensive commissioning, operations backgrounds, and experience with capital and operation teams. Our focus is to “bridge the gap” between the

construction teams, design teams, project management, and operations groups. Our solution to these challenges is to develop and integrate a unique commissioning program that will provide collaboration between teams, verify that the design intent (installation and performance) is met, establish parameters for acceptance of the construction/end users, and integrate turnover/operations smoothly and effectively.

A summary of the solutions are outlined in the following bullets.

- Creating partnerships and leading collaboration within the project and construction teams.
- Providing "on-site" representation to focus and coordinate the commissioning efforts.
- Coordinating and integrating teams of professionals in supporting corrective actions.
- Establishing parameters and testing requirements for system acceptance as opposed to component acceptance.
- Exercising the systems throughout operating ranges, safety, and emergency conditions.

Aramark will develop a program specifically geared towards the Keystone Building Renovations project. Aramark will work directly for the PADGS and provide an unbiased, objective view of the systems installation, operation, and performance. As part of the owner's building systems commissioning process, Aramark will cooperate with and coordinate all commissioning activities with the project manager, design professionals, construction manager, and contractors. This process is not to take away or reduce the responsibility of the design team or installing contractors, but to provide a finished and fully operational product in accordance with design intent.

Our scope of services consists of the following focused efforts:

PROFESSIONAL COMMISSIONING SERVICES – PHASE APPROACH

DESIGN REVIEW PHASE

Regarding anticipated schedule the design for this project is nearing completion. Commissioning on-boarding and Owner's Project Requirements development will occur in the 3rd quarter of 2025. The design kickoff is scheduled for 3rd quarter of 2025 progressing through 1st or 2nd quarter of 2026 for design completion. Construction is scheduled to start the 3rd or 4th quarter of 2026 progressing through the 3rd or 4th quarter of 2027 for completion. The commissioning team leader will develop, organize, implement, observe, document, and lead the commissioning effort in a manner that furthers the success of the project. This effort will not only minimize the impact on project schedule, but also promote efficient system startup and turnover. A summary of activities in this phase consists of:

A. **Owner's Project Requirements (OPR)** –Working with the DGS Design Project Manager, Design Professional, and the Client Agency facilities maintenance staff conduct an OPR workshop by October 2025 to finalize the project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. Provide descriptions of the following: a) primary purpose of Project, b) environmental and sustainability goals, c) energy efficiency goals, d) indoor environmental quality requirements, e) desired equipment/system quality, reliability, and maintenance requirements, f) facility operation and maintenance requirements including requisite personnel training and orientation.

B. **Commissioning Plan (Cx Plan)** – Provide written document that outlines the overall process, organization, responsibilities, schedule, allocation of resources, and documentation requirements of

the Commissioning Process to verify and document that the design, construction, and operation of the facility meet the Owner's Project Requirements (OPR).

C. **Design Review** – Provide a review and comments of the Professional's design documents and Basis of Design (BoD) narrative for compliance with the Owner's Project Requirements. Design review includes a back-check of Commissioning Design Review Comments at subsequent Design Submission.

D. **Commissioning Specifications** – Provide Commissioning Specifications for all systems/assemblies being commissioned for inclusion within the Project Construction Documents.

CONSTRUCTION PHASE

A pivotal aspect of our commissioning program is enabling team reviews and inspections of the systems in their area of expertise (i.e., mechanical, electrical, and plumbing). Deficiencies and outstanding issues are documented in the commissioning database. The intent of the database is to generate a comprehensive list for the project manager to distribute to the design and construction teams for response and action. Subsequent to each focused inspection, a progress report will be issued detailing the deficiencies, resolution actions, and status of each item. We will maintain a current status for each item on the deficiency list as well as document the resolution actions in the final report. The commissioning team leader will act as the point person and bring up issues to the construction and design teams. The focus of the construction installation phase will include the following:

a. **Submittal Review** – Identify and review Contractor submittals applicable to systems/assemblies being commissioned. Identify issues that might result in rework or change orders. Verify the following: a) conformance with Owner's Project Requirements (OPR) and Basis of Design (BoD), b) achievement of operations and maintenance requirements, c) enablement of performance testing. All submittal reviews and correspondence must take place in eBuilder.

b. **Job Construction Meetings** – CxA shall attend regular job construction meetings as necessary to ensure the systems are properly installed, operated, and tested, and are functioning correctly to meet the design intent. Commissioning agent shall report on key activities, discuss findings or coordinate inspection times with Construction project team at each meeting. Bi-weekly one (1) hour meetings during the construction process are assumed.

c. **Commissioning Meetings** – CxA shall hold regularly scheduled jobsite Commissioning Meetings with all project stakeholders to review important aspects of equipment, HVAC system, and Controls System installation. Review and document necessary installation details, system testing procedures, and documentation requirements. Keep meeting minutes and include in the Cx Report. Separate Cx meetings are assumed in the last four (4) to six (6) months of construction and recommend following the construction meeting with applicable Cx team members available.

d. **Construction Observation and Testing** – Verify that the performance of the systems/assemblies being commissioned, as installed, meet the Owner's Project Requirements (OPR), Sustainability Criteria, Basis of Design (BoD), and Contract Documents. Furnish test procedures and checklists prior to equipment installation. Produce a pre-functional test for each test. Test procedures shall list the entities responsible for executing each test. Provide installation inspections. Direct, witness, and document tests. Evaluate test results and verify that installed systems/assemblies meet the criteria for the Project.

e. **Acoustical Performance Verification** (Construction Phase Only) -The Commissioning Agent shall coordinate and perform postconstruction field verification of acoustic performance (e.g., reverberation time, sound isolation, background noise levels, and/or vibration criteria), where identified as critical by the project team and design documents. The purpose of this testing is to confirm that installed conditions meet the design intent as defined by the acoustic consultant. The

CxA shall coordinate with the acoustic consultant (Professional's Team) during design review to understand target performance criteria and shall provide field measurements and reporting during the Acceptance Phase of Commissioning. All testing equipment and services shall be provided by the CxA, who may subcontract to a qualified acoustic specialist if needed. Verification shall be limited to field testing and documentation of actual performance

f. **Issues and Resolution Log** – Develop a commissioning issues log containing open and continuing items, status, and name of person/organization responsible for resolution. Utilize our commissioning management software CxAlloy for issues and resolution logs and upload PDF files to eBuilder.

g. **Systems Manual** – During the design and construction of the project, the design and construction documents should be assembled into the systems manual. This assembly of documents provides the details and history of the design and construction of the building and information needed to properly operate the building. The systems manual should be formatted in such a way that it can be updated throughout the life of the building as systems are modified, replaced, or updated. The systems manual includes the final OPR; final BOD; construction record document; approved submittals; completed startup checklists, verification checklists, functional and performance checklists; all settings documentation; all calibration forms; all programming documentation; verified sequence of operation; a facility guide; all training records; and the commissioning report.

h. **Pre-Functional and Functional Performance Testing –** Confirm (but not necessarily witness) manufacturer's startup of individual equipment components (Pre-Functional Performance Testing). Write, direct completion of, witness, and document full Functional Performance Testing of each system and system component. Confirm proper operation of all control sequences for each season operation. Document in Cx Report.

i. **Training Plans and Records** – Review, pre-approve, and verify training of the Client Agency personnel by the Contractor, to operate and maintain systems/assemblies being commissioned. Include training plan, training materials, and records in final Systems Manual.

j. **End of Warranty Cx** Report – Provide post-occupancy operation commissioning, including incomplete, delayed, and seasonal testing, as well as warranty issues. Post-occupancy operations shall begin at Substantial Completion and shall continue through to the end of the warranty period.

k. **Preliminary and Final Cx Report** – A preliminary commissioning report should be prepared that shows the commissioning progress and equipment performance to date at the time the Certificate of Occupancy is issued. At the completion of the project the final commissioning report should be assembled and provided to the owner and others as required by the OPR and local jurisdiction requirements. This report includes the final commissioning plan, copy of design and submittal review reports, all startup, inspection, verification, functional and performance test forms and reports, the verified sequence of operation, the final Issues and Resolutions log, and summary of the performance of commissioned systems.

SYSTEMS TO BE COMMISSIONED

- **Protective Systems,** including:
  - Fire Suppression
  - Fire Alarm Systems
- **Heating, Ventilating, Air Conditioning and Refrigeration Systems (HVAC) Systems,** including:
  - Heat Generation and Refrigeration Equipment
  - Ventilation Systems
  - HVAC Control and Building Automation Systems
  - Humidity Control

- **Electrical Systems, including:**
  - Power Distribution
  - Lighting and Lighting Control Systems
    - Broadcast/Production Lighting Control
  - Emergency Power System (e.g. Emergency Generator and UPS)
  - Lightening Protection
- **Communications Systems, including:**
  - Voice and Data Infrastructure
  - Sound and Video Systems
    - AV Signal Paths
    - Control systems
    - Broadcast Systems
  - Design and Construction Coordination with IT Agencies for complete system function
- **Electronic Safety and Security Systems, including:**
  - Physical Security and Access Control
  - Alarm and Detection Systems
- **Acoustical Systems, including:**
  - Sound Isolation
  - Room Acoustics
  - Mechanical Noise and Vibration Mitigation

C. GEOGRAPHIC LOCATION

The distance to the job site of our proposed staff is noted below. As you can see, our core team is local to this project site. Travel time will not be necessary for reimbursement. Please note that Chris Skalski and Allison Bailey will not need to be on-site at the project.

Frank Snyder – Dallastown, PA – 32 miles
Manas Vaidya – Harrisburg, PA – Less than 1 mile
Tim Russ - Harrisburg, PA – Less than 1 mile

D. PROJECT WORK PLAN

I. Schedule of Milestones – ESTIMATES BASED ON RFP

DESIGN REVIEW PHASE – 3RD QUARTER 2025 – 1ST OR 2ND QUARTER 2026

- Conduct Owner's Project Requirements (OPR) workshop and develop OPR.
- Develop and provide the Cx Plan.
- Conduct Design reviews
- Provide Cx specifications

CONSTRUCTION PHASE – 3RD OR 4TH QUARTER 2026 - 3RD OR 4TH QUARTER 2027

- Perform submittals review.
- Conduct Cx kick-off meeting with contractors.
- Attend construction meetings.
- Hold regular commissioning meetings and provide meeting minutes.
- Develop pre-functional test forms and provide to contractors.

- Conduct construction observation and testing.
- Develop and maintain issues and resolution log.
- Witness start-up of Cx systems.
- Perform functional performance testing of Cx systems.
- Develop and deliver Systems Manual.
- Review, pre-approve and verity training of personnel.
- Develop Preliminary Cx Report

ACCEPTANCE PHASE – 3RD OR 4TH QUARTER 2027- 2ND OR 3RD QUARTER 2028

- Develop End of Warranty Cx report.
- Develop Final Cx report.

II. **Indicate all resources need to complete the assignment including staff assignments, consultants, and reimbursements**.

Aramark will perform all commissioning activities with its own personnel. Staff assignments are indicated in the organizational chart. Reimbursements will be submitted for mileage only which is detailed in Section C above.

III. **Note inefficiencies or risks to successful implementation, and any planning efforts to mitigate issues such as travel distance, schedule conflicts and required coordination.**

Aramark has no scheduling conflicts associated with performing the commissioning requirements of this project.

IV. **Indicate the anticipated number of hours required for completion of the work described in the Scope of Work (Attachment A). See financial proposal for further task breakdown.**

A. Design Phase (OPR, Cx Plan, Design Meetings): 88 hours

B. Construction Phase: 368 hours

1) Construction and Cx meetings: 52 hours

2) Cx documentation (Submittals, Issues list, PFT checklist, FT forms): 124 hours

3) Site work (Installation observation, PFT verification, FT): 192 hours

C. Training Phase (Training coordination): 8 hours

D. Warranty Phase (Opposite season testing, post-occupancy warranty review): 12 hours

E. Final Documentation (Preliminary and Final Cx report, Systems Manual): 34 hours

E. PROJECT PERSONNEL AND QUALIFICATIONS

All of Aramark's engagements rely on our experienced professional staff to function as the catalyst for the success of the overall program. Our staffing strategy for managing this relationship expertly and efficiently is straightforward:

- Provide PADGS with a qualified commissioning agent to lead the overall program and serve as the primary contact person.
- Support PADGS with a core technical team comprised of individuals with the requisite technical experience and skill sets.
- Provide experienced "quality assurance" resources to verify that the highest level of quality services is provided.

The success of our approach has always been the quality and consistency of our senior leadership as well as the professionals that comprise the core technical team. The organizational chart illustrates the proposed team for this engagement. Biographies including experience with similar projects as well as overall expertise are included on the next pages.

Although the proposed staff will have primary responsibility for the proposed engagement, any of the more than 85 technical professionals within the Engineering Solutions group will be made available to PADGS if their skills, expertise, and/or availability will add incremental value to this engagement.

Chris Skalski, P.E., BCxP	Frank Snyder, P.E.	Tim Russ
▪ 21.5 years' experience ▪ Professional Engineer (PA) ▪ LEED AP ▪ Building Cx Professional ▪ 21.5 years with Aramark	▪ 37 years' experience ▪ Mechanical Engineer ▪ 1.75 years with Aramark ▪ Experience with PADGS	▪ 24 years' experience ▪ Systems Specialist ▪ 1.1 years with Aramark ▪ Experience with PADGS

Allison Bailey, P.E.	Jacob Rourke	Manas Vaidya
▪ 28 years' experience ▪ Mechanical Engineer ▪ Professional Engineer ▪ 16.7 years with Aramark	▪ 7 years' experience ▪ Energy Engineer ▪ NABCEP PVA Certified ▪ 1.25 years with Aramark	▪ 10 years' experience ▪ Mechanical / Industrial Engineer ▪ 1.75 years with Aramark

FRANKLIN R. SNYDER, JR., P.E., LEED AP, CxA, EMP
Cx Specialist
Aramark Engineering Solutions

EDUCATION

Penn State University
Bachelor of Science
Mechanical Engineering Technology

Penn State University
Associate of Arts Degree
Mechanical Engineering Technology

CERTIFICATIONS

Professional Engineer (PE) (State of PA)

USGBC LEED AP BD+C

Certified Commissioning Agent (CxA), AABC / ACG

Energy Management Professional (EMP), AABC / ACG

Mr. Snyder has more than 37 years' experience including building commissioning, sustainable design consulting, and mechanical, electrical and fire protection engineering services. His typical project responsibilities include planning, scheduling, conducting, and coordinating all phases of facility related MEP/FP system design and commissioning work.

Frank is currently providing commissioning services to multiple clients in the Northeast and Mid-Atlantic areas, including the PA Department of General Services, Hershey Medical Center, Shippensburg University, University of Maryland, and WellSpan Health.

SELECT PROJECT EXPERIENCE:

Hershey Medical Center
- 3rd Floor Main Hospital & South Addition Patient Units
- Comparative Medical Facility
- AC 10&11 Replacement

Manheim Central High School

PADGS
- Danville Field Maintenance Building
- Shippensburg University – Franklin Science Center
- State Museum and PHMC Tower

Penn State Health – Hampden Cancer Center

Tulpehocken Jr./Sr. High School

University of Maryland
- Stanley Zupnik Engineering Hall
- Barry Gossett Basketball Facility

WellSpan Health
- Gettysburg AHU-12 Replacement
- Gettysburg CHW Plant Renovations
- Gettysburg Pharmacy Renovation

York Hospital
- SCCT Expansion
- Central Utility Plant, CHW Plant

TIM RUSS
Manager, Commissioning
Aramark Engineering Solutions

YEARS OF EXPERIENCE

24 YEARS

EDUCATION

Milwaukee School of Engineering
Systems Engineering Edge Certification

NJATC Electrical Apprenticeship

CERTIFICATIONS

OSHA 30

Mr. Russ is a seasoned professional with more than 24 years' experience in temperature controls, fire alarm systems, access controls, smoke control systems, customer service and financial management. He has been recognized for an exceptional record in process improvement and supervising programs/projects in a high-pressure environment under limited time constraints.

Regarding smoke zone testing, Tim has installed many FSCS, including Stairway Pressurization and Smoke Purge systems. Additionally, he has installed these systems on both BMS and a Notifier 3030 FACP system.

Prior to Aramark, Mr. Russ was a Sr. System Specialist where he was responsible for performing complex installation, startup, and commissioning of building automation system equipment that had been newly installed. In addition, he developed building automation for improved occupant comfort, efficient operation of building systems, reduction in energy consumption and operating costs, and improved life cycle of utilities; verified complex system database and programming operations to ensure consistency with the scope of work and sequence of operations; diagnosed and repaired complex control system malfunctions, as well as serving as a subject matter expert.

SOFTWARE EXPERIENCE

Visio and AutoCAD, Microsoft (Outlook, Office, PowerPoint, Word, Access and Excel), SQL Server, Dot NET, SharePoint Portal Server, Johnson Controls Metasys, SCT, CCT, GGT, Tridium Niagra, Schneider Electric EcoStructure, Notifier by Honeywell. FieldServer Technologies, ABT software, Desigo, Datamate and Insight.

COMMISSIONING PROJECT MANAGER EXPERIENCE:

M&T Bank Stadium Renovations
PADGS:

- Shippensburg Franklin Science Center
- State Museum and PHMC Tower
- PA State Police Academy

Hershey Medical Center - Comparative Medical Facility (CMF)
Manheim Central High School
WellSpan Health:

- Gettysburg Hospital - AHU-12 Replacement
- Waynesboro Hospital – Pharmacy Renovation
- Adams Health Clinic – LINAC
- York Hospital – IR Lab Phase 1

ALLISON BAILEY, P.E.
Sr. Manager, Commissioning
Aramark Engineering Solutions

TOTAL GSF COMMISSIONED

10 Million GSF

TOTAL COMMISSIONING PROJECTS

56 Projects

EDUCATION

Ohio State University
Bachelor of Science
Mechanical Engineering

CERTIFICATIONS

Professional Engineer
(States of KY, OH, WV)

OSHA 10

Ms. Bailey is a mechanical engineer who possesses more than 24 years of experience in HVAC design, DDC control programming, HVAC system troubleshooting, project management, and project coordination.

On behalf of Aramark, Ms. Bailey is a member of our building commissioning team, providing commissioning services for various educational institutions throughout the U.S., including Ohio State University, Baylor University, University of Kentucky, Oberlin College, Edinboro University, Millikin University, and the University of Pittsburgh. Currently, Allison supports commissioning programs throughout the region and is involved in all design reviews as the design lead and mechanical systems reviewer. She is also project manager for a building system upgrade at Freeport Health Network in Indiana. Allison performs over 40 design reviews per year and has most recently reviewed Penn State West Campus Parking Garage and Greater Allegheny Campus Ostermayer Lab Renovation.

Prior to joining Aramark, Ms. Bailey worked as a mechanical engineer for MKC Associates where she was a project engineer for HVAC systems for new and existing buildings with an HVAC construction budget ranging from $1K - $5.6M. She was responsible for the coordination of HVAC systems design with all disciplines, including architectural, structural, electrical, plumbing, and technology.

COMMISSIONING PROJECT MANAGER EXPERIENCE:

Baylor University
- North Russell Dormitory – 28K GSF
- South Russel Dormitory – 90K GSF

Berea College – Deep Green Residence Hall – $16.5M, 42K GSF

Edinboro University – Cooper Science Center – $20M, 112K GSF

Millikin University – University Commons – $31M, 87K GSF

Oberlin College
- Allen Memorial Art Museum – LEED Silver – $10M, 30K GSF
- N. Professor St. Housing – LEED Gold – $11.9M, 47K GSF

The Ohio State University
- South High Rise – Renovations/Additions – $172M, 583K GSF
- Biomedical Research Tower – $36M, 100K GSF

Twin Valley Behavioral Healthcare Hospital – $112M, 285,000 GSF

University of Kentucky – 90 Dining – $32M, 80K GSF

COMMISSIONING AGENT EXPERIENCE:

Baylor University
- McLane Football Stadium - $260M, 860K GSF on 93 Acres
- Foster Business School – $100M, 275K GSF

Children's Hospital of Pittsburgh – John G. Rangos Research Ctr. – $150M, 250K GSF

University of Pittsburgh
- Benedum Hall – LEED Registered – $40M, 180K GSF
- Medical Center – Clinical and Research – $17M, 30K GSF

NY Office of Mental Health South Beach

JACOB ROURKE
Manager, Commissioning
Aramark Engineering Solutions

TOTAL NUMBER OF PROJECTS
20+

TOTAL GSF COMMISSIONED
1 Million+

EDUCATION
The Pennsylvania State University
Bachelor of Science
Energy Engineering

CERTIFICATIONS
NABCEP PVA

OSHA 10

ASSOCIATIONS
Association of Energy Engineers

Mr. Rourke brings seven years of experience in supporting electrical design, commissioning, and construction for commercial, pharmaceutical, and industrial sectors. On behalf of Aramark, Jacob is a member of our building commissioning team where he supports clients primarily in our East Region.

Prior to Aramark, Jacob worked as an Electrical Engineer for Barton Associates where he supported the design of low and medium voltage distribution and specialty systems, including but not limited to solar, power generation, utility interconnections, and life safety. He performed site inspections and construction coordination, as well as advising clients on alternative energy and systems options available to them including federal and local incentives.

Prior to Mr. Rourke's tenure with Barton Associates, he was an Electrical Engineer for Genesis Engineering. He supported pharmaceutical and healthcare facilities where he designed low voltage electrical and specialty systems. Mr. Rourke was also responsible for power, life safety systems, telecommunications, and lighting concept design.

PROJECT EXPERIENCE:

Nemours Children's Health
- 5W Moseley Institute Inpatient Unit
- 3CE Moseley Institute Outpatient Unit
- Administration & Research Building MEP Systems Upgrade

PADGS
- Holidaysburg Veterans Home
- Lincoln University, Thurgood Marshall Living Learning Center
- SCI Rockview Boiler Replacement

Penn State University
- College of Engineering, West 1
- Susan Welsh Liberal Arts Building
- Nursing Building
- Harrisburg ALC & Chiller Plant

Penn State Health
- Chiller 8&9
- AC-10 & 11

UPENN
- Amy Guthman Hall
- College Hall

University of Maryland
- Barry Gossett Basketball Facility
- Stanley Zupnik Hall

Wellspan York Hospital

MANAS VAIDYA
Cx Manager
Aramark Engineering Solutions

EDUCATION

Lamar University
Master of Engineering
Industrial Engineering

Rajiv Gandhi Technical University, India
Bachelor of Engineering
Mechanical Engineering

CERTIFICATIONS

Certified Six Sigma Green Belt Professional

Mr. Vaidya is a mechanical and industrial engineer with over ten years' experience. He has a background in plant maintenance engineering, systems analysis, energy management, and BAS/energy management end devices.

On behalf of Aramark, Mr. Vaidya will provide professional commissioning services to various clients in the south-central Pennsylvania region.

Prior to Aramark, Mr. Vaidya was most recently a Systems Specialist for Siemens where he performed installation, startup, troubleshooting, commissioning, and repair on computerized temperature control systems which control HVAC equipment such as roof top units, air handlers, VAV boxes, heat pumps, chillers, pumps, cooling towers, boilers, and heat exchangers. As part of this role, he produced reports, provided plans and control system documents, and developed a building automation scope and implementation approach.

SYSTEMS EXPERIENCE:

- TAC Vista
- EcoStruxure
- Desigo
- Insight
- Metasys
- WCIS
- Apogee Commissioning

SELECT PROJECT EXPERIENCE:

New Federal Court House, Harrisburg, PA - New Construction

UPMC Pine Street Williamsport, PA - Renovation

Lewisburg School District Multiple Buildings, Lewisburg PA - Renovation

Liberty Valley Intermediate School, Danville, PA - Renovation

Northeastern Senior High School, Manchester PA - Renovation

Warwick School District, Lititz, PA - Multiple projects including Field House (New Construction), Database and Device Migration

Lampeter School District, Lancaster, PA - Multiple Buildings - Renovation

Mennonite Home, Lancaster PA - Renovation

Loyalsock Middle School, Williamsport, PA - New Construction

Jewish Federation (previously Dixon University), Harrisburg, PA - Renovation

WellSpan Hospital, York, PA - Multiple Projects

Pequea Valley School District Salisbury Elementary School, Gap, PA - Renovation

CHRISTOPHER SKALSKI,
P.E., LEED AP, BCxP
Cx Senior Manager
Aramark Engineering Solutions

TOTAL GSF COMMISSIONED

8 Million

TOTAL COMMISSIONING PROJECTS

60 Projects
20 Projects – Project Manager

EDUCATION

Pennsylvania State University
Bachelor of Science
Mechanical Engineering

Bloomsburg University
Bachelor of Arts
Physics

CERTIFICATIONS

Professional Engineer (State of PA)

LEED Accredited Professional

Building Commissioning Professional (BCxP)

ASSOCIATIONS

Delaware Valley Green Building Council

OSHA 10

Mr. Skalski is a Professional Engineer and LEED Accredited Professional with 21 years of experience as a building commissioning agent, including extensive experience in HVAC and plumbing systems design, building automation, and DDC systems. On behalf of Aramark, Mr. Skalski is the commissioning team leader for several of Aramark's higher education clients. His responsibilities include engineering design reviews, installation quality assurance, pre-functional/performance testing, initiation of corrective actions, and operator training.

Mr. Skalski previously served as the commissioning team leader for such LEED projects as University of Pennsylvania Stemmler Laboratory Renovations, Neural and Behavioral Sciences Building, Horticulture Center at the Morris Arboretum, Aramark Headquarters Tenant Improvement, Neumann University Center for Sport, Spirituality and Character Development, Pennsylvania State University (PSU) CBEI Navy Yard Building 661, 7R, PSU Berks campus classroom laboratory building, and Franklin and Marshall College New College House dormitories.

Additionally, Mr. Skalski serves as a member of our facility condition assessment team focusing on HVAC and control systems. His experience includes participating in strategic master plans for campus utilities at various higher education institutions.

COMMISSIONING EXPERIENCE:

Aramark Headquarters Tenant Improvement 2400 Market Street, Philadelphia, PA 19103 Core and Shell - $100M, 280K GSF

Air Products Global Headquarters, Allentown, PA – Administration building, Research & Development Building, Central Utility Plant, Parking Garage – $300M+, 700K+ GSF

PA DGS – West Chester University
- Mitchell Hall Renovation – $8M, 38K GSF
- Academic Classroom and Office Complex – $14.4M, 100K GSF
- Student Recreation Center – $21M, 72K GS

Penn State University - EEB Hub Philadelphia Navy Yard, Building 661, 7R – Pursuing LEED Gold, $25M, 60K GSF

Saint Gobain North American Headquarters Retro-commissioning, Malvern, PA – 286K GSF

University of Pennsylvania
- FY16 Retro-Commissioning (6 Buildings) – 780K GSF
- FY17 Retro-Commissioning (6 Buildings) – 100K GSF
- FY19 Retro-Commissioning (4 Buildings) – 500K GSF
- FY20 Retro-Commissioning (5 Buildings) – 570K GSF
- Stephen Levin (NBS) Building – $45M, 78K GSF
- Richards A&B Wing Renovations – $24M, 104K GSF
- Ryan Veterinary Hospital HVAC Upgrades – 150K GSF
- Stemmler Hall Infrastructure Upgrade – $100M, 190K GSF
- Stemmler Hall 2nd Floor Renovations – 40K GSF
- Van Pelt & Dietrich Library HVAC Upgrades – $13.9M, 200K GSF
- Vance Hall 3rd & 4th Floor interior renovation - $2.5M, 27K GSF