

# REQUEST FOR QUOTE

Commissioning Agent  
Services



DEPARTMENT OF  
CORRECTIONS

SCI PHOENIX

Controls Upgrade & RCx of  
HVAC Systems

Project No.  
DGS C-0577-0040, Phase 1

Technical Submission



2400 Market Street  
Philadelphia, PA 19103

September 26, 2024

Re: Commissioning Agent Services for DGS C-0577-0040, Phase 1, SCI Phoenix Controls Upgrade and RCx of HVAC Systems

Attn: Thomas Courtney

We are pleased to respond and provide a proposal and cost estimate for Commissioning Agent Services during the design and construction phase stages of the Department of General Services Project No. DGS C-0577-0040, Phase 1, SCI Phoenix Controls Upgrade and RCx of HVAC Systems project.

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 North Central Secure Treatment Unit, the Quehanna Motivational Boot Camp, PA State Police Academy, and the Wilkes-Barre CRC, to name a few. Additionally, we are currently working at SCI Forest for the Upgrade/Replace PLC & Microlite System & BAS Upgrade project and SCI Green on the CUP Upgrade project. We have experience at SCI Phoenix during the construction phase in 2017-2018 participating as a commissioning consultant to PA DGS and have supporting project documentation.

Sean McCarty is slated as the project manager for this project. Sean is a mechanical engineer with over fifteen (15) years' experience. His home office in Telford, PA is within 10 miles to the project, allowing for great efficiency in travel time and minimizing project expenses. Chris Skalski, P.E., BCxP will provide client relationship support and assist with inspections and testing; and Frank Snyder, P.E. will support electrical commissioning. Additionally, Sean will be supported by Allison Bailey, P.E., Tim Russ, and Mack Ailes. Most of these team members have worked on projects for DGS, and in addition, have performed similar tasks for many of our references listed within our response.

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](mailto:skalski-christopher@aramark.com).

Sincerely,

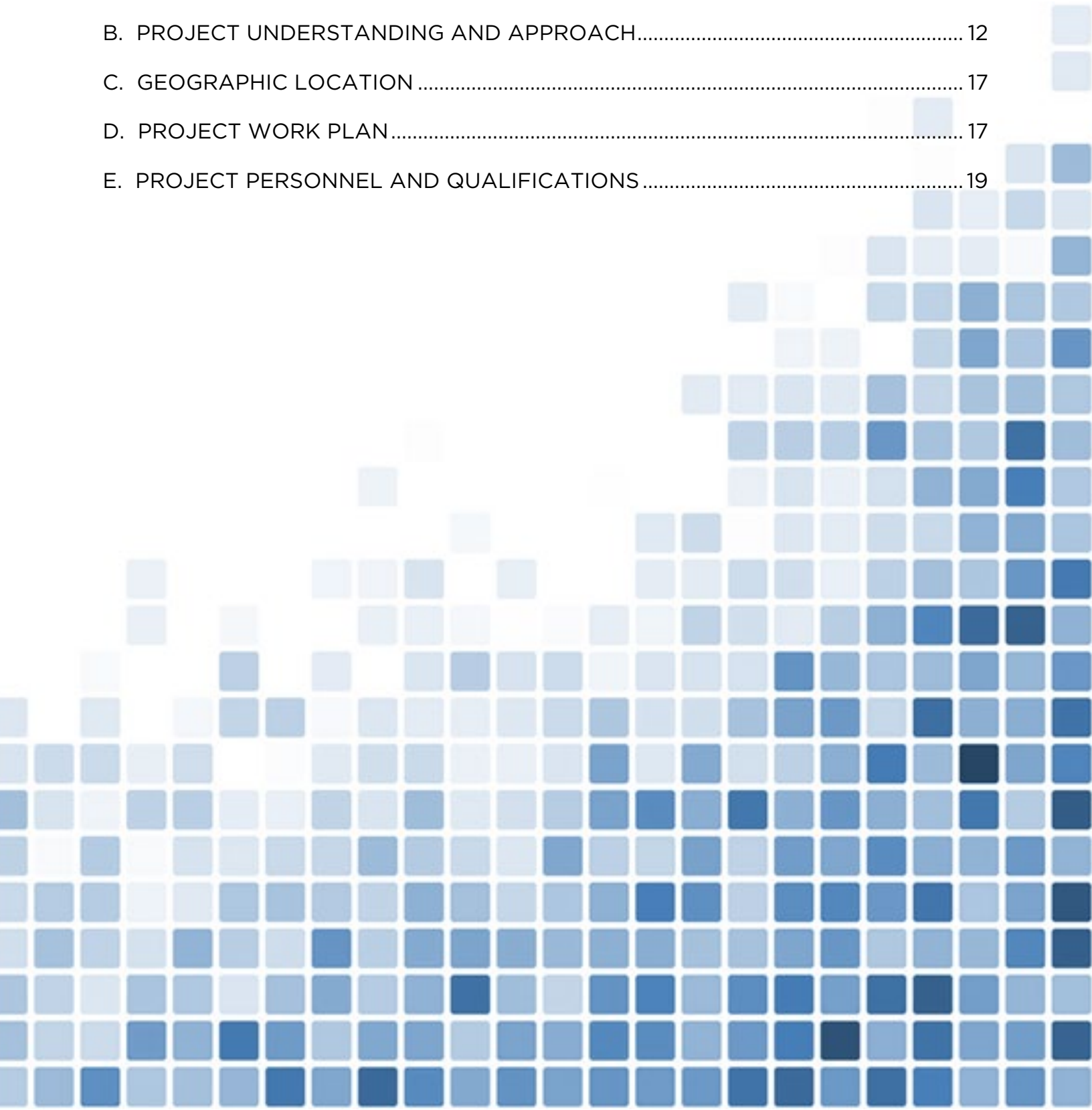


Brian Lee, P.E.  
Vice President, Engineering Solutions  
Authorized Signatory of Aramark Management Services Limited Partnership



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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: **900+**

Total GSF Commissioned: **70+ Million**

Constructed Value of Commissioned Projects: **\$11.2 Billion**

### Select Aramark Commissioning Clients

- |                                |                                |                                 |
|--------------------------------|--------------------------------|---------------------------------|
| ▪ Baylor University            | ▪ Institute for Advanced Study | ▪ State of Pennsylvania (PADGS) |
| ▪ City University of New York  | ▪ NYS Dept. of Corrections     | ▪ University of Pittsburgh      |
| ▪ Centenary College            | ▪ NYS Office of Mental Health  | ▪ University of Kentucky        |
| ▪ Drew University              | ▪ Ohio State University        | ▪ University of Pennsylvania    |
| ▪ Edinboro University          | ▪ PA Dept. of General Services | ▪ Washington College            |
| ▪ Franklin & Marshall College  | ▪ Penn State University        | ▪ West Chester University       |
| ▪ George Washington University | ▪ Princeton University         | ▪ West Virginia University      |

### FACILITIES COMMISSIONED

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



**PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES  
SCI BENNER TOWNSHIP**

**LOCATION:**  
Bellefonte, PA

**GROSS SQUARE FEET:**  
629,573

**CONTACT:**  
David Smead, CFMM3  
814-353-3690, ext. 3500

**SCHEDULE:**  
2017-2019



The campus consists of:

- 9 inmate housing units at 32,008 square feet each
- 40,671 sq. foot unit
- 15,307 sq. foot unit
- 23,255 sq. foot outside administration facility
- 18,890 sq. foot security administrative building
- 24,570 sq. foot health services facility
- 24,273 sq. foot dietary services facility
- 49,810 sq. foot laundry facility
- 31,200 sq. foot maintenance shop
- 67,261 sq. foot multi-use building

Aramark acted as the commissioning consultant that reported directly to PADGS. Contractors were responsible for their own functional testing which was witnessed by a Cx Authority hired by the construction manager. Aramark performed static inspections and witnessed functional testing to make sure all was being completed in the best interest of the state. Essentially, Aramark were the experts that made sure the state received the services they contracted.

**COMMISSIONING SUCCESS:**

Throughout inspections and functional testing, Aramark found several issues. Select major issues included:

- **Smoke Evacuation Systems:** This issue is still not 100% resolved. The firefighters override panel has been remade and reprogrammed to operate per code requirements. We are to be involved with retesting, but this effort is still in the programming phase and yet to be completed.
- **RTU BAS Controls:** The HVAC contractor bought units with packaged controls that could not meet the facilities requirements. After the prison was occupied, humidity issues occurred in the summer and freeze stat issues occurred all winter. Therefore, the contractor decided to change out to field-installed BAS controls to match the rest of the facility. Aramark brought up the issue that functionality and custom operation would not be possible with the packaged controls very early which would have saved project budget and delays but through contractor resistance, this issue prolonged the finish of the project.
- **Hot Water System:** The hot water system shutdown during the first winter that the prison system was occupied when the temperature dropped below 0°F. Aramark spent the night on site with the Department of Corrections staff to get the system operating correctly to keep the prison from freezing.
- **Condensing Water System:** Condensing water system/cooling tower operation did not work very well as the cooling tower was too low, causing the condenser pumps to cavitate. Thus, the cooling tower had to be raised.
- **Balancing:** There were many balancing issues, including the building connected to the campus loop backwards.

**PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES  
SCI GREEN - CUP UPGRADE**

The Central Utility Plant (CUP) was constructed as part of SCI Greene and became operational in 1993. It is a centralized facility for heating, cooling, and emergency power. The plant incorporates a hot water heating distribution system to meet the demand for heating approximately 750,000 square feet of occupied buildings and to supply domestic hot water to support the occupancy and program needs of up to approximately 2,100 medium and high security inmates and 700 staff. The CUP also supplies chilled water to serve the same purpose of meeting air-conditioning. Most of the equipment and systems are original to the CUP and are at end-of-life expectancy, have exceeded their serviceability, and lack efficiency.

The goal of this project is to prioritize the systems in the CUP and then refurbish, restore, or replace these systems and components based on available and acquired funding.

The general scope includes:

- Gas fired boiler replacement, including dual fuel burners.
- Hot and chilled water circulation pump and control replacement and/or refurbishment.
- Replacement of cooling system primary loop piping.
- Plant master and motor control replacement or refurbishment.
- All commissioning, start up, and regulatory compliance.

Systems being commissioned include:

- Heating, Ventilating, Air Conditioning and Refrigeration Systems (HVAC) including Heat Generation, Refrigeration, Ventilation, and HVAC Control Systems.
- Electrical Systems including Power Distribution, and Controls.

The project is currently out for bid to the contractors. During design review, we highlighted several issues with the most notable being the necessity to specify cooling tower elevation and (slight) slope of pipes to avoid air pocket accumulation in pipes.

**LOCATION:**

Waynesburg, PA

**GROSS SQUARE FEET:**

750,000

**CX SERVICES:**

Design Review  
Submittals Review  
Installation Inspections  
Performance Verification  
Operations Training

**CONTACT:**

Thomas Courtney (DGS)  
Tcourtney@pa.gov

**SCHEDULE:**

2024-In progress  
(Est. August 2025)



**PENNSYLVANIA DEPARTMENT OF GENERAL SERVICES  
SCI FOREST - UPGRADE/REPLACEMENT OF PLC & MICROLITE & BAS**

SCI Forest is a compound comprised of 202 total acres with 56.9 acres enclosed within the secure perimeter. This includes 28 buildings including 11 housing units, three inmate dining halls, infirmary, education and religious complex, warehouse, utility plant, and administration building. In addition, there are two large recreational yards and individual recreation areas for each housing unit. Housing includes one Custody Level 2 unit which includes dormitory-style housing, eight general population housing units and two segregation housing units.

The goal of this project is to replace the lighting controls, programmable logic controllers (PLCs), and BAS systems throughout the facility.

The general scope includes:

- Replacement of the existing Automatic Temperature Control/Building Automation System (ATC/BAS) with a new ATC/BAS facility-wide, including the existing Systecon controls.
- Replacement of the existing PLCs with new PLCs facility wide.
- Replacement of the existing Microlite Relay Panel Lighting Controls System with a new or updated lighting controls system.

Systems being commissioned include:

- Heating, Ventilating, Air Conditioning and Refrigeration Systems (HVAC) Control Systems - Automatic Temperature Control (ATC)/ Building Automation System (BAS).
- Electrical Systems including Lighting Control (Microlite).
- Electrical Systems including Programmable Logic Controllers (PLC's) for Perimeter Intrusion Detection System (PIDS) and Door Controls.

This project was just recently awarded to contractors and work is in the very early stages.

**LOCATION:**  
Marienville, PA

**PROJECT SIZE:**  
28 Buildings

**CX SERVICES:**  
Design Review  
Submittals Review  
Installation Inspections  
Performance Verification  
Operations Training

**CONTACT:**  
David Smith  
Davsmith@pa.gov

**SCHEDULE:**  
2024-In progress  
(Est. April 2025)



**NEW YORK STATE DEPARTMENT OF CORRECTIONS AND COMMUNITY SUPERVISION  
GREEN HAVEN CORRECTIONAL FACILITY**

**LOCATION:**  
Stormville, NY

**GROSS SQUARE FEET:**  
100,000

**CX SERVICES:**  
Submittals Review  
Installation Inspections  
Performance Verification  
Operations Training

**CONTACT:**  
Adam Card, P.E.  
Wendel, 716-688-0766

**SCHEDULE:**  
2023-In progress

Green Haven Correctional Facility is a maximum security level facility for males. Aramark was recently awarded this HVAC Controls Upgrade project from Wendel and is currently in the beginning stages.

The systems and equipment to be commissioned are:

- Direct Digital Controls (DDC) and Building Management System (BMS)
- Includes integration of all new points
- Steam PRV Controls
- Variable Frequency Drives
- New control valves installed as part of the project.
- Replacement actuators install as part of the project
- Outside Air Testing, Adjusting and Balancing





## NEW YORK STATE OFFICE OF MENTAL HEALTH NEW YORK PSYCHIATRIC INSTITUTE BMS UPGRADES - BUILDINGS 4 & 5

New York State Psychiatric Institute in the Washington Heights neighborhood of Manhattan, NY consists of specialized outpatient research clinics, educational facilities, research laboratories, and provides inpatient and outpatient psychiatric services. The Institute consist of two buildings, the Herbert Pardes Building and the high-rise Lawrence G. Kolb Research Laboratory connected by bridge walkways. The entire institute's existing building management software, Siemens Legacy Insight/Apogee, was updated with the newest controls software, Siemens Desigo, along with existing panels and controllers not compatible with the new software. All graphics were also updated as part of this project. At project inception, twenty percent (20%) of the equipment that was associated with the BMS replacement project was selected for commissioning. With the number of issues related to the aging equipment and possible efficiency opportunities, Aramark was contracted to commission the remaining eighty percent (80%) of the project. A new adult services building consisting of 156 beds.

### SYSTEMS COMMISSIONED:

Entire building management system including all panels, wiring, end devices, programming, and graphics.

### COMMISSIONING SUCCESS:

Aramark identified the following high priority issues:

- Numerous firestopping and fire rated partition deficiencies due to new wiring.
- AHU Fire/Smoke damper issues with multiple air handling units.
- Sequence of operation issues that affected occupant comfort and energy usage.
- Sensor and calibration issues related to aging equipment.
- Airflow issues related to crucial research laboratories.

### LOCATION:

New York, NY

### GROSS SQUARE FEET:

57,134

### PROJECT COST:

\$1.8 M

### CX SERVICES:

Design Review  
 Submittal Review  
 Installation Inspections  
 Performance Verification  
 Operations Training &  
 Coordination  
 Energy Efficiency/Optimization

### CONTACT:

Raymond Walsh  
 Plant Superintendent - Facility  
 Services  
 646-774-6612

### SCHEDULE:

2019-2022



**NEW YORK STATE OFFICE OF MENTAL HEALTH  
SOUTH BEACH PSYCHIATRIC CENTER RESIDENTIAL BUILDING**

<b>LOCATION:</b> Staten Island, NY	<b>CX SERVICES:</b> Enhanced Cx Services Design Review	<b>CONTACT:</b> Marshall Vitale 518-549-501
<b>GROSS SQUARE FEET:</b> 232,000	Installation Inspections Performance Verification Operations Training	<b>USGBC LEVEL:</b> Pursuing LEED Silver
<b>SCHEDULE:</b> 2018-2020		

The Residential Building located on the South Beach Psychiatric Center Campus in Staten Island, NY is a newly constructed 232,000 SF five-story state-of-the-art 262-bed inpatient treatment facility that replaces five functionally obsolete buildings that were damaged after superstorm Sandy. Located adjacent to Lower New York Bay and the existing campus, the new inpatient facility and three adjacent recreation yards have been constructed 20 feet above sea level to mitigate damage from future storm surges. The new building includes adult and adolescent behavioral health care beds, a dental clinic, pharmacy, and administrative support spaces and is linked to the recently constructed Central Services Building.



In addition, the building houses dining areas, a centralized pharmacy, a centralized medical mall, centralized nursing, interior and exterior program spaces, patient admissions, a mental health court and visitor center. The new Residential Building is designed to be LEED® for New Construction Silver certified.

**COMMISSIONING SUCCESS:**

Commissioning of the new Residential Building was successful. Aramark identified over 300 design phase issues and over 3500 construction phase issues over the course of the project. Aramark distributed 44 general field inspection reports and 25 functional verification field reports during the construction and testing process. These reports were vital to the project’s overall success as they provided real-time documentation of the construction progress. Some of the major items found are included below.

- Aramark witnessed test and balance for the air side and water side equipment. Issues were found with the airside systems that resulted in STV issuing Bulletins to adjust cfm requirements on some supply and return air grilles, and to change return fan air flow in the AHU systems.
- During construction and testing, Aramark coordinated with the project team, TDX, and STV to raise any issues between the existing systems and the integration of the new mechanical systems. Aramark’s collaboration with the project team resulted in the upgrade of the existing Boiler #1 hot water isolation valve to match the new Boilers #2 and #3 new Residential Building scope.
- Several issues were identified with the AHUs, such as the implementation of a revised outdoor air sequence provided by STV and damper actuator adjustments to maintain proper minimum airflow positions.

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

<b>LOCATION:</b> Karthaus, PA	<b>CONSTRUCTION COST:</b> \$4.85 Million	<b>CX SERVICES:</b> Submittals Review Installation Inspections Performance Verification Operations Training
<b>CONTACT:</b> Sarah Bingaman DGS, 717-480-2502	<b>GROSS SQUARE FEET:</b> 12,000 GSF	
	<b>SCHEDULE:</b> 2023-In progress (est. 2024)	

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.

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.



## B. PROJECT UNDERSTANDING AND APPROACH

### PROJECT UNDERSTANDING



SCI Phoenix is a 3,830-bed facility situated on the property of SCI Graterford. This state-of-the-art facility was designed to replace the aging SCI Graterford, which was built in 1929. SCI Phoenix's unique model is comprised of two prototypical correctional facilities featuring one shared Administration/Support Building. Both East and West sides of SCI Phoenix have a Program Services Building, CI shops, Commissary, Property, and Maintenance. Our understanding of the buildings included as part of the scope of work is that it "will be throughout the SCI." We understand from the documents provided that there are 15 housing units and a large facility administration/support building consisting of four connected buildings/functions.

Construction of the facility started in 2012 and DOC occupied the facility in August of 2018. After completion of facility construction in 2018, commissioning and final HVAC tuning work was not completed. The incomplete work has caused issues with maintenance and HVAC system operation. This project will provide a complete operational HVAC and control system and conduct a final ductwork cleaning that did not occur upon completion of the project.

Aramark understands that the goal of this project is to upgrade building automation system (BAS) controls and retro-commission HVAC systems.

The general scope of this design-build project includes the design, permitting, and construction of the following:

- Point to point check of field component to BAS control to ensure proper operation.
- Upgrade servers and graphics.
- Refine and define alarm points to eliminate nuisance alarms.
- Complete final programming of the sequence of operation.
- Complete energy model for reverification of performance.
- Duct cleaning housing units P, Q, R, S, and T.
- Commissioning and tune HVAC systems as required.
- Integrate HVAC systems with fire alarm systems.

The project schedule notes design phase between September 2024 and June 2025. Construction is slated from August 2025 to January 2026.

For HVAC systems, we understand that they are running in a manual mode of operation by being placed in 'Hand' and not controlling automatically. Concerns with this mode of operation is the risk of not providing sufficient ventilation air, thermal comfort, and energy efficient operation to align with International Energy Conservation Code requirements.

There are many systems that we are familiar with and can shared lessons learned. For the housing units, referencing the Typical Housing Unit drawings, there are two (2) air handling units with indirect gas pre-heat coils, cooling coils, energy recovery wheels, supply and exhaust fans to support smoke control, fire dampers, smoke dampers, terminal air distribution with AC units, VAVs with reheat coils, and electric wall heaters. There are smoke detectors in cell exhaust ductwork for groups of four cells.

The Facility/Administration building consists of four (4) connected buildings with building functions of Facility Administration, Security Administration/Visitation, Health Services, and Dietary Services. The 'Appendix O - Bridging Documents' show HVAC systems of air handling units, make-up air handling unit, rooftop air handling unit, several fans, hot water systems with gas-fired boilers with pumps, and many types of terminal units. The air handling unit systems have gas fired preheat coils, a few have hot water preheat coils, and all have chilled water coils. The terminal units include VAVs with hot water reheat, VAVs with electric reheat, unit heaters, cabinet unit heaters, fan coil units, indoor air conditioning units, etc. There are also fire dampers and smoke and fire smoke dampers.

Once building level chilled water coils are controlling correctly, we can review central utility plant operation for efficiency.

Our approach to retro-commissioning of the HVAC systems will be to work with the design build contractor to verify the system function in accordance with the OPR and approved sequence of operation with an emphasis on optimizing system operation including trend review for any required loop tuning, etc.

For the HVAC systems integration with fire alarm systems, we will work to verify proper system response with unit and respective damper shutdown as well as alarms annunciating on the fire alarm system and BAS.

For BAS systems, we understand the system is to control all mechanical equipment, including all unitary equipment such as VAV boxes, fan-coils, AC units. The building controllers should have energy management software capabilities so reviewing the controller setup and logic can determine how the system has been operating and changes that can be implemented to optimize efficiency.

For International Energy Conservation Code compliance, some specific items for this project to focus on will be ensuring air handling unit economizer function, off-hours temperature set back, energy recovery ventilation effectiveness confirmation, etc. For the Facility/Administration building, another focus area will be kitchen ventilation and exhaust system operation to ensure proper operation during cooking hours with no adverse space pressurization impacts and verifying system is disable during non-cooking hours.

## 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 SCI Phoenix Controls Upgrade and RCx of HVAC Systems 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 PHASE

With design kickoff date of 9/15/24 and design completion scheduled for 6/22/25, the design phase tasks are listed below. 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’s facilities maintenance staff, conduct an OPR workshop early in design to determine 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. A good starting point for this work is the design-build contractor Program Development Study which will be requested and utilized to draft the OPR and develop additional questions for the team. We’ll also reference the documentation and information we have from our involvement at SCI Phoenix in the initial 2017-2018 construction phase.
- 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. We understand from the provided RFP documents that there are drawings for buildings 1, 2, 3, 4 from March 2024 which would be reviewed first in addition to any other available documents from the design-build contractor.

- 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. Most of the submittal review will be the automatic temperature controls and will reference spec 230900 and 230993A Sequence of Operations for Building Automation Systems.
- 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. Assume at least bi-weekly meetings after design completion in June 2025 leading up to construction completion in January 2026.
- 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. Assume at least bi-weekly meetings conducted as a line item in job construction meetings or directly after those meetings after design completion in June 2025 leading up to construction completion in January 2026.
- 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. **Issues and Resolution Log** – Develop a commissioning issues log containing open and continuing items, status, and name of person/organization responsible for resolution.

- f. **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 includes the project final OPR, BOD, construction record documents, submittals, completed startup, verification checklists, functional and performance checklists, verified sequence of operation, facility guide, training records, and commissioning report. The systems manual should be used in the initial and subsequent training of the building operations staff and occupants. The systems manual should be updated throughout the life of the building. Per RFP question #3 and response the systems manual is for commissioning only and any changes to the existing equipment/sequence of operations and related pertinent manuals for the new controls would be the responsibility of the design-build contractor.
- g. **Pre-Functional and Functional Performance Testing** – Confirm (but not necessarily witness) manufacturer’s startup of individual equipment components (Pre-Functional Performance Testing). Pre-functional performance testing will be conducted concurrent with and after design-build contractor completes pre-functional checklists during the construction period. 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.
- h. **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.
- i. **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.
- j. **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 and Fire Alarm Systems (as they relate to interoperation with the BAS and HVAC systems).
- Heating, Ventilating, Air Conditioning and Refrigeration Systems (HVAC) including Heat Generation, Refrigeration, Ventilation, and HVAC Control Systems.
- Electrical Systems including Power Distribution, and Controls (As they relate to the BAS and HVAC systems).
- Electronic Safety and Security Systems including Security, Alarm, and Detection Systems. (as they relate to interoperation with the HVAC and BAS systems).



## C. GEOGRAPHIC LOCATION

The distance to the job site of our proposed staff is noted below. Please note that Allison Bailey will not need to be on-site at the project. In addition, Frank Snyder and Tim Russ will be supporting the project off-site but will be available to support on-site as needed.

- Chris Skalski - 5.5 miles
- Sean McCarty - 10 miles
- Mack Ailes - 35 miles

## D. PROJECT WORK PLAN

### I. Schedule of Milestones

#### DESIGN REVIEW PHASE - SEPTEMBER 2024 THROUGH JUNE 2025

- Conduct Owner's Project Requirements (OPR) workshop and develop OPR.
- Develop and provide the Cx Plan.
- Provide design review and comments.
- Develop and provide Cx specs for all systems/assemblies being commissioned.

#### CONSTRUCTION PHASE - AUGUST 2025 THROUGH JANUARY 2026

- Perform submittals review.
- Conduct Cx kick-off meeting with contractors.
- Attend construction meetings as needed.
- Hold regular commissioning meetings.
- 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.
- Conduct Cx meetings as needed.
- Develop and deliver Systems Manual.
- Review, pre-approve and verify training of personnel.
- Develop Preliminary Cx Report.

#### ACCEPTANCE PHASE - JANUARY 2026 THROUGH JULY 2026

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

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

Aramark will perform all commissioning activities with its own personnel. Note ATC vendor / Design-Build contractor support will be required to conduct functional testing as directed by Cx Agent. 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.**

A risk to successful implementation is the ambiguity on the # of buildings and systems to be Cx within those buildings included. For estimating purposes pricing was provided for RFP docs provided assuming 15 housing units and the Facility/Administration building consisting of 4 inter-connected buildings/functions.

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).**

A. Design Phase (OPR, Cx Plan, Design Meetings): **110 hours**

B. Construction Phase: **1900 hours**

1) Construction and Cx meetings: 96 hours

2) Cx documentation (Submittals, Issues list, PFT checklist, FT forms): 272 hours

3) Site work (Installation observation, PFT verification, FT): 1532 hours

C. Training Phase (Training coordination): **24 hours**

D. Warranty Phase (Opposite season testing, post-occupancy warranty review): **32 hours**

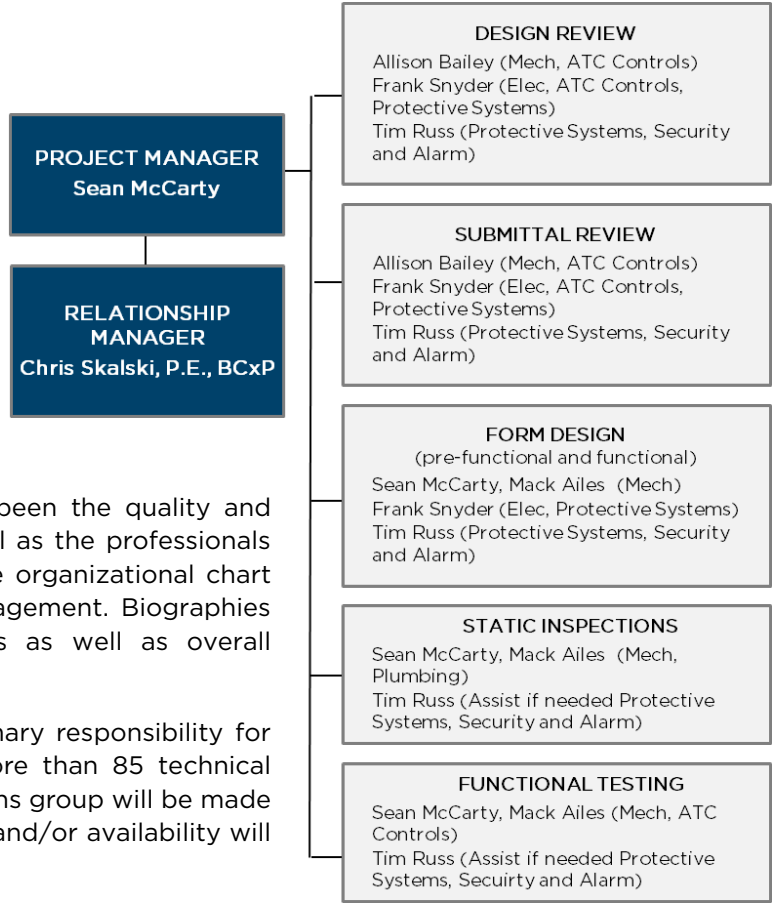
E. Final Documentation (Preliminary and Final Cx report, Systems Manual): **88 hours**



### 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.

#### PROPOSED STAFF HIGHLIGHTS

**Chris Skalski**

- 21 years’ experience
- Professional Engineer (PA)
- LEED AP
- Building Cx Professional
- 21 Years with Aramark

**Sean McCarty**

- 15 years’ experience
- Mechanical Engineer
- LEED AP BD+C
- 15 Years with Aramark

**Allison Bailey**

- 28 years’ experience
- Mechanical Engineer
- Professional Engineer (KY, OH, WV)
- 16 Years with Aramark

**Frank Snyder, Jr.**

- 37 years’ experience
- Professional Engineer (PA)
- LEED AP BD+C
- Certified Commissioning Agent (CxA), AABC / ACG

**Mack Ailes**

- 7 years’ experience
- Energy Engineer
- 7 years with Aramark

**Tim Russ**

- 24 years’ experience
- Mechanical Engineer
- NJATC Electrical Apprenticeship

**SEAN MCCARTY, MSME,  
LEED AP BD+C**

Project Manager  
Aramark Engineering  
Solutions

**TOTAL GSF  
COMMISSIONED**

7.0 Million

**TOTAL COMMISSIONING  
PROJECTS**

40

**EDUCATION**

University of Alabama  
Master of Science  
Mechanical Engineering

University of Alabama  
Bachelor of Science  
Mechanical Engineering

**CERTIFICATION**

LEED Accredited  
Professional (BD+C)

OSHA 10

Mr. McCarty has 15 years of energy management and building commissioning experience. Currently working in the North Atlantic region as a Project Manager, he has been involved in all aspects of commissioning from new building commissioning MEP design review to retro-commissioning energy analysis. As a preferred project manager for some of our top clientele, he is capable of providing the services needed to present a result that exceeds expectations.

Mr. McCarty is an alumni of the University of Alabama where he achieved both a BS and MS in mechanical engineering. During his graduate term, he gained two years of experience working in the energy management field, assisting small-to-medium sized manufacturing industries in Alabama with energy conservation, waste reduction, and productivity issues. This was accomplished by performing energy audits for clients and providing each with a detailed report of recommendations on how to save energy.

**COMMISSIONING PROJECT MANAGER EXPERIENCE:**

Harrisburg Area Community College - Lancaster Campus Retro-Commissioning - \$200K, 266K GSF

Langan Engineering Philadelphia - Office Renovations - LEED Certified, \$800K, 7.5K GSF

Neumann University

- Library Renovations Phase II - \$6M, 7.4K GSF
- Center for Sport, Spirituality & Character Development - LEED Silver, \$23M, 95K GSF

Pennsylvania Department of General Services (PADGS)

- Coatesville National Guard Readiness Center - LEED Certified, \$8M, 28K GSF
- Honesdale National Guard Readiness Center - LEED Certified, 32K GSF

Pennsbury School District - Renovations to Pennwood Middle School - LEED Gold, \$50M, 190K GSF

Penn State University, Abington Campus - Lion's Gate Apartments - LEED Gold, \$39M, 136K GSF

Susquehanna Healthcare System - Williamsport Campus Patient Tower Additions & Renovations - \$142K, 982K GSF

The University of Pennsylvania

- Horticulture Center - LEED Platinum - \$10M, 21K2 GSF
- FY16 Retro-Commissioning (6 Buildings) - 780K GSF
- HVAC Reno to the Fels Center for Govt - \$4M, 35K GSF
- 3537 Locust Walk Renovations - LEED Silver, \$4.7M, 7.4K GSF
- Renovations to the Carolyn Lynch Vivarium - \$3M, 5.3K GSF
- Ott Indoor Track & Field Center - \$47.9M, 73.5 GSF
- Franklin Field Team Operations Center - \$27M, 20K GSF

The University of Scranton

- Loyola Science Center - LEED Certified, \$73M, 200K GSF
- Pilarz & Montrone Residence Halls - \$30M, 189K GSF
- Rehabilitation Center - LEED Silver, \$45M, 102K GSF
- Renovations to McGurkin Hall - \$9M, 82K GSF

Upper Perkiomen School District - New Middle School - LEED Silver, \$53M, 200K GSF

**ALLISON BAILEY, P.E.**

Senior Manager  
Aramark Engineering  
Solutions

**TOTAL GSF  
COMMISSIONED**

10 Million

**TOTAL COMMISSIONING  
PROJECTS**

56

**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 28 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 the new Twin Valley Behavioral Health Hospital in central Ohio. Allison performs over 40 design reviews per year and has most recently reviewed multiple projects for Nemours, renovations at M&T Bank Stadium and various other projects for Penn State University.

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 meeting with clients to present design ideas and to discuss system expectations. She was responsible for the coordination of HVAC systems design with all disciplines, including architectural, structural, electrical, plumbing, and technology. Ms. Bailey was also responsible for the installation, maintenance, and upgrade of HVAC computer software. She completed projects on time and under budget.

**COMMISSIONING AGENT EXPERIENCE:**

Baylor University

- McLane Football Stadium - \$260M, 860K GSF on 93 Acres Williams Soccer
- Rosenbalm Fountain
- Penland Dormitory - \$19M, 96K GSF
- Hankamer Cashion - \$26M, 164K GSF
- Foster Business School - \$100M, 275K GSF

Children’s Hospital of Pittsburgh - John G. Rangos Research Ctr. - \$150M, 250K GSF

The Ohio State University

- South High Rise - Renovations/Additions - \$172M, 583K GSF
- Biomedical Research Tower - \$36M, 100K GSF

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

Twin Valley Behavioral Healthcare - \$88.7M, 285K GSF

University of Pittsburgh

- Benedum Hall - LEED Registered - \$40M, 180K GSF
- Medical Center - Clinical and Research - \$17M, 30K GSF

New York State Office of Mental Health South Beach Psychiatric Center

**FRANK 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  
Mechanical Engineering  
Technology

**CERTIFICATIONS**

Professional Engineer (PE)  
(AZ, CA, CO, DC, DE, IL, MA,  
MD, NC, NH, NJ, NM, NV, NY,  
PA, VA, UT, and WV)

USGBC LEED AP BD+C

Certified Commissioning  
Agent (CxA), AABC / ACG

Energy Management  
Professional (EMP), AABC /  
ACG

OSHA 10

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 healthcare and higher education clients in the Northeast and Mid-Atlantic areas, including Hershey Medical Center, Shippensburg University, University of Maryland, and WellSpan Health.

**COMMISSIONING 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

**MACK AILES**

Cx Manager  
Aramark Engineering Solutions

Mr. Ailes is a Commissioning Manager for Aramark Engineering Solutions with nearly seven years' experience providing building commissioning services to various projects and clients in the Northeast Region.

**TOTAL GSF COMMISSIONED**

1.8 Million

Current projects include the Penn State University Hazleton Campus Library Renewal, and several projects for the University of Pennsylvania, the Allegheny Health Network, and Nemours Children's Health.

**TOTAL COMMISSIONING PROJECTS**

40

Prior to Aramark, Mr. Ailes completed a comprehensive summer internship with John J. Bee Mechanical and assisted with projects throughout the Philadelphia area.

**EDUCATION**

Penn State University  
Bachelor of Science  
Energy Engineering

**SELECT COMMISSIONING PROJECT EXPERIENCE:**

**Allegheny Health Network**

- Allegheny Valley Hospital Linear Accelerator Replacement, 2K GSF
- Brentwood Neighborhood Hospital, 36K, \$12M
- McCandless Neighborhood Hospital, 49K, \$12M
- West Penn Hospital Grossing Lab, 2K GSF

**Aramark Corporate Headquarters - 2400 Market Street, Philadelphia, PA  
Nemours Children's Health**

- 3CE Moseley Institute Outpatient (in Design) - 20K GSF
- 5W Moseley Institute Inpatient (in Design) - 28K GSF
- Administration and Office Building Fitout (in Construction) - 148K GSF
- Collections Storage Facility
- Malvern Specialty Center, 77K GSF
- Emergency Department Behavioral Health Rooms - \$8.5M, 2K GSF

**University of Pennsylvania**

- College Hall Central Plant Renovations, 78K GSF, \$2M
- David Rittenhouse Laboratory Renovations
- Fagin Hall Hydronic System Replacement, 25K GSF, \$4.5M
- FY19 Retro-commissioning - 3 Buildings, 347K GSF
- FY20 Retro-commissioning - 5 Buildings, 569K GSF, \$250K
- Goddard 6<sup>th</sup> Floor Thermal Comfort Improvements
- Houston Hall ATC Upgrade, 10K, \$350K
- Houston Hall HVAC Renovations, 85K GSF
- Kings Court, English House, Dubois AC Renovations
- The Lauder Institute HVAC Renovations, 60.4K GSF, \$5M
- Ryan Veterinary Hospital, 150K GSF
- Vance Hall 3<sup>rd</sup> & 4<sup>th</sup> Floor Renovations, 27K GSF, \$2.5M

**Penn State University**

- Hazleton Campus Knowledge Commons Library Renewal, 28K, \$6M

**George Washington University**

- Health & Wellness Center Retro-commissioning
- Shenkman Hall Retro-commissioning
- Smith Center Retro-commissioning

**Pennsylvania Department of General Services**

- Bucks County New Maintenance Facility

**West Chester University - Sykes Building, 15K GSF, \$2M**

**TIM RUSS**

Cx Manager  
Aramark Engineering  
Solutions

**YEARS OF EXPERIENCE**

24

**EDUCATION**

Milwaukee School of  
Engineering  
Systems Engineering Edge  
Certification

NJATC Electrical  
Apprenticeship

**CERTIFICATION**

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 Niagara, Schneider Electric EcoStructure, Notifier by Honeywell. FieldServer Technologies, ABT software, Desigo, Datamate and Insight.

**SELECT COMMISSIONING PROJECT 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



**CHRIS SKALSKI, P.E., LEED AP, BCxP**

Sr. Manager, Commissioning  
Aramark Engineering  
Solutions

**TOTAL GSF COMMISSIONED**

8 Million

**TOTAL COMMISSIONING PROJECTS**

60 Project Manager  
50 Cx Agent

**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

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 and healthcare 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 PROJECT MANAGER 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

Bloomsburg University - Hartline Science Center Renovation - \$8M, 73K GSF

Nemours Children’s Health

- ARB Mechanical and Electrical Concept
- Malvern Specialty Center, 77K GSF
- Emergency Department Behavioral Health Rooms - \$8.5M, 2K GSF
- 5W Moseley Institute Inpatient (in Design) - 28K GSF
- 3CE Moseley Institute Outpatient (in Design) - 20K 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

- School of Arch. and Landscape Design - LEED Gold - \$27M, 111K GSF
- EEB Hub Philadelphia Navy Yard, Building 661, 7R - Pursuing LEED Gold, \$25M, 60k GSF
- Worthington Scranton - Business Classroom - LEED Certified - \$2.5M, 9K GSF

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