

REQUEST FOR QUOTE



pennsylvania
DEPARTMENT OF GENERAL SERVICES

**Commissioning
Agent Services**

**STATE POLICE
ACADEMY**

*Core Buildings, BESO &
Sitework AND Out
Buildings, Tactical
Village & Sitework*

Projects No.
DGS C-0211-0005-005
DGS C-0211-0005-006

Technical Submission

aramark 
ENGINEERING
SOLUTIONS

2400 Market Street
Philadelphia, PA 19103

March 22, 2024

Hans Baker
PA Department of General Services

Re: Commissioning Agent Services for DGS C-0211-0005-005 and DGS C-0211-0005-006

Dear Benjamin,

We are pleased to respond and provide a proposal and cost estimate for Commissioning Agent Services during the design stages of the Department of General Services Project No. DGS C-0211-0005-005 and DGS C-0211-0005-006, PA Police Academy Core Buildings and Out Buildings, Tactical Village, and Sitework projects.

Aramark is familiar with the DGS requirements for construction and has worked on many projects for DGS. Manas Vaidya is slated as the project manager for this project. Manas's home office is based in Harrisburg, PA so he is very close to this project geographically, allowing for great efficiency in travel time and any possible expenses. At the same time as construction is slated for this project, the Aramark team will be working on other projects for Penn State Health at the Hershey Medical Center within proximity which will allow for great flexibility and reimbursable sharing between the projects minimizing associated expenses.

Manas will be supported by Allison Bailey, P.E., Frank Snyder, P.E., CxA, EMP, LEED-AP, Kevin Barber, Boyd Hoats, Mack Ailes, and Dave Bacco for mechanical, electrical systems, and controls during design. This team has performed similar tasks for many of our references listed within our response. Tim Sullivan, Director of Commissioning, will provide quality control and support.

Aramark is uniquely qualified for this project with most of our team members originating in the controls field. We have intimate experience with various control systems and many of our people have programmed these systems. We are skilled in this type of control and monitoring and will verify that the correct programming and reporting is completed.

We look forward to continuing and strengthening our relationship with the Department of General Services. Should you have any questions, please do not hesitate to contact Tim Sullivan, Director of Commissioning Services at (914) 304-6252 or sullivan-timothy@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. Whether we're working with higher or primary education clients, we bring a customized approach based on the individual drivers of each organization. Aramark is 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 educational 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
- 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

FACILITIES COMMISSIONED

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



TOBYHANNA ARMY DEPOT PADGS, Tobyhanna, PA



Tobyhanna Army Depot is a recognized leader in providing world-class logistics support for command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems across the Department of Defense. Tobyhanna's unparalleled capabilities include full-spectrum logistics support for sustainment, overhaul and repair, fabrication and manufacturing, engineering design and development, systems integration, Post-Production Software Support, technology insertion, modification, Foreign Military Sales, and Global Field support to our Joint Warfighters.

COMMISSIONING SUCCESS:

As part of a Honeywell performance contract, Aramark was contracted to retro commission all existing air handlers, chilled water systems, and hot water systems that were scheduled for replacement and control system upgrades throughout the facility. This included over 64 roof top and air handling units throughout the campus. The intent of this effort was threefold including:

- Establishing a baseline of the existing unit performance and capabilities to verify that replacement units and control systems meet or exceed the performance of the replaced/upgraded units.
- Developing a sequence of operations of all of the existing equipment to ensure that the new control systems match the existing control schemes.
- Developing a deficiency list of all components that were not operational that were slated for reuse in the controls upgrade Aramark also subcontracted a testing and balancing agency to provide a certified air balance report of all supply airflows of the existing units. This was to verify that the new units provide at least the same airflow.

The greatest challenge to this project was the timeframe of the effort. Honeywell contacted Aramark in March 2018 and only contracted with us in early April 2018. The effort had to be completed prior to mid-May of 2018, leaving only a month of time to complete the project. Aramark dispatched two teams of two commissioning agents and a team of two certified balancers that spent close to a month on site completing the effort. In addition to the timeframe, the logistics of site access, locations of the units (spread out over 2.4M GSF) and the weather in the Poconos (several feet of rooftop snow) made completing this task monumental. Only Aramark had the expertise and manpower to get this completed in the timeframe necessary.

CONTACT:

Brian Sharlow, 201-912-2364
brian.sharlow@honeywell.com

GROSS SQUARE FEET:

2,400,000

PROJECT COST:

\$45 Million

CX SERVICES:

Retro-commissioning of existing HVAC and primary systems, review of control systems replacement, slated for commissioning of new systems

SCHEDULE:

2018 - 2018

FORT INDIANTOWN GAP NEW YOUTH CHALLENGE CENTER Anville, PA

CONTACT:

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

CONSTRUCTION COST:

\$4 Million

GROSS SQUARE FEET:

15,500

CX SERVICES:

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

SCHEDULE:

2021 – 2023



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.

Aramark performed comprehensive commissioning of the facility’s systems through the Design, Construction and Acceptance, and Occupancy and Operations/Warranty phases. The process included design reviews, commissioning coordination meetings, final system readiness checklists and functional performance tests preparation, field observation site visits, operations and maintenance manual reviews, air and hydronic test and balance report reviews, operation and maintenance training session reviews, system functional performance testing, systems manual submission, and final commissioning report submission.

COMMISSIONING SUCCESS:

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.

UNIVERSITY OF PENNSYLVANIA – DORMITORIES Philadelphia, PA

Three low rise college dormitory houses (Dubois Center, English House, and Kings Court) were renovated to accommodate air conditioning system upgrades. The scope of work included modifications to existing architectural, mechanical, electrical, plumbing, and fire protection systems. The project construction was completed in the summer 2019 between May and August 2019, and punch list and commissioning issues were addressed over winter break 2019-2020.

SYSTEMS COMMISSIONED:

- Heating hot water systems
- Dual temp water systems
- Chilled water systems
- Make up air handling units
- Fan coil units (25% strategic sampling)
- Hydronic Piping Systems
- Air Distribution Systems
- Iconics SCADA (100% sampling)

COMMISSIONING SUCCESS:

A few of the higher priority issues identified and resolved include the following:

- System performance issues:
 - Kings Court and English House dual temp systems were pumping frequently at 100% speed and not maintaining initial balanced differential pressure set points over various systems loads with outside air temperatures below 60° to above 95°. The mechanical contractor resolved this by correcting pipe risers that were piped backwards.
 - Kings Court and English House dual temperature systems and Kings Court glycol CHW system were not maintaining 47°F temperature set point over various loads with outside air temperatures below 60° to above 95°. The mechanical contractor corrected the CHW system flow checks to resolve the issues.
 - Make-up air handling units MUA-1,2,3 cooling performance were not meeting scheduled performance data due to associated glycol chilled water system performance issues. Check valve repairs were made by the mechanical contractor to address the issues.
- Final ATC controls were a work in progress at the time of testing which was later corrected and verified.
- Balancing integration of system set points and optimization of set points for accurate energy efficient system control.

CONTACT:
Dave Dunn,
Senior Project Manager
215-898-8803
ddunn@upenn.edu

GROSS SQUARE FEET:
216,000

CX SERVICES:
Installation Inspections
Performance Verification
Operations Training and
Coordination

SCHEDULE:
May 2019-January 2020



CITY UNIVERSITY OF NEW YORK - GRADUATE CENTER New York, NY



CONTACT:

Tria Case, Esq.,
University Director of
Sustainability and Energy
Conservation
646-664-2856

CX SERVICES:

Design Review
Installation Inspections
Performance Verification
Operations Training and
Coordination

GROSS SQUARE FEET:

200,000

SCHEDULE:

2020 - 2022

The CUNY Graduate Center is located in the heart of New York City on 5th Avenue and 34th Street. Campus features include a three-story library with historic design elements, spaces for scholarly gatherings and public programs, a 389-seat auditorium, a 180-seat recital hall, skyline conference, and dining rooms. The project included replacing the Cooling Tower, upgrading major AHUs controls, installing eight new VAV boxes, installing a new Building Management System, and Integrating existing (not upgraded) legacy controllers and third-party equipment such as the chillers.

SYSTEMS COMMISSIONED:

Building automation system, air handling units, H&V units, general and toilet exhaust fans, hot water heating system and associated equipment, chilled/condenser water system and associated equipment, condensate, domestic, and sump pumps, fan coil units, variable air volume terminal units (VAVs).

SERVICES PROVIDED:

Scope of Work based on previous Aramark RCx efforts; design and construction documentation review; project oversight during the construction and acceptance phases; field management; commissioning plan and documentation review; oversee Cx authority testing procedures; meetings and progress inspections; TAB report review; coordination and assistance in integration third-party equipment with a newly installed BMS; confirmation of operational characteristics and schedules of major building systems utilizing the trending capability of the BMS or installation of the dataloggers; project completion documentation review; and M&V (measurement and verification) Report generation and submittal.

COMMISSIONING SUCCESS:

Aramark oversaw the project which was completed in the established timeline and met all local building codes and regulations. The newly upgraded BMS elevates building operator productivity. The ability to monitor systems and receive alarms and other key performance indicators in real time provide the operators with the tools to be proactive in system maintenance and a process to perform their daily tasks in a timelier manner. Aramark verified that all newly upgraded controllers were programmed in accordance with the required building standards. Over 50 issues were identified that will provide optimal building controls and improve the comfort of occupants once resolved. Highlights of issues found include:

- Inaccurate temperature, pressure, flow, and level readings. Recalibrating or replacing failed sensors is essential for optimal and efficient controls.
- Incorrect integration with the legacy controllers and third-party equipment. Aramark coordinated and assisted the integration process.
- Incorrectly programmed control algorithms and reset functions. Aramark assisted the control contractor in ensuring that all systems were programmed as intended.

WEST CHESTER UNIVERSITY BUSINESS AND PUBLIC MANAGEMENT CENTER PADGS, West Chester, PA

This new five-story, 90,000 square foot building features 21 classrooms, state of the art technology, innovative energy efficient design, impressive student workspaces and collaborative areas, meeting rooms, lounge areas, faculty and administrative offices, and dense wireless connectivity. It is the largest academic building on campus. Aramark was selected to perform commissioning in the design phase through substantial completion and warranty phase to verify the installation and operation of the systems and equipment met the design intent.

COMMISSIONING SUCCESS:

From the start of design until the end of functional testing there were a total of over 400 commissioning deficiencies noted. The largest impact was on Thermal Comfort & Indoor Air Quality comprising 31% of the issues. The higher priority issues found and resolved include the following:

- Several issues were identified for ground loop heat pumps causing temperature and humidity issues. Compressor issues were identified on several that were not enabling when commanded On; several heat pumps were found to have condenser water temperatures outside of manufacturer recommended ranges; strainers were clogged on multiple occasions and were blown down due to dirty water; and several heat pumps were identified as having difficult or no access to filters and condensate switches.
- Several heat pumps were not meeting zone temp cooling set point of 74 with temps above 76 frequently during occupied mode in the summer. Several heat pumps were not achieving zone humidity set point of 60% RH or less in dehumidification mode. The dehumidification and hot gas reheat coil (in applicable cases) should be checked.
- AHU-1,2 were found not maintaining 70 set point in cooling mode. Trends showed supply air temperature in low 80s when OAT>90. Also, compressors were not operational to dehumidify/reheat via hot gas reheat. ATC contractor Radius corrected in June 2017. AHU-1,2 periods with elevated return air humidity values above 70% RH. This is related to AHU-1,2 cooling and dehumidification mode sequence. This issue was investigated throughout the summer of 2017 with project and design team.
- Domestic hot water heat pump WWHP-3 had experienced temperature control issues where temps were varying between 90 to 135 to maintain 120°F set point. The system would disable frequently on phase failure alarms requiring a manual reset and which coincided with emergency generator exercise cycle.
- A few issues were found with fire/smoke dampers not closing when simulating smoke detection while others were inaccessible. These issues were corrected by MBR.
- Several lighting control issues were identified with occupancy sensor timer settings not functioning correctly, light dimming operating correctly and daylighting not operational in some locations.

CONTACT:

Nathan Davion, Assistant
Project Manager, PADGS
ndavion@pa.gov

GROSS SQUARE FEET:
90,000

CX SERVICES:

MEP Systems Review
Design Review
Installation Inspections
Performance Verification
Operations Training

PROJECT COST:
\$25 Million

LEED STATUS:
Gold

SCHEDULE:
2017-2018



PENN STATE UNIVERSITY HARRISBURG STUDENT ENRICHMENT CENTER Middletown, PA

CONTACT: Doug Wenger Project Manager 814.863.9622 jdw132@psu.edu	CX SERVICES: MEP Systems Review Design Review Installation Inspections Performance Verification Operations Training
GROSS SQUARE FEET: 70,000	SCHEDULE: 2015-2016
PROJECT COST: \$30 Million	



In response to a substantial increase in student population, the Student Enrichment Center was constructed at the core of the Penn State Harrisburg Campus. The 70,000-square-foot Student Enrichment Center houses space for key new and existing student services. It features student lounges, food service with open seating and a convenience store, a spiritual center, the bookstore and offices for student counseling and disability services, honors education, international student support services and international study programs. In addition, it features a 360-seat theater/lecture hall.

COMMISSIONING SUCCESS:

Design reviews documented over 114 issues. Submittal reviews focused on commissioned equipment and all submittals were reviewed concurrently with the design team. Aramark documented over 70 issues during static inspections and functional testing. Some of the more notable issues included:

- Sewer and drain piping were routed during construction over an electrical room. This piping was subsequently moved and rerouted to avoid potential damage to the gear,
- A shot feeder was found to be piped incorrectly to the supply and discharge of the heat exchanger. This would create no differential pressure across the feeder. The piping is being rearranged to be across the inlet and discharge of the system pumps.
- A fire protection line was found to be routed through a lobby bulkhead with exterior exposure. The pipe was rerouted to the inside of the lobby. This prevented a major leak during the next winter.
- Aramark found major issues with the air handling unit submittals with the provision of air handling units that could not meet the sequence of operations. The initial line of air handlers were upgraded to a better product to meet the requirements.
- Aramark was greatly involved in the BIM coordination process and assisted in resolving many issues throughout the coordination efforts.
- During design review, Aramark found issues with the air handling unit capacities requiring that the coils be resized.
- Electrical design reviews made significant impact during design including smoke, heat detector placement, exit signage, emergency lighting requirements and electrical labeling. These comments had a very positive impact to life safety and L&I requirements.

B. PROJECT UNDERSTANDING AND APPROACH

PROJECT UNDERSTANDING

The modernization project will replace outdated infrastructure with multiple new buildings totaling 366,000 sq. ft. on the 146-acre site in Hershey, including a five-story Marquee Building with modern classrooms and administrative offices, 300 individual cadet dormitories, a 500-seat auditorium, and a spacious cafeteria.

In addition, the new PSP facility will include a physical education building with two gymnasiums, a training tank, and a weight room to provide space and equipment for self-defense training, water safety courses, and fitness conditioning. Indoor and outdoor tactical villages will host simulations of high-risk incidents such as active shooters, hostage situations, and barricaded subjects. Additional facilities at the new PSP Academy will include a new headquarters for the Bureau of Emergency and Special Operations, horse stables for the Mounted Unit, a central supply warehouse, and a vehicle garage at the Pennsylvania State Police Historical, Educational, and Memorial Center.

The existing Academy facilities will remain operational throughout the next several years of construction, according to the governor's office, which will include the demolition of several existing structures.

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 New State Police Academy projects. 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



Past experience has demonstrated that collaboration, communication, and proper planning are the keys to verifying that the commissioning program is fully integrated into the normal design and construction process. This integration process for the program begins very early by initially employing a carefully prepared kick-off meeting, commissioning plan, and schedule that will guide the effort in and around the construction schedule. 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:

- **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 to document the project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. This OPR document will be used primarily to evaluate that product submittals meet already-established goals for owner requirements and develop acceptable Cx and training processes. 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.
- **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). This Cx Plan will specifically identify all items to be commissioned and what Cx processes will be utilized to do so. Provide pre-functional test documents for each unique type of item. Provide a unique tag name for each item that coordinates with naming established in the design. Provide a list of all product submittals that will need to be reviewed by CxA. Provide draft and final documents. Final document will include functional test procedures and outline of training requirements and plan.
- **Design Review** - The latest design documents have been conformed to the bidding process. Provide a review and comments of the Professional's design documents and Basis of Design (BoD)

narrative in order to prepare the Owner's Project Requirements, Cx Plan, and Commissioning Specifications. Provide a back-check of design professional and DGS response comments to review comments.

- **Commissioning Specifications** - Evaluate current project specifications and determine if the documents describe the commissioning process in enough detail to complete the commissioning process. Where specifications are missing or insufficient, provide Commissioning Specifications for all systems/assemblies being commissioned for preparation of Change Order Requests.

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:

- **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.
- **Job Construction Meetings** - CxA shall attend all regular job construction meetings to coordinate with contractors and ensure the systems are properly installed, operated and tested, and are functioning correctly to meet the design intent. Meetings may be attended virtually until installation begins and then will be attended in person after.
- **Commissioning Meetings** - CxA shall hold regularly scheduled jobsite Commissioning Meetings with all project stakeholders to review important aspects of equipment, system, and controls installation. Review and document necessary installation details, system testing procedures, and documentation requirements. Distribute meeting minutes after every meeting and store in e-Builder. Include in the draft and final Cx Report.
- **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. Prepare a pre-functional test for each test. Collect completed pre-functional test results from installation contractors prior to field verification inspections. Post results to e-Builder. Provide installation inspections. Direct, witness, and document tests and demonstrations. Evaluate test results and verify that installed systems/assemblies meet the criteria for the Project. Sign off with installation contractor on every item to be commissioned. Photographically document installed condition of every item to be commissioned. Include tag name label in photo and store in e-Builder with tag name referenced in file name.
- **Device Matrix** - Prepare a spreadsheet with every device to be commissioned. Update as information becomes available. Group devices by type, reference each device by tag name, identify all aspects of device in spreadsheet including:
 - Tag name.
 - Shop drawing submitted.
 - Shop drawing approved.
 - Pre-functional test procedure.

- Pre-functional test received from contractor date.
 - Date of installation inspection.
 - Inspection status, pass/fail.
 - Inspector.
 - Functional test procedure
 - Functional test executed.
 - Test status, pass/fail.
 - O&M documentation receipt date.
 - Training documentation receipt date.
 - Date of CA training.
 - Notes.
 - And other fields that may be required.
- **Issues and Resolution Log** - Develop a commissioning issues log containing open and continuing items, status, and name of person/organization responsible for resolution. For each issue identify:
 - Tag name of device or system.
 - Date issue recorded.
 - Name of person recording issue.
 - Name of responsible person.
 - Date responsible person was notified.
 - Date issue was resolved.
 - Name of person signing off on resolution.
 - Status of issue resolution (Not Corrected, Corrected, Accepted Without Correction)
 - Notes.
 - And other fields that may be required.
 - **Systems Manual** - During the design and construction of the project, the design and construction documents shall be assembled into the systems manual by the CxA. 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 final OPR.
 - The final BOD.
 - Construction record documents.
 - 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.
 - The 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 formatted in such a way that it can be updated throughout the life of the building as systems are modified, replaced, or updated.
 - **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.



- **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.
- **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. Conduct opposite season testing in appropriate weather conditions approximately 6-months after completion of initial testing. Conduct a complete warranty inspection and investigation 10 months after the commencement of warranty coverage for each system commissioned. Report all deficiencies in equipment performance. Document all reporting and follow-up in e-Builder.
- **Preliminary and Final Cx Report** – Prepare a preliminary commissioning report 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 assemble the final commissioning report and provide to DGS, the Client Agency, the Design Professional, responsible Contractors and as required by local jurisdictions. Upload all reports to e-Builder. 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, completed device matrix.
 - The final Issues and Resolutions log.
 - A summary report of the performance of commissioned systems.

SYSTEMS TO BE COMMISSIONED

- Building assembly systems including building shell, exterior wall assemblies, and roof assemblies.
- Protective systems including fire suppression and fire alarm systems including kitchen exhaust hood fire alarm systems, and clean agent systems.
- Plumbing Systems including domestic hot water systems, safety interlocks to main gas valves, and fuel systems.
- Heating, ventilating, air conditioning and refrigeration systems (HVAC) including heat generation, refrigeration, ventilation, and HVAC Control Systems. Note, the HVAC control system is a delegated design. Plan to provide template for unique tag name development and review and comment on design.
- Electrical systems including Power distribution, lighting, and controls, and emergency generator systems LV service, switchgear/switchboards, generator, transfer switches, and lighting control systems.
- Communications systems including voice/data and sound/video systems including contractor provided IT systems and coordination with Commonwealth OAIT for testing and acceptance, area of refuge two-way communications systems, and video surveillance and storage systems.
- Electronic safety and security systems including security and access control systems, alarm systems, and intrusion detection systems.
- On-grade pools or training tanks.
- Firing Range including lead dust detection and control system.

C. GEOGRAPHIC LOCATION

Manas Vaidya, the proposed project manager, is located within 30 minutes to the project site. In addition, Kevin Barber is located in York, PA which is approximately 35 miles from the project site. Travel time will not be required for reimbursement as travel will be performed on the employee's time. Most of the other supporting team members are within 50 miles of the site.

D. PROJECT WORK PLAN

Schedule of Milestones

DESIGN PHASE - AWARD OF PROJECT THROUGH SUMMER/FALL 2025

- Conduct Owner's Project Requirements (OPR) workshop and develop OPR
- Develop and provide the Cx Plan
- Review and comment on design documents and BOD
- Conduct design phase Cx meeting
- Develop and provide Cx specs for all systems/assemblies being commissioned

CONSTRUCTION PHASE - SPRING 2026 THROUGH SUMMER 2027

- 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

ACCEPTANCE PHASE - SUMMER 2027 THROUGH SPRING/EARLY SUMMER 2028

- 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 End of Warranty Cx report

I. **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.

II. **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.

III. **Indicate the anticipated number of hours required for completion of the work described in the Scope of Work (Attachment A).**

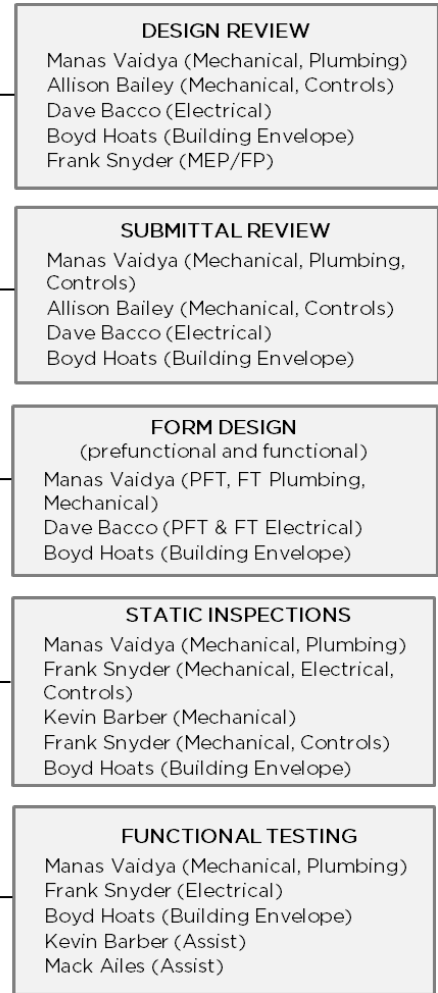
The estimated number of hours per phase are as follows:

Phase 1 - Design Phase:	56	Phase 2 - Design Phase:	24
Phase 1 - Construction Phase:	851	Phase 2 - Construction Phase:	362

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.

Aramark’s Engineering Solutions group consists of more than 85 technical professionals including: Professional Engineers (PE) Certified Commissioning Professionals (CCP), LEED Accredited Professionals (LEED AP) and other technical designations. We verify that each facility’s operating, maintenance, and program support requirements are met during construction and renovation.

- | | |
|---|---|
| (17) Professional Engineers (PE) | (9) LEED Accredited Professionals (LEED AP) |
| (13) Certified Energy Managers (CEM) | (2) LEED Green Associates |
| (2) Commissioning Process Management Professionals (CPMP) | (2) Project Management Professionals |
| (5) Certified Measurement Verification Professionals (CMVP) | (3) Certified Building Commissioning Professionals (BCxP) |

MANAS VAIDYA**Cx Manager**

- Lamar University
Master of Engineering
Industrial Engineering
- Rajiv Gandhi
Technical University
Bachelor of Engineering
Mechanical Engineering
- Certified Six Sigma
Green Belt Professional

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

Manas is slated as the Project Manager for this project. His primary responsibility is to ensure that all of the commissioning tasks as described within this response are completed. He will lead the design team; review submittals; design the functional test forms; and perform static inspections and functional testing for the mechanical and plumbing systems.

KEVIN BARBER**Cx Manager**

- 10 Million GSF
Commissioned
- 75+ Commissioning
Projects
- Penn State World
Campus
MiPS Certification
Renewable Energy &
Sustainability Systems –
Solar Energy
- Penn State University
Bachelor of Science
Energy Engineering

Mr. Barber is an energy engineer with over eight years' experience as a lead commissioning agent. On behalf of Aramark, Mr. Barber provides professional services to various clients in the Mid-Atlantic region while focusing on close collaboration and quality assurance with our Aramark team. Prior to joining Aramark, Mr. Barber successfully managed and/or supported the execution as the lead Commissioning Agent on Pennsylvania projects for Penn State University, State College Area School District, Allegheny Health Network, Geisinger, PA Air National Guard, PA Department of General Services, and the Defense Logistics Agency, as well as many other Mid-Atlantic region clients.

Kevin will assist with quality control as well as major issue resolution on this project. He will also perform static inspections and assist with functional testing.

**TIM SULLIVAN, P.E., BCxP,
CEM, LEED AP, G.B.E.****Director, Commissioning**

- 20 Million GSF
Commissioned
- 60+ Commissioning
Projects
- Manhattan College
Bachelor of Science
Mechanical Engineering
- Professional Engineer
(New York)
- Building Commissioning
Professional

Mr. Sullivan has accumulated 35 years of experience in the HVAC industry, including design engineering, installation, programming, commissioning, project management, and service operations. As Director of Commissioning, Mr. Sullivan oversees the commissioning program. Primarily advising on commissioning services with both proposal development and successful execution, Tim is involved in quality control of the commissioning group as well as higher level elevation of issues. His background and hands-on experience as a commissioning agent provides him with expertise in building automation systems, central utility plants, and laboratory control systems including BSL3.

Tim will be responsible for quality control as well as major issue resolution on this project.

ALLISON BAILEY, P.E.
Senior Cx Manager

- 10 Million GSF Commissioned
- 50+ Commissioning Projects (Project Manager)
- Ohio State University Bachelor of Science Mechanical Engineering
- Professional Engineer (KY, OH, and WV)

Ms. Bailey possesses more than 28 years of experience in HVAC design, DDC control programming, HVAC system troubleshooting, project management, and project coordination. 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. She has been the design leader for all of the reference projects listed within this proposal and is familiar with the Penn State standards of design for mechanical systems.

Allison is proposed in a support role for this project. She will provide design reviews and submittal reviews of mechanical and controls systems.

DAVID BACCO, E.I.T.
Cx Manager

- 5.3 Million GSF Commissioned
- 250+ Commissioning Projects (Electrical Lead)
- University of Pittsburgh Bachelor of Science Electrical Engineering

Mr. Bacco possesses more than 30 years of electrical building design, project management, evaluations, and engineering experience. Currently, Dave supports all electrical commissioning programs throughout the region. He is frequently in State College and has performed the same duties on all of the reference projects listed within this proposal. Dave is familiar with both the written Penn State electrical standards as well as the electrical construction Penn State standards, and his value to the commissioning process and the University is undeniable. Many of the issues he presents in design review comments and static inspections are of the highest return on investments for our clients.

Dave is proposed in a support role for the project. He will conduct design reviews, provide submittal reviews, and design the pre-functional and functional test forms for the electrical systems.

BOYD HOATS, JR
Project Manager

- University of Tennessee – Knoxville Bachelor of Architecture
- Luzerne County Community College Associates Degree in Architectural Engineering

Mr. Hoats is a project manager with 32 years of comprehensive project management experience. Currently, he is performing project management for Samsung Electronics and Thomas Jefferson University Hospital projects.

Mr. Hoats is also the architectural CPM with Aramark's Facility Condition Assessment and Commissioning teams, where he utilizes his extensive expertise in assessing building envelope conditions, recommending solutions to correct deficiencies, and insuring the proper implementation of the design documents. He is currently providing building envelope commissioning services to several of our clients in the PA area, including projects for Allegheny Health Network. He has also worked on projects for Penn State University and Penn State Health.

Boyd is proposed in a support role for the project. Boyd will provide design reviews, conduct submittal reviews, design the forms, and perform static inspections and functional testing of the building envelope.

**FRANKLIN R. SNYDER,
JR., P.E., CxA, EMP, LEED
AP**

Cx Manager

- Penn State University
Bachelor of Science
Mechanical Engineering
Technology
- Penn State University
Associate of Arts
Mechanical Engineering
Technology
- Professional Engineer
- USGBC LEED AP BD+C
- Certified CxA, 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. Previous project experience includes the Penn State Indoor Sports Complex.

Frank is proposed in a support role for this project. He will provide design reviews of the MEP/FP systems, and perform static inspections for mechanical/controls and functional testing for the electrical systems.

MACKENZIE AILES

Cx Engineer

- 1.8 Million GSF
Commissioned
- 37 Commissioning
Projects
- Penn State University
Bachelor of Science
Mechanical Engineering

Mr. Ailes is a Commissioning Manager, providing building commissioning services to various projects and clients in the Northeast Region.

Current projects include the DGS Kutztown University DeFrancesco Education Building Renovation, Penn State University Hazleton Campus Library Renewal, several projects on the campus of University of Pennsylvania, and projects with the Allegheny Health Network.

Mackenzie is proposed in a support role for the project and will assist with the functional testing for mechanical systems.

