REQUEST FOR QUOTE

pennsylvania
DEPARTMENT OF GENERAL SERVICES

Commissioning Agent Services

CALIFORNIA UNIVERSITY OF PENNSYLVANIA

THE NEW SCIENCE BUILDING

Project No. DGS C-0402-0064
Phase 1

Technical Submission

Aramark Engineering and Asset Solutions
2400 Market Street
Philadelphia, PA 19103
February 18, 2022

Cara Desert  
PA Department of General Services  

Re: Commissioning Agent Services for DGS C-0402-0064 Phase 1

Dear Ms. Desert,

We are pleased to respond and provide a proposal and cost estimate for Commissioning Agent Services during the pre-design stages of the Department of General Services Project No. DGS C-0402-0064 Phase 1, New Science Building project.

Aramark is familiar with the DGS requirements for construction and has worked on many projects for DGS. Brett Bernardo, P.E. is slated as the project manager for this project and has worked on several projects for DGS in the Western region including DGS 235-01 Butler PSP and other projects at Edinboro University and Indiana University of Pennsylvania. Brett is a Pennsylvania State Professional Engineer and has been for the past 15 years. He has been performing commissioning for Aramark for the last 11 years and is project manager for several projects within the Western Pennsylvania region. His most recent projects within higher education include Penn State McKeesport Ostermayer Lab and Penn State Shenango Forker Lab which have been completed in the past year.

Aramark has extensive commissioning experience with similar buildings as the below are just a sampling of our portfolio. Brett Bernardo, P.E. is a commissioning leader in the Pittsburgh area and has been with Aramark for over 14 years. He will lead this project for DGS with assistance from other local team members in the organization.

Brett will be supported by Allison Bailey, P.E., Dave Bacco, Boyd Hoats, and Cory Callihan for mechanical, electrical systems, controls, and building envelope. This entire team has been working together in this capacity for over 10 years with the exception of Cory Callihan who has recently been hired. Our intent is to have all of our team members present in the program development study workshops as well as participate in the OPR development. Based upon our recent behavioral health experience and our healthcare experience within the region, we feel that the assembled project team will provide the best value for commissioning of this most important project. It would be difficult to find another provider with experience commensurate to ours.

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 Matt Campise, Associate Director, at (724) 689-9449.

Sincerely,

Brian Lee, P.E., Vice President, Engineering and Asset Solutions  
Authorized Signatory of Aramark Management Services Limited Partnership
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A. CONTRACTOR PRIOR EXPERIENCE

For more than 35 years, Aramark Engineering and Asset 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 focusing on education facilities. 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

- Science, research, vivarium, BSL3 and laboratory
- Large classroom, academic, and computer facilities
- Recreation centers (athletic & aquatics)
- Campus & performing arts centers
- Museums, libraries & cultural institutions
- Residential halls
- K-12 Schools and Campuses
- Heating, cooling plants and major electric infrastructure
- Retro-commissioning of existing buildings and systems
The aging Fenske Laboratory was demolished to make way for a new six-level, state-of-the-art research and instructional laboratory building. The lower level has a large lecture hall, two labs and support spaces, faculty and grad student offices, and group study rooms. The first floor includes the Knowledge Commons and conference rooms, labs and classrooms, and building support spaces. Upper floors include offices along the north and east sides of the building with open shared labs in the interior.

Aramark identified 654 issues with meeting code, specification, and drawing requirements; common practices; and accessibility.

Some of the more notable commissioning finds included:

- VAV reheat coil tube bends are being damaged or have arrived to jobsite damaged. Installed and stored reheats should be inspected and damaged coils should be replaced. Multiple orders have been placed.
- BAS conduits, blue, are installed across coil pull areas. These conduits should be relocated on all units to allow coil and associated coil access panels to be removed.
- FCU-417K.1 has filter access blocked by junction box and conduit. All FCU filters should be able to be removed and installed without being bent/damaged. Filter was bent by installing contractors during initial installation as evident by the damaged filter. Aramark requested that inspection of all FCU Filter areas for proper access be provided or provide small filters that can be installed without being damaged.
- The Victaulic VicFlex AH2-48 flexible sprinkler hoses should be installed with a minimum bend radius of 7 in. and 3 maximum 90 deg. bends. Aramark found that many of the flex hoses have been installed with bend radiuses of less than 7 inches, more than 3 bends and/or in some cases torqued compromising the hose itself. Aramark and PSU walked with the contractor and did a random inspection of 20 locations in the building to verify corrective actions had been taken by the installing contractors. About 40% of areas inspected did not meet the installation requirements set forth by the manufacture to meet FM Requirements. PSU required installing contractor to inspect every drop in the building to remedy the installation.
- VAV trend shows reheat valve and discharge air temperature is cycling constantly and not operating per desired sequence. PSUs VAV sequence should modulate reheat valve based on heating PID output of 0-100% and limit valve based on 25°F (adj) DAT limit above space temperature. The discharge air was being controlled to 25°F above space temperature as soon as the space temp falls below 70°F and heating mode is indexed. This issue applies to all VAV with RHs and may also apply to LSV’s with RHs.
WHITMORE LABORATORY RENOVATION

PENNSYLVANIA STATE UNIVERSITY, STATE COLLEGE, PA

The Pennsylvania State University’s Whitmore Laboratory Renovation project provides updates and improvements to undergraduate general chemistry and organic chemistry laboratory teaching spaces. This mechanically intensive project introduced new air handlers and a lab exhaust system, and renovated parts of all four floors. The facility remained partially occupied during construction.

Aramark identified over 98 issues during design reviews and have 15 issues from static inspections. Containing 76 fume hoods in a single room, the functional testing effort were intensive.

Some of the more notable commissioning finds included:

- Design review comment included removal of a chilled water heat exchanger which the University agreed was unnecessary, benefitting with capital savings.
- Many design comments included Penn State standards that were not followed throughout the course of design. This included the steam meter, Ebtron airflow stations, Arc flash requirements, and the use of heat conductive compound in thermowells.
- Aramark provided a detail for the control of the pumps to the design team in accordance with Penn State standards.
- Many comments were made on control sequences requiring the design team to further clarify the intent of the fume hood and laboratory control during unoccupied modes. The initial design did not accommodate setback modes and would have greatly increased the energy usage in this facility.
- Aramark assisted in the solution to allow coil pulls by commenting on the absence of unions and the addition of flanges.
- Piping was found to be installed with dissimilar metals requiring the contractor to add brass fittings in lieu of the iron fittings that were installed.
- Over 14 reheat coils were identified to have damage to the tube bends. Six were able to be repaired and the contractor will be required to replace eight coils.

CONTACT:
Chad Illig
Facilities Project Manager
814-826-8338
cril03@psu.edu

CONSTRUCTION COST: $33 Million

GROSS SQUARE FEET: 90,600

CX SERVICES:
LEED Enhanced
Design Review
Installation Inspections
Performance Verification
Operations Training
Building Envelope

SCHEDULE: June 2015-August 2016
MUELLER LABORATORY RENOVATION
PENNSYLVANIA STATE UNIVERSITY, STATE COLLEGE, PA

The Pennsylvania State University’s Mueller Laboratory Renovation project provided updates and improvements to undergraduate biology laboratory teaching spaces. The mechanically-intensive project introduced new air handlers and a lab exhaust, and renovated four of the seven floors. The facility was partially occupied during construction.

Aramark identified over 98 issues during design reviews and 57 issues from static inspections and early functional testing.

Some of the more notable commissioning finds included:

- The design contained supply and exhaust boxes for the control of airflows within the space but did not have a box for returns. Aramark commented on the need for a return box to control pressurization within the lab spaces.
- The design did not show directional arrows for pressurization schemes on the documents. This was necessary for review of the design intent for both the end users and the commissioning agent so that a problem could be discovered very easily should the airflow direction be incorrect.
- Access control system door readers were not designed for ADA compliance and would not be accessible for someone in a wheelchair.
- Panel busing size could be reduced due to overcurrent protection that was designed. This saved the university capital during design.
- Aramark was instrumental in policing access to mechanical equipment during installation. Many contractor changes included flipping VAV boxes, notching cable trays, and rerouting some sprinkler piping.
- VAV tracking boxes were not programmed to track the actual airflow. They were using an arbitrary offset that would allow the room to go positive or negative without knowing the condition of the other. The programming is being redesigned to allow for supply boxes to track the actual exhaust flow in negative areas and exhaust boxes to track actual supply flow in positive areas.

CONTACT:
Chad Illig
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814-826-8338
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CONSTRUCTION COST:
$33 Million

GROSS SQUARE FEET:
90,600

CX SERVICES:
LEED Enhanced
Design Review
Installation Inspections
Performance Verification
Operations Training

SCHEDULE:
June 2015-August 2016
BUCKHOUT LABS RENOVATION

PENNSYLVANIA STATE UNIVERSITY, STATE COLLEGE, PA

Buckhout Laboratory is home to the Plant Pathology and Environmental Microbiology departmental, faculty, and graduate student offices, research laboratories, and teaching facilities on the University Park Campus.

Throughout the design, construction, turnover and warranty on the project, Aramark identified 107 documented issues in construction and 26 documented design deficiencies with meeting code, specification and drawing requirements, common practices, and accessibility to date.

A few of the major issues identified by Aramark include:

- **Fume Hood Control** – Aramark’s testing identified four fume hoods that could not be turned off, wasting energy.
- **ERU Mechanical Installation** – Accessibility of sensors, lack of dielectric fittings, improper traps, and lack of balance valves for coils were not up to PSU standards.
- **VAV Issues** – Aramark discovered that several of the VAV boxes were not working correctly which can cause improper pressurization. Fixes ranged from deleting non-existing equipment, finding pinched tubes, replacing flow rings, and rectifying improper balancing.
- **Supply and Exhaust Airflow Calculation** – The labs were programmed such that the exhaust tracks the supply CFM. Since the labs are to be negative, the heating and cooling percent should be fed into the exhaust flow block, and the supply should track the actual exhaust airflow by defined offset. In this mode, the SA should have no min and will go to zero if needed to maintain the lab negative, max and min are inherent by setup of the exhaust limits.
- **Costs to remedy the issues after the contractors had left is estimated to be $71,450 and the estimated annual energy savings is $4,000. These estimated figures provide a payback for commissioning services that is less than a year.**

CONTACT:
Chad Illig
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CONSTRUCTION COST:
$XX Million

GROSS SQUARE FEET:
63,000

CX SERVICES:
Design Review
Installation Inspections
Performance Verification
Operations Training

SCHEDULE:
January 2016-August 2017
The John G. Rangos Research Center is the latest state-of-the-art biomedical research facility constructed in Pittsburgh, and Aramark is proud to have been the commissioning agent on this project. This building is instrumental in the development of new treatments for pediatric patients throughout the New Children's Hospital complex as well as treatments to be shared with the world community.

Aramark identified over 400 issues during the course of the construction and acceptance phases. As we were not involved in the design phase, value impact of design phase commissioning was not completed however many changes were made to systems prior to being purchased due to immediate intervention by the Aramark team.

Some of the more notable commissioning finds included:

- Roof exhaust fan curbs were leaking air compromising the redundancy of the vivarium exhaust fan systems. Aramark testing provided the proof to the mechanical contractor.
- Nearing the end of construction, the construction manager lost their MEP coordinator. Our Cx Agent, Kevin Jaehne was subcontracted by Dick Corporation to fill this void that greatly impacted the project schedule and completion.
- IACUC documentation was provided by Aramark to allow for animal occupancy.
- Extensive ABSL3 and BSL3 testing was performed by Aramark to meet the BMBL4 criteria necessary for this type of facility. Control system rework was required and Aramark was instrumental in determining a cost effective solution.
- Aramark prevented the controls contractor from collapsing the ceiling on multiple occasions during the testing of the ABSL3 by providing guidance to them while programming.
- Aramark discovered that orifice plates were restricting the flow through the HEPA filter sections for the ABSL3 exhaust fan systems. Redesign was already underway for adding additional sections for redundancy and these were not necessary due to this discovery.
The Richards Building is comprised of four interconnected towers in a pin-wheel configuration, designated A, B, C, and D beginning at the north tower and moving clockwise. The C Tower is comprised of eight floors, a basement and a mechanical penthouse. The A, B, and D Towers include seven floors and a basement. The C Tower houses common resources including a vivarium as well as elevators and toilet rooms. The A and B Towers house existing wet bench research laboratories, but the building is no longer suitable for this type of research and the existing building systems have served beyond their useful life.

The University recently completed renovations of the C and D towers in the Richards Building into offices and support spaces. Construction of this A and B tower renovation started in the summer of 2017, and was substantially complete in January 2019. The project scope included a complete renovation of the interior, exterior restoration, and installation of new building infrastructure systems.

The functional performance testing of the HVAC, electrical, and plumbing systems identified over 100 issues. The higher priority issues included the following:

- **Air Handling Unit 2 Performance and Control Issues** – Issues were identified with air leakage, failed supply branch volume damper, and high fan speeds to meet design airflow for this 24,000 cfm constant volume system.
- **Automatic Temperature Control Communication Issues** – Control points were not available to be networked initially during functional testing due to control panel floor to floor communication issues. This prevented system control in accordance with design for a few systems.
- **Hot Water System Control Issues** – Issues were identified early on with pump speed and differential pressure control. Floor to floor communication issues were a barrier to accurate controls.
- **Thermostat Locations or Zone Temperature Control Issues** – Many thermostats were located in areas that were not in airflow paths either behind cabinets, on exterior walls, or in stairwells that prevented accurate zone control. Others required additional insulation to prevent drafts impacting temperature readings. There were also a handful of control valve issues with chilled beam and finned tube radiator control that were corrected.
- **Chilled Water System Issues** – Pump P-7 was off-line for an extended period of time and when On made a screeching noise that was later corrected by the pump manufacturer. The chilled water system encountered issues with differential pressure and choke valve control with both control loops not controlling in accordance with design.
- **Recommendations to the Owner and O&M staff on how the facility could be made more efficient:**
  - AHU fan speed reduction during unoccupied periods
  - Optimized systems performance evaluation
  - Perform recommended equipment and system preventative and predictive maintenance
  - Modify space temperatures to align with UPENN standards
The new building showcases the latest innovative design and is situated adjacent to the Physical Education building on CCAC’s Allegheny Campus. A connecting plaza allows convenient access between the two structures.

This vanguard facility, designed by Hayes Large Architects, was constructed using green building technology and other building design innovations that provide an aesthetic quality while fostering additional opportunities for building students’ futures. The science and technology labs incorporate the most advanced technology available, including cutting-edge teaching tools and equipment. Encompassing five floors, the building will support the following programs: Biotechnology, Dietetics, Health Information Technology, Massage Therapy, Medical Insurance, Nuclear Medicine, Nursing, Occupation Therapy, Pharmacology Technician, Physical Therapy, Physician’s Assistant and Radiation Therapy.

Aramark documented over 50 issues in the design phase of this project. Many of the issues were code related and required changes to the documents. These items translated into tens of thousands of dollars saved in the project through clarifications made in design phase. During the construction phase, Aramark documented 36 issues that would have affected maintenance, systems operations, and potential systems failures. These issues were corrected at no additional cost to the College. One of the largest issues discovered was the lack of controls on the fume hoods. The contractor submitted on variable volume controls and only installed a monitoring system due to the installation of bypass fume hoods.

Additionally, there were many airflow volumetric offset discrepancies within the contract documents. After commenting on this in the design phase and being told that the design team would correct, Aramark assisted in the RFI process to clarify the correct offsets prior to system programming by the controls contractor.

CONTACT:
Raymond Marks
VP, Facilities Mgt.
412-237-3072

GROSS SQUARE FEET:
62,000

SCHEDULE:
June 2012-March 2014

CX SERVICES:
Design Review
Installation Inspections
Performance Verification
Operations Training

CONTACT:
Raymond Marks
VP, Facilities Mgt.
412-237-3072

GROSS SQUARE FEET:
62,000

SCHEDULE:
June 2012-March 2014

CX SERVICES:
Design Review
Installation Inspections
Performance Verification
Operations Training
NEURAL BEHAVIORAL SCIENCES BUILDING
UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA

CONTACT:
James Palka
Sr. Project Manager
215-898-5836

GROSS SQUARE FEET:
76,500 on 5 Floors

SCHEDULE:
June 2014-March 2016

CONSTRUCTION COST:
$68.6 Million

CX SERVICES:
LEED Silver
Pre-Design
Design Review
Installation Inspections
Performance Verification
Operations Training

The Stephen A. Levin (Neural Behavioral Sciences) Building contains approximately 76,500 GSF on 5 floors (one below grade, four above). The building is home to the departments of Biology and Psychology, and the Program in the Biological Basis of Behavior. The new building provides both teaching and research space for these groups.

Throughout design development and the construction document phase, design meetings were held and review comments discussed which resulted in many updates and changes to the drawings prior to the bid set.

From working on University of Pennsylvania campus retro-commissioning existing building, understanding of the campus design standards, and knowledge of the Operations Command Center OCC at 3101 Walnut Street, Aramark helped identify and resolve design and coordination items. As a result of our review and comments and buy in from the University, an Addendum to the drawings was issued.

Several construction issues were identified and proactively corrected by the construction team. This includes MEP equipment protection, hydronic piping dissimilar metal connection to prevent electrolysis, maintenance accessibility concerns, etc.
B. PROJECT UNDERSTANDING AND APPROACH

PROJECT UNDERSTANDING

The new California University of Pennsylvania Science Building will be a new two to three-story building at approximately 70,000–90,000 square feet. The program will include classrooms, offices, meeting rooms, as well as research spaces along with contemporary, flexible laboratories for general, biology, chemistry, environmental, and physics sciences. Additional support spaces include chemical, specimen, animal care, greenhouses, instrumentation, walk-in cooler, and cleaning will be required. This project also includes the demolition of Frich and the existing New Science building. The new building is expected to be constructed on the current Parking Lot 5 site.

Once complete, the facility will support evolving science education and research in the coming years. This building will include state-of-the-art technologies for active learning classrooms, flexible laboratories, offices, and social spaces to foster engagement aimed at scientific training, inquiry, and discovery.

It is anticipated that a Program Development Study (PDS), with Workshops occurring in March 2022 and continuing through a design finish of November 2023.

Our pre-design and design phase pricing has been provided considering the requirements of the RFP and we intend to have all team members involved in the process throughout pre-design and design. We also recognize that this is a condensed schedule to provide the OPR and are ready to meet the deadlines with availability of all personnel. We have provided non-binding construction phase pricing for your review based upon the construction phase tasks presented in the RFP.

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 Science Building project at the California University of Pennsylvania. 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

PRE-DESIGN AND 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 these phases consists of:

PRE-DESIGN PHASE:

- Energy Audit – The energy audit includes interviews with the client agency’s facility maintenance staff, a review of the facilities utility bills and operating information, a facility site assessment of building systems, energy and financial analysis and an energy audit report.

  The energy audit report should include a variety of Energy Efficiency Measures (EEMs) including no- and low-cost measures, modifications to system controls and building automation, operational changes, and potential capital upgrades. A financial analysis including implementation costs, site specific potential operating savings, and simple payback periods should be included for each EEM.

  The report will provide enough detail to allow the Department and the Client Agency to prioritize the limited construction budget towards the most beneficial EEMs. The Department and the Client Agency will determine which measures will be included in the Program Development Study or Project Program Statement for further investigation by the Design Professional in the design phase.

- Owner’s Project Requirements (OPR) – Working with the DGS Design Project Manager and the Client Agency facilities maintenance staff conduct an OPR workshop to develop 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.

- Program Development Studies (PDS) and Project Program Statement Development – Working with DGS Public Works staff, the client agency, third party cost estimators and other consultants participate in pre-design workshops aimed to define project requirements, determine conditions of satisfaction (CoS), estimate costs, establish milestone schedules, validate project budgets, and develop a Program Development Study Report used for soliciting a design Professional.

**DESIGN PHASE:**

- 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 early in the concept design stage to develop 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.

- 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).

- Lean MEP/FP/Technology Cluster Group Meetings – Working with DGS Design Project Manager, the Client Agency, third party cost estimators and the Design Professional team, help to drive down overall construction costs while maintaining the MEP/FP/Technology project scope and meeting the client agency’s conditions of satisfaction (CoS). Provide constructability evaluations to guide the team and find innovative ways to increase the overall project value.
  - Participate in approximately one (1) meeting per week for the design phase. (1 hour in duration).

- Teaming Events – Meetings with the extended project team to integrate design activities, discuss activities of the cluster groups and review cost and schedule progress. There will be a Teaming Event each month during design and at the start of each stage of design: Concept Design, Detailed Design and Documentation.
  - Participate in one (1) Teaming Events, occurring each month for full day in duration (4-6 hours) throughout the anticipated design phase.

- Design Review – The Design Phase includes three delivery stages: Concept Design, Detailed Design and Documentation. The selected CxA is to 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 shall include a back-check of Commissioning Design Review Comments at subsequent design stages. iv. 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:

- **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 regular job construction meetings as necessary to ensure the systems are properly installed, operated and tested, and are functioning correctly to meet the design intent.

- **Commissioning 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.

- **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.

- **Issues and Resolution Log** – Develop a commissioning issues log containing open and continuing items, status, and name of person/organization responsible for resolution.

- **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.
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.

Job Construction Meetings – CxA shall attend regular job construction meetings as necessary to ensure the systems are properly installed, operated and tested, and are functioning correctly to meet the design intent.

Commissioning 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.

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.

Issues and Resolution Log – Develop a commissioning issues log containing open and continuing items, status, and name of person/organization responsible for resolution.

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.

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.

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

- Building Assembly Systems including Building Shell, Exterior Wall Assemblies, and Roof Assemblies.
- Protective Systems including Fire Suppression and Fire Alarm Systems.
- Plumbing Systems including Domestic Hot Water Systems.
- Communications Systems including Voice/Data and Sound/Video Systems.

C. GEOGRAPHIC LOCATION

Brett Bernardo, P.E. is located in Wexford, PA – just 63 miles from California, PA. Travel time will not be necessary for reimbursement.

Cory Callihan is located in Portersville, PA just 84 miles from California, PA. Travel time will not be necessary for reimbursement.

Dave Bacco is located in Indiana, PA which is 78 miles from the project site. Travel time will not be necessary for reimbursement.

D. PROJECT WORK PLAN

I. Please see the chart on the following page for a high-level summary showing all the tasks and deliverables to complete the project in the Pre-Design Phase and the Design Phase.
PRE-DESIGN AND DESIGN PHASE

Red indicates Cx Agent Responsibilities
- Performed within 2 weeks of previous activity
Blue indicates actions by others

Pre-Design/Design Phase

3-15-22

Notice to proceed

CxA Onboarding Meeting → Lead OPR Workshop → Provide OPR → Design Start → CX Specs → CX Plan

Participate in cluster group meetings
Participate in Teaming Events

CD Review → DD Review → Doc Review
II. Indicate all resources need to complete the assignment including staff assignments, consultants, and reimbursements.

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

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

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

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

The estimated number of hours per phase are as follows:

- Pre-Design Phase: 40
- Design Phase: 172
- Construction Phase: 548
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 100 technical professionals within the Engineering and Asset 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 and Asset Solutions group consists of more than 100 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)  (14) LEED Accredited Professionals (LEED AP)
(27) Certified Energy Managers (CEM)  (6) LEED Green Associates
(2) Commissioning Process Management Professionals (CPMP)  (2) Registered Architects/NCARB
(4) Certified Measurement Verification Professionals (CMVP)  (3) Certified Building Commissioning Professionals (CBCP)
BRET BERNARDO, P.E.
Cx Manager
- 2.3 Million GSF Commissioned
- 20 Commissioning Projects
- Penn State University Bachelor of Science Mechanical Engineer
- Professional Engineer (State of PA)

Mr. Bernardo possesses more than 16 years of experience in HVAC design, DDC control programming, HVAC system troubleshooting, project management, and project coordination. Brett is currently project manager of several healthcare projects for Allegheny Health Network (AHN) as well as several satellite campus lab upgrades for Penn State University.

Brett is slated as the Project Manager for the project. As project manager, Brett’s primary responsibility is to ensure that all of the commissioning tasks as described within this response are completed. Other than electrical, his expertise offers him the ability to complete all of the tasks associated with the commissioning process individually. He will design the pre-functional and functional test forms for mechanical systems, conduct mechanical static inspections, and perform the mechanical systems functional testing.

MATTHEW CAMPISE
Associate Director
- 8.3 Million GSF Commissioned
- 70 Commissioning Projects (Project Manager)
- Washington and Jefferson College Bachelor of Arts Chemistry

Mr. Campise possesses more than 28 years of experience in building automation controls and commissioning and has been with Aramark for 14 years. Currently, Matt manages 15 direct reports who perform as commissioning managers primarily throughout the state of Pennsylvania. Matt serves as the Relationship Manager to our larger clients within the state including Penn State University, University of Pennsylvania, UPMC, and Allegheny Health Network. He also serves directly as project manager for several projects at Penn State Health and has completed commissioning for over 10 projects for this client in the past four years.

Matt will primarily be responsible for quality control and will participate in contract administration.

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 27 years of electrical building design, project management, evaluations, and engineering experience. Currently, Dave supports all electrical commissioning programs throughout the region and has performed the same duties on all of the reference projects listed within this proposal. 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 New Science Building project. He will conduct design reviews of electrical systems, design the pre-functional and functional test forms for electrical systems, conduct electrical static inspections, and perform the electrical systems functional testing. Dave will provide input to the OPR and provide design reviews at the various stages of design.
Ms. Bailey possesses more than 22 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 several projects at Baylor University and has recently completed, as project manager, our largest commissioning project at the South Halls Residence Facilities for Ohio State University.

Allison is proposed in a support role for this project. Allison will provide input to the OPR. She will also perform design reviews of the mechanical systems.

Mr. Hoats is a project manager with 27 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 New Science Building project. Boyd will provide input to the OPR and conduct design reviews, design the pre-functional and functional test forms, conduct static inspections, and perform functional testing for the building envelope.

Mr. Callihan possesses more than 11 years of experience between HVAC, refrigeration, electrical, plumbing, and controls within the residential and commercial markets. Prior to Aramark Mr. Callihan was an HVAC controls technician for Automated Logic Controls out of the Pittsburgh branch. While with ALC, Cory worked for clients such as AHN, UPMC, CMU, PSU satellite campuses, and the University of Pittsburgh.

Cory is proposed in a support role for the New Science Building project and will attend project meetings, conduct static inspections, develop test forms for commissioning and assist in leading the functional testing. He will also be involved in the development of project documentation during construction.
F. APPENDIX

Aramark Management Services Limited Partnership is pleased to submit the attached proposal to provide Commissioning Agent Services for the New Science Building project at the California University of Pennsylvania for the Pennsylvania Department of General Services (PADGS).

We would be honored to be selected to perform commissioning and appreciate the opportunity provided to build on our relationship with the PADGS. We would dedicate the appropriate resources to provide the highest quality services. We understand the importance of the integration and seamless operation of the building system infrastructure. Aramark is one of the largest third-party commissioning agents in the United States, and our unique operational expertise distinguishes our service from our competitors.

HISTORY

For more than 35 years, Aramark Engineering and Asset 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.

Aramark has extensive experience and technical capacity to meet, and exceed, the required needs for commissioning the New Science Building project. Aramark has been commissioning buildings and their increasingly complex systems for more than three decades. We have commissioned more than $11.2 billion and 70 million GSF of new and renovated facilities. Our technical credibility, operator’s perspective, and construction experience has and will continue to aid in the satisfaction of each commissioning project’s many objectives.

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 facilitate a seamless transition to the operations group and provide a technical resource to support the building operations.