

REQUEST FOR QUOTE



pennsylvania
DEPARTMENT OF GENERAL SERVICES

Commissioning
Agent Services

PENNSYLVANIA
HISTORICAL &
MUSEUM
COMMISSION

Railroad Museum of PA
Round House
Construction

Project No.
DGS C-0980-0009 Phase 1

Technical Submission

aramark 
ENGINEERING
SOLUTIONS

2400 Market Street
Philadelphia, PA 19103



June 3, 2024

Kati Woodling
PA Department of General Services

Re: Commissioning Agent Services for DGS C-0980-0009 Phase 1

Dear Kati,

We are pleased to respond and provide a proposal and cost estimate for Commissioning Agent Services during the construction stage of the Railroad Museum of Pennsylvania Round House Construction project for the Department of General Services (project No. DGS C-0980-0009 Phase 1).

Aramark is familiar with the DGS requirements for design and construction and has worked on many projects for DGS. Aramark provided commissioning services for the District 9 Blair County Offices, Jacobsburg Environmental Education Center, West Chester University Academic Classroom and Office Complex, to name a few.

Manas Vaidya is slated as the project manager for this project. Manas' home office is within 45 miles to the project, allowing for great efficiency in travel time and minimizing project expenses. Chris Skalski, P.E. will provide client relationship support and assist with inspections and testing; and Frank Snyder Jr., will support electrical commissioning. Additionally, Manas will be supported by Allison Bailey, P.E., Boyd Hoats, and Mack Ailes. Most of these team members have worked on projects for DGS and in addition, this team has performed similar tasks for many of our references listed within our response.

We look forward to continuing and strengthening our relationship with the Department of General Services. Should you have any questions, please do not hesitate to contact Tim Sullivan, Director of Commissioning Services, at (914) 304-6252 or via email at sullivan-timothy@aramark.com.

Sincerely,

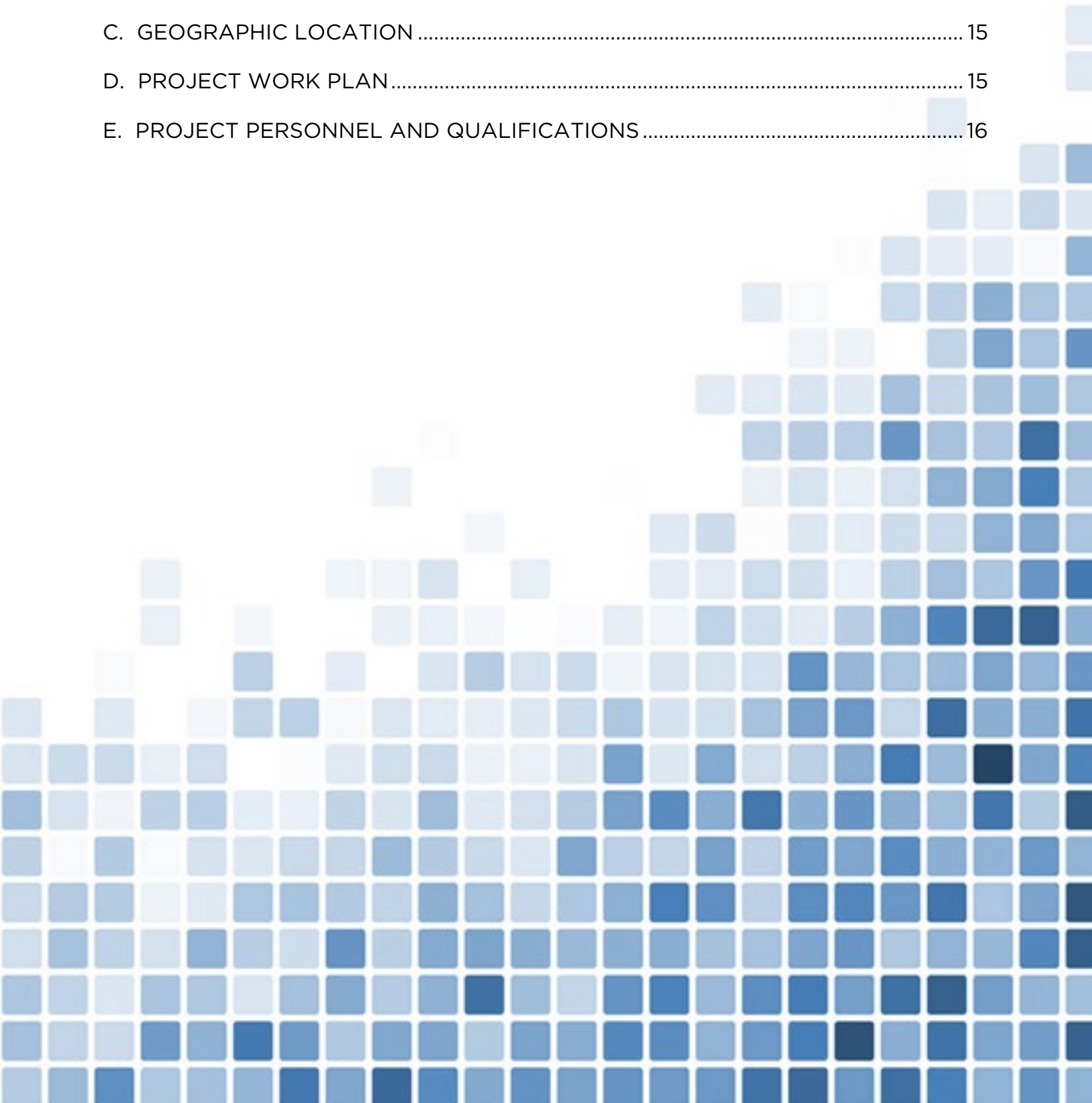


Brian Lee, P.E., Vice President, Engineering Solutions
Authorized Signatory of Aramark Management Services
Limited Partnership



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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. No matter what type of project or institution, 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

- American Museum of Natural History
- Baylor University
- City University of New York
- Centenary College
- Edinboro University
- Franklin & Marshall College
- George Washington University
- Institute for Advanced Study
- Museum of Modern Art
- 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

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



AMERICAN MUSEUM OF NATURAL HISTORY

RICHARD GILDER CENTER FOR SCIENCE, EDUCATION, AND INNOVATION, New York, NY



This project includes the construction of a new five story, above grade, structure along with the renovation of an existing portion of the Museum, totaling approximately 245,000 of new/renovated space. The new and renovated space will provide the services of a modern museum, while meeting the needs of the Museum into the future. The new space will be home to science and learning classrooms as well as exhibition space. The spaces will be designed to be interactive and integrated, revealing the behind-the-scenes workings of the Museum. The new spaces will allow the Museum to provide an innovative learning and showcase environment and offer high quality STEM activities to the public.

In addition, the new space will provide new connections and circulation paths with the existing spaces, reducing crowding and allowing the Museum to accommodate more visitors. To provide a comfortable and inviting environment that fosters learning and creativity, it is important that the core MEP systems work in concert with the spaces that they are intended to serve. Aramark will ensure that the systems meet the specialized requirements of the various museum spaces as intended.

The new and renovated spaces and their support systems will be designed to accommodate the following program elements:

- Central Exhibition Hall
- Collections Core
- Insectarium and Butterfly Vivarium
- Invisible Worlds Immersive Theater
- Education Spaces
- Research Library and Learning Center
- Interpretive Wall / ArcLife
- Ichthyology and Collections Storage
- Visitor Services and Building Services

COMMISSIONING SUCCESS:

Currently at the end of the Design Phase, Aramark has reviewed the Basis of Design (BOD), assisted in the development of the Owner's Project Requirements (OPR), reviewed the 50% Construction Documents, the 100% Construction Documents and the 100% Conformed set. In total, 258 design related issues have been documented, discussed and are in the process of being resolved. The Commissioning Specifications were provided for inclusion in the design documents and the Commissioning Plan, Pre-Functional Checklists and Training Log have been developed and provided.

Aramark Engineering Solutions
CONFIDENTIAL AND PROPRIETARY

CONTACT:

Suzanne Musho
Project Manager
smm@zubatkin.com

CONSTRUCTION COST:
\$25 Million

GROSS SQUARE FEET:
245,000

CX SERVICES:

Design Review
Installation Inspections
Performance Verification
Operations Training
Building Envelope
LEED v4, EAp1 and EAcl

SCHEDULE:
2021-2023

PENNSYLVANIA STATE UNIVERSITY**SCIENCE PARK LIBRARY ANNEX FACILITY RENOVATION, State College, PA****CONTACT:**

Chad Spackman
814-865-9454

GROSS SQUARE FEET:

15,000

CX SERVICES:

Construction, Turnover, &
Warranty Phases
Installation Inspections
Performance Verification
Operations Training

SCHEDULE:

2018-2019



The Science Park Library Annex, located at 2185 Sandy Drive, has provided the opportunity for the University Libraries to consolidate many of its special collections in one place under well-controlled secure and environmental conditions and to expand its conservation program with a state-of-the-art Conservation Center.

Special Collections. Penn State's special collections held in Paterno Library, Scientific Stores, and other Annexes have been under environmental conditions detrimental to their long-term protection and needed to be re-housed in stable environs. Without such efforts, the university risks losing materials (such as, archives, manuscripts, rare books, ephemera, photographs, etc.) that embody the intrinsic value and irreplaceable nature of the most distinctive and rare collections available for research across the academic disciplines supported by the institution. Consolidating the collections in the Science Park Library Annex offers advantages in operating costs, security, indoor environmental conditions and future growth.

Conservation Centre. The new, state-of-the-art conservation centre more efficiently and effectively meets the needs of all the Libraries collections. Planned for the conservation centre are:

- Special treatment areas for the isolation and de-contamination of newly acquired collections and those found with vermin or mold issues
- A dirty room where paring of leather or sanding boards will be contained
- A wet treatment area for the use of chemicals
- A vault to secure rare books and valuable materials, tools or other items that are delicate or expensive
- Spacious work bench treatment space for practitioners, apprentices and interns and space for specialized conservation equipment and supplies

Newly created office space, separate from the conservation work benches, allows for the administrative component of the conservation work. This office is adjacent to the conservation area to allow the conservator to access the work area easily. The conservation center also has a separate break room where food and drink may be consumed to avoid damage to materials. Specialized equipment including fume

hoods, a floor stand microscope, an oversized sink, an ultrasonic welder, a standing press, a job backer, board shears, and a mounted camera on a copy stand for pre- and post-treatment photo documentation have been placed throughout the conservation work area.

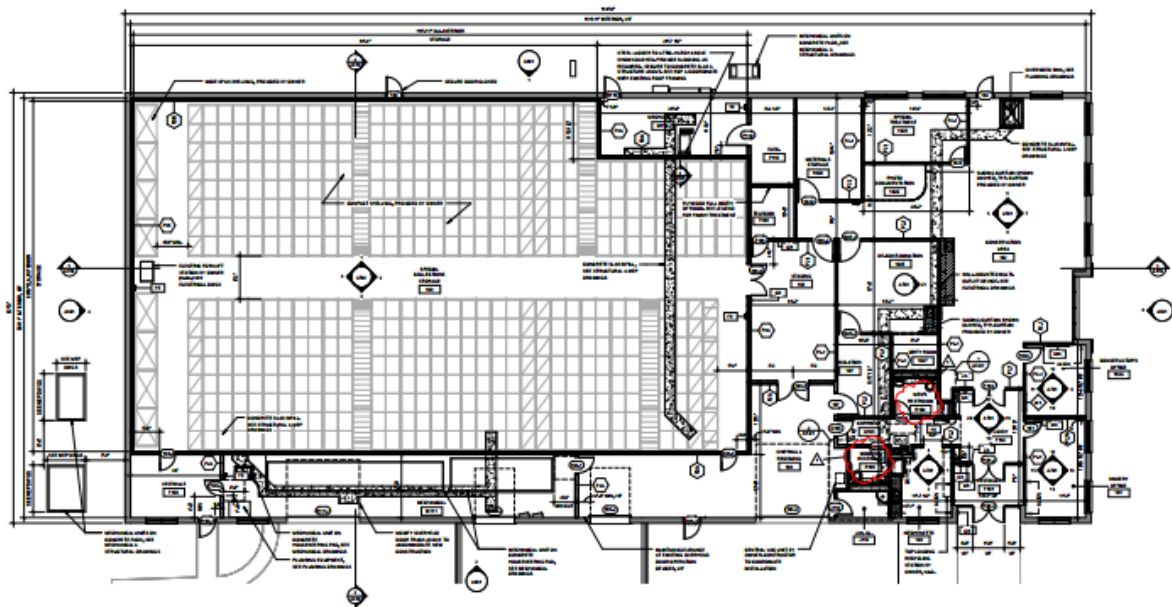
SYSTEMS COMMISSIONED:

Air Handling Units, VAV Boxes with Electric Reheat, Split Systems, Exhaust Fans, Humidifiers, and Building Automation System.

COMMISSIONING SUCCESS:

The Aramark commissioning effort has greatly impacted the design and construction of this space. We generated over 42 issues from static inspections and functional testing. Some of the more notable commissioning finds include:

- AHU Unit Operation - Aramark was instrumental in coordinating the unit operation to assure archive storage space conditions were maintained at the tight tolerances the University desired that drastically improves the storage life of the stored artifacts. Work included working with the equipment supplied to assure unit operation was correct as well as the interface with the BAS controlled unit to crossover and maintain space conditions on a unit failure to preserve stored specimens.
- Isolation and Decontamination Areas - Aramark identified that while the negative spaces pressure was being maintained, the isolated/contaminated air was being returned back to the AHU for distribution to the entire Conservation Centre. With the addition of a dirty exhaust, the risk of contamination to staff and displayed artifacts was eliminated.
- Project Coordination - Aramark assisted the Construction Manager in aligning the Mechanical Equipment Supplier, HVAC Contractor, and BAS Supplier to meet the owner's operational guidelines. Without Aramark's involvement, the occupancy and use of the facility would have been impacted greatly.



FORT INDIANTOWN GAP NEW YOUTH CHALLENGE CENTER Lebanon County, PA



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.

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

PENNSYLVANIA STATE UNIVERSITY**PALMER MUSEUM OF ART STORAGE AT CATO PARK, State College, PA****CONTACT:**

Christie Holloway
814-865-7190

CONSTRUCTION COST:

\$2.1 Million

GROSS SQUARE FEET:

32,000

CX SERVICES:

Construction, Turnover, &
Warranty Phases
Installation Inspections
Performance Verification
Operations Training

SCHEDULE:

March 2020-November 2020

This project was the renovation of existing library storage space to accommodate a new art storage facility, including interior fit-out and minor site alterations at CATO Park Building. The scope included select demolition, new construction, finishes, infrastructure, and fit-out of an Art Storage space, work room, vestibule, mechanical/electrical rooms, and site work.

Below are examples of issues that Aramark was instrumental in resolving during the Construction Process:

- Air Handler Installation - Aramark identified issues with the exterior insulation of the air handler duct work. Method of installation allowed for moisture to collect between the duct and the insulation vapor barrier. Similar issues have been previously identified as degrading the insulation properties as well as allowing for mold growth.
- Space Monitoring - Contractor coordination of space monitoring failed to correctly place sensors in the collection spaces. Identification of the issues resolved conflict temperature and humidity control to a common area.
- BAS Sequence of Operation - Aramark coordinated with the PSU FAS group to ensure that the BAS sequences and equipment specified meet the PSU Standard. Additional coordination was required to maintain proper sequencing of the Air Handler air distribution and humidifier operation.
- Generator Monitoring - Aramark was able to identify deficiencies in the setup of the generator controller to allow for proper monitoring of generator run conditions and alarm monitoring.



JACOBSBURG ENVIRONMENTAL EDUCATION CENTER

STATE PARK VISITOR'S EDUCATION & ADMINISTRATIVE FACILITY, Nazareth, PA

CONTACT: Paul Ebright, P.E. 717-783-7929 pebright@state.pa.us	GROSS SQUARE FEET: 11,000 GSF	CX SERVICES: Design Review Installation Inspections Performance Verification Operations Training Building Envelope
CONSTRUCTION COST: \$3.3 Million	SCHEDULE: 2013-2015	

Jacobsburg Environmental Education Center is a 1,168-acre Pennsylvania state park offering environmental education from preschool to high school-level environmental programs, historical programs, teacher workshops, and public interpretive programs.

COMMISSIONING SUCCESS:

Aramark identified a total of 118 issues, including 50 found during design and 68 during construction. From the commissioning activities, we can attribute an estimated \$53,500 in cost savings and an estimated \$7,500 in energy savings.



Some of the more notable issues included:

- **Thermal Comfort and Indoor Air Quality:** There were 19 issues identified affecting the temperature control and ventilation air. During site inspection, it was observed that the ductwork was not being protected as stated in LEED EQ 3. The ductwork was originally planned to be cleaned prior to balancing, but upon review, Aramark recommended that the ductwork be cleaned prior to system start-up.
- **Operations and Maintenance:** There were 31 issues identified that impacted O&M. A good example is that the supply and exhaust fans for AHU-1 were continuously shown as in alarm while energized. If not addressed, this would have created numerous nuisance alarms for on-site personnel.
- **System Performance:** During system testing, 7 failure issues were identified where systems or equipment were not fully operational per the design intent. One example was the short cycling of the heat pumps caused by the ground source loop control. The sequence of operation called for ground source supply and return valves V-2 and V-3 to operate in a 2-position manner with V-1 modulating respectively. This did not maintain constant source water temp to the heat pump and resulted in premature component failure in addition to comfort issues. Aramark recommended that bypass valve V-3 be reconfigured as modulating (while keeping V-1/V-2 open), and the unit now operates appropriately.
- **Life Safety:** Eight issues were found during testing, including the main breaker that tripped when the time clock associated with light control was switched to the 'off' position. This was due to the sensitivity of the main breaker being set too low in respect to the current installation.
- **Energy:** Three issues were discovered including the observation during testing that exhaust fans EF-3 & EF-4 were running continuously during occupied mode and controlling to temperature in unoccupied mode, rather than control to temperature 24/7. This item was corrected, and the exhaust fans now stage to control to respective room temperature.

PENN STATE UNIVERSITY - YORK CAMPUS

GRAHAM CENTER FOR INNOVATION AND COLLABORATION, York, PA

CONTACT: Doug Wenger 814-863-9622 jdw132@psu.edu	GROSS SQUARE FEET: 7,945 GSF	CX SERVICES: Design Review Installation Inspections Performance Verification Operations Training Building Envelope
CONSTRUCTION COST: \$5 Million	SCHEDULE: 2020-2021	

The 7,945-square-foot, two-story building incorporates an open-concept floor plan and provides flexible space that can accommodate smaller collaborative student group work, individual mentoring sessions, and formal classes or lectures, as well as large events and presentations. Students can take advantage of a variety of collaborative workspaces, spots to connect and state-of-the-art technology. There are spaces for students to meet and engage with members of the local business community, and office space for the director and others associated with the program. The building design incorporates a large amount of glass to allow for breathtaking views and plenty of natural light in the open spaces.



We estimate that costs to remedy the MEP issues after the contractors had left would have been \$37,160 with an additional energy savings of \$2,300 resulting in a 1.7- year payback. Additional cost savings were realized with the building envelope commissioning but were not calculated.

SYSTEMS COMMISSIONED:

Air handling unit, heating hot water system, VAV terminal units, domestic hot water system, split systems, exhaust fans, unit heaters and automatic temperature controls.

COMMISSIONING SUCCESS:

Aramark identified 72 issues in construction with meeting code, specification and drawing requirements, common practices, and accessibility to date. These items were addressed by the contractors during construction and verified by Aramark. Below are a few major issues that Aramark was instrumental in identifying and finding solutions:

- HW Emergency Shutdown - Aramark observed that when testing the HWS Emergency Shutdown, the master boiler was powered off, BLR-2 remained powered on. Review of emergency shutdown determined the shunt trip breaker was faulty. Emergency shutdown retested with KB of PSU. Both boilers turned off and shunt breakers were tripped. Breakers were reset and normal boiler operation returned.
- Ventilation Air Requirements - Aramark found that VAV airflows on several boxes were observed at CFM setpoints of zero during occupied times. VAVs were indicated as occupied on the graphics. Review of control logic was requested. The control logic was reviewed and was modified to reflect non-zero minimums. While the initial monetary savings for this issue was small, the long-term benefits are unmeasurable. If the terminal units are allowed to go to a zero minimum during occupied time, the required outside ventilation air cannot be provided to the space. Inadequate ventilation can lead to increased illness resulting in lost work time, odor complaints, and increased unwanted air infiltration.

B. PROJECT UNDERSTANDING AND APPROACH

PROJECT UNDERSTANDING

The Railroad Museum of Pennsylvania seeks to construct an approximately 16,500 SF, two-story Round House structure and associated site improvements to store railroad rolling stock located around and adjacent to an existing railroad roundtable that will require some refurbishment/reconstruction. Much of the museum's collection of historic locomotives and rolling stock currently resides outdoors and suffers from exposure to the elements. A roundhouse will offer permanent, climate-controlled storage. The design of the building will allow for future expansion if required. It will house the Museum's existing railroad car collection and information displays for the public.

We have provided non-binding construction phase pricing for your review based upon the construction phase tasks presented in the RFP.

After review of the project schedule, there will be a focus on building envelope installation observation activities with foundation work in May 25, roof decking, curtainwalls, roofing, metal panels activities between 9/25-12/25. HVAC rough-in will occur in late 12/25 with MEP work primarily 1/26-4/26 and most of the Cx meetings, installation observation and coordination will occur during that timeframe leading up to equipment start-up, balancing, functional testing, training, and O&M review.

The HVAC systems will have two (2) air handling units with heat pump and hot gas reheat coil will require start-up witnessing and ATC integration confirmation. Two (2) ductless splits with DX cooling and heat pump heating will serve office and back of house spaces. Comfort heating will be supplied through spiral/round ductwork and spot heating via electric heating unitary equipment. The existing Automated Logic DDC control system shall be extended for this building through the Owner's Automated Logic vendor. We are familiar commissioning with this control system on several other DGS projects.

Plumbing systems include an Electric water heater to store and supply 130-140-degree domestic hot water to mixing valves set for 110 degrees to serve hand sink/lavatories which will be verified during functional testing. A variable speed domestic water booster pump will be provided and typically is witnessed, and generally requires system pressure set point adjustment.

Electrical systems include lighting controls, emergency lighting inverter, fire alarm system, communication systems and security systems. The fire alarm system will be fully compatible with the existing museum building Honeywell system and communication with the main fire alarm control panel. The existing system is maintained by a Honeywell representative who will be integrated into the commissioning process.

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.

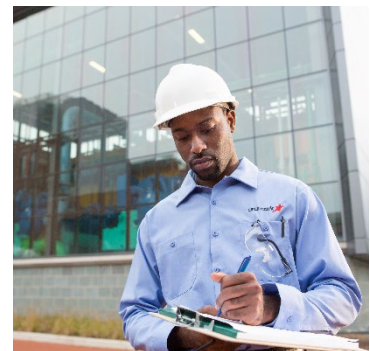
- Creating partnerships and leading collaboration within the project and construction teams.
- Providing “on-site” representation to focus and coordinate the commissioning efforts.
- Coordinating and integrating teams of professionals in supporting corrective actions.
- Establishing parameters and testing 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 Round House Construction project at the Railroad Museum of PA. 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

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 assemblies and 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 Sustainability Criteria, Basis of Design (BoD), and Contract Documents. Furnish test procedures and checklists prior to assemblies and 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 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 and witness select 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 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.
- Heating, Ventilating, Air Conditioning, and Refrigeration Systems (HVAC) including Heat Generation, Refrigeration, Ventilation, and HVAC Control Systems.
- Electrical Systems including Power Distribution, Lighting, and Controls, and Emergency Generator Systems.
- Communications Systems including Voice/Data and Sound/Video Systems.
- Electronic Safety and Security Systems including Security, Alarm, and Detection Systems.

C. GEOGRAPHIC LOCATION

Manas Vaidya, the proposed project manager, is located in Harrisburg, only 45 miles to the project site. Most of the other supporting team members are located in the Harrisburg region as well. Travel time will not be required for reimbursement as travel will be performed on the employee's time.

D. PROJECT WORK PLAN

I. Schedule of Milestones

CONSTRUCTION PHASE - NOTICE OF AWARD THROUGH JUNE 2026

- Develop and provide the Cx Plan.
- Perform submittals review.
- Attend construction meetings as needed.
- Hold regular commissioning meetings.
- Develop pre-functional test forms and provide to contractors.
- Conduct construction observation and testing.
- Develop and maintain issues and resolution log.
- Witness start-up of Cx systems.

ACCEPTANCE PHASE - JUNE 2026 THROUGH DECEMBER 2026

- Perform functional performance testing of Cx systems.
- Conduct Cx meetings as needed.
- Develop and deliver Systems Manual.
- Develop and deliver Preliminary and Final Cx report.
- Review, pre-approve, and verify training of personnel.
- Develop End of Warranty Cx report.

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

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

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

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

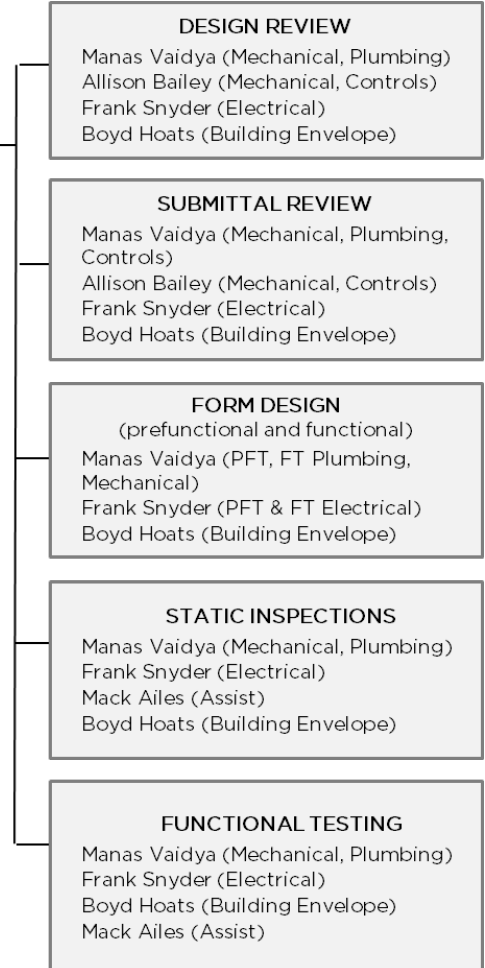
IV. Indicate the anticipated number of hours required for completion of the work described in the Scope of Work (Attachment A).

Construction Phase: 218

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) | (10) LEED Accredited Professionals (LEED AP) |
| (18) Certified Energy Managers (CEM) | (3) LEED Green Associates |
| (3) Commissioning Building Commissioning Professionals (BCxP) | (2) Registered Architects/NCARB |
| (5) Certified Measurement Verification Professionals (CMVP) | (2) Commissioning Process Management Professionals (CPMP) |

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 mechanical, plumbing, and controls submittals; design the functional test forms for mechanical and plumbing systems; perform static inspections; and perform functional testing.

**CHRIS SKALSKI, P.E.,
LEED AP, C.P.M.P.****Cx Senior Engineer**

- 8.0 Million GSF
Commissioned
- 60 Commissioning
Projects (Project
Manager)
- 20 Commissioning
Projects (Cx Agent)
- University of
Pennsylvania
Bachelor of Science
Mechanical Engineering

Mr. Skalski is a Professional Engineer and LEED Accredited Professional with 20 years of experience as a building commissioning agent, including extensive experience in HVAC and plumbing systems design, building automation, and DDC systems.

On behalf of Aramark, Mr. Skalski is the commissioning team leader for several of Aramark's higher education and healthcare clients. His responsibilities include engineering design reviews, installation quality assurance, pre-functional/performance testing, initiation of corrective actions, and operator training.

Chris 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
- 55+ Commissioning
Projects (Project
Manager)
- Ohio State University
Bachelor of Science
Mechanical Engineering
- Professional Engineer
(KY, OH, and WV)

Ms. Bailey is a mechanical engineer with 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.

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

**FRANKLIN R. SNYDER,
JR., P.E.****Cx Manager**

- Penn State University
Bachelor of Science
Mechanical Engineering
Technology
- Penn State University
Associate of Arts
Mechanical Engineering
Technology
- Professional Engineer
(PE)
- USGBC LEED AP BD+C
- Certified CxA, AABC /
ACG
- Energy Management
Professional (EMP)

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 related project experience includes the Penn State Indoor Sports Complex.

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

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, several projects at Nemours Children's Hospital and on the campus of University of Pennsylvania, and projects with the Allegheny Health Network.

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