NKSD Bid No. 2022-10
First Floor Classroom A/C Improvements
At North Kingstown High School
150 Fairway Drive, North Kingstown, Rhode Island 02852

March 30, 2022

NOTICE:

This Addendum modifies, amends and supplements designated part of the CONTRACT DOCUMENTS for the project identified as "First Floor Classroom A/C Improvements at North Kingstown High School, Bid No. 2022-10", 150 Fairway Drive, North Kingstown, Rhode Island, dated March 4, 2022, and is hereby made a part thereof by reference, and shall be as binding as though inserted in its entirety in the locations designated hereunder. It shall be the responsibility of the Contractor to notify all subcontractor and suppliers he proposes to use for the various parts of the work of any changes or modifications contained in this Addendum. No claim for additional compensation due to lack of knowledge of the contents of this Addendum will be considered.

PRE-BID MEETING:

A Mandatory Pre-Bid Conference was held on March 23, 2022 starting at 2:00 PM at the North Kingstown High School located at 150 Fairway Drive. The attendee sign-in sheet for this conference is attached to the end of this Addendum. The following items were indicated during this conference as follows:

1. Bids are due to be delivered before 11:00 AM local time, April 4, 2022 to the North Kingstown School Department, Building "D", Plant and Grounds, at the Office of Robert Corrente,120 Fairway Drive, North Kingstown, RI 02852.

2. This project is posted on the North Kingstown School Department website at https://www.nksd.net/Bids and on QuestCDN website at info@questcdn.com using Login **QuestCDN#8134151**.

3. The last day for questions is March 28, 2022 submitted in writing by no later than 5:00 PM local standard time via email to Mr. James M. Partridge at jpartridge@rowsearch.com.

4. Base Bid Substantial Completion date is set for August 26, 2022 and the Final Completion date is set for September 2, 2022.

SPECIFICATIONS:

1. Section 01 91 13 - General Commissioning
    a. Insert attached to this addendum specification section in its entirety.

DRAWINGS:

1. Drawing M1.3 – Mechanical Partial First Floor and Roof Plans:
    a. Furnish and install a thermostat at Art 132, Art 133, Art 134 and Kiln 134A located near the Teachers station.

2. Drawing E3.1 – Electrical – Enlarged Electrical First Floor Plan and Riser Diagram:
    a. Delete in its entirety elevations 2/E3.1 Power Riser Diagram.

CONTRACTOR BID QUESTIONS:

A. E.W. Burman General Contractors Email Questions, dated 03.28.2022:

1. Please provide the manufacturers / specs on gear that is existing.
   Response: Manufacturer is "Square D QED".

2. The electrical riser shows panels H3D, H3E, H3F and H3G; but there are schedules for H3H and H3J. Please clarify what is required?
   Response: The two new panelboards are Panel H3H and Panel H3J to be installed in Storage 300D at the third floor. They are fed from the Main Electric Room IE5 on the first floor near shipping and receiving dock. Provide Two (2) new 225A circuit breakers in the main switchboard. The feeder size for each panel shall be "4#4/0 and 1#4G. 2-1/2-inch C. Disregard the power riser diagram detail 2 on drawing E3.1.

B. E.W. Burman General Contractors Email w/ RFI No 1 Questions, dated 03.28.2022:

1. Sheet A1.6 shows that Corridor 1C8, Vestibule 1C8A, Corridor 1C7 and Gallery 1C6 are to all receive work associated to construction notes 1, 2, 3 and 4 but there are no markups on the drawing that show work to be done.
   - Example: Gallery 1C6 calls for construction note 1, which is "remove existing suspended acoustic ceiling tiles and grid system…" The drawings do not show the associated markup that should be on there from the ceiling legend.
   - Is there any work to be done in Corridor 1C8, Vestibule 1C8A, Corridor 1C7 and Gallery 1C6?

   Response:
   a. There is NO WORK required at Corridor 1C8, Vestibule 1C8A and Corridor 1C7
   b. Gallery 1C6 may require work as described in Construction Notes No 1, 2 and 3 pertaining to the installation of the condensing unit to be installed on the roof above. This work would be located at the East end of Corridor 1C6 outside the Art Classroom areas.

2. On sheet G1.0, note 3 under “specific demolition/construction notes:” states “contractor shall carry cost in their bid to replace up to 5% of the total acoustical ceiling tiles and grid that will be removed and re-installed”. Does the school want 5% of the ACT and grid to be randomly replaced or only replace if damaged during construction?

   Response: **Note No 6 states - “Contractor shall carry the cost in their bid to replace 5% of the total acoustical ceiling tiles and grid that will be removed and re-installed”. Contractor shall provide 5% replacement of entire square footage quantity scheduled to be removed and re-installed.**

3. Sheet A1.3 calls for a thermostat to be installed in “Special Education Life Skills” Room 104. Sheet M1.2 does not show a thermostat symbol to be installed in “Special Education Life Skills” Room 104. Which is correct?

   Response: **Drawing A1.3, Special Education Life Skills Room 104 will require a thermostat. Include cost to Provide and Install Thermostat at this room location near the Teachers station.**

4. Sheet A1.4 calls for three thermostats to be installed in “Corridor 1C4”. Sheet M1.1 shows two thermostat symbols to be installed in “Corridor 1C4”. Which is correct?

   Response: **Drawing A1.4, Construction Note No 6, does not indicate quantities or locations of the thermostats. Refer to Mechanical drawings for locations and quantities of new thermostats to be installed.**

5. Is the cost of the Builders Risk policy the responsibility of the owner or the General Contractor for this project?

   Response: **Builders Risk Insurance is not required for this project.**

C. Ahlborg Construction Corporation Email w/ RFI No 1 Questions, dated 03.28.2022:

1. The current AIA Qualification Statement references the 2021 Capital Improvement Projects. Is the name to stay the same or can the GC change it to the current project title?

   Response: **Remove AIA305-1986 Contractor’s Qualification Statement document in its entirety.**
   Insert AIA305-2020 Contractor’s Qualification Statement see attached to this addendum.

2. The current AIA Qualification Statement document 1986 has been discontinued. Are we allowed to use the 2020 AIA Qualification Statement document?

   Response: **Insert AIA305-2020 Contractor’s Qualification Statement see attached to this addendum.**

NOTICE TO ALL CONTRACTORS:

Contractors shall call our office to verify number of Addendum issued at least 24 hours in advance of bid submission. Failure to acknowledge receipt of this addendum on the bid form may, at the sole discretion of the Owner, serve as justification to reject bid.

END OF WRITTEN ADDENDUM

019113 COMMISSIONING SPECIFICATION

TABLE OF CONTENTS

COMMISSIONING SPECIFICATION

PART 1 - GENERAL

1.0 GENERAL PROVISIONS AND GOALS

A. Attention is directed to the Contract, General Conditions, and all sections within Division 1 – General Requirements that are hereby made part of this Section of the Commissioning Plan/Specifications.

B. Examine all Sections of the Specifications for requirements that affect work under this Section and in the General and Project Manual and reference guides.

C. This Section of the Contract is set aside to incorporate current Commissioning contract requirements and to be the document by which this Section of the Contract will be built into the Final Commissioning Report.

D. Commissioning Goal: Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent and the Owner's operational needs. This is achieved by beginning in the Design Phase and documenting design intent and continuing through construction, acceptance and the warranty period with actual verification of performance. The commissioning process encompasses and coordinates the traditionally separate functions of system documentation, equipment start-up, automatic control system calibration, testing, adjusting, and balancing (TAB), electrical systems, plumbing systems, fire protection systems, HVAC systems, process, electrical, and performance testing and training.

E. Commissioning Goal: To have the Contractor complete a comprehensive system readiness process followed by system demonstration to the Commissioning Team with the CxA providing the documentation/verification of the building systems that they are installed according to the manufacturer's recommendations, to industry accepted minimum standards and that they perform in accordance with the requirements of the contract documents.

F. Commissioning Goal: To have the Contractor complete a comprehensive Systems Manual documentation process that will assist the CxA and Owner with enhancing of the building automation system and Owner's CMMS system for the mechanical and electrical equipment to achieve sustainable operation and maintenance management system.

G. Commissioning Goal: Complete the following Commissioning process (CxP) activities for mechanical, electrical plumbing and renewable energy systems and assemblies in accordance with ASHRAE Guideline 0-2019 and ASHRAE Guideline 1.1-2007 for HVAC&R systems, as they relate to energy, water, indoor environmental quality, and durability.

H. Abbreviations found in this specification:

A/E	Architect and Design Engineers	HVAC	Heating, Ventilation & Air Conditioning
ATC	Automatic Temperature Controls	MEP	Mechanical, Electrical & Plumbing
BMS	Building Management System	O&M	Operation & Maintenance
BOD	Basis of Design	OPR	Owners Projects Requirements
CM	Construction Manager	PFC	Pre-functional Checklists
CxA	Commissioning Authority	SRC	System Readiness Checklists
FPT	Functional Performance Test	TAB	Testing, Adjusting & Balancing

1.1 COMMISSIONING PLAN

A. The Commissioning Plan outlines the commissioning process, commissioning scope and defines responsibilities, processes, schedules, and the documentation requirements of the Commissioning Process.

B. The Owner shall champion the commissioning process with the CxA to commission the building systems to the quality standards and procedures specified herein and as documented on the contract drawings.

C. As information to the Commissioning Team, joining in the commissioning process at the Construction Phase, the CxA completed the following in the Design Phase:

1. Created the Commissioning Plan
2. Review the development of the OPR.
3. Review the MEP Design Engineer's BOD.

D. The following activities will be completed by the Commissioning Team per the contract documents starting in the Design Phase:

1. Design Team shall keep the OPR current throughout the project including the following OPR issues.
    a. Owner and User Requirements.
    b. Environmental and sustainability goals.
    c. Energy efficiency goals.
    d. Indoor environmental and quality requirements.
    e. Equipment and system expectations.
    f. System training goals.
    g. Building Occupant and O&M Personnel Requirements.
2. CxA shall complete a Summary Commissioning Final Report.
3. Design Team shall develop the OPR and the BOD documents throughout the Design Phase and edit them as required in the Construction Phase. Both documents are to be submitted to the CxA for review and included in the Final Commissioning Report.
4. Commissioning Team shall utilize the Commissioning Plan. The following are integral parts of the Commissioning Plan and are imbedded into this Section of the specification:
    a. Commissioning Program Overview
        1) Goals and objectives
        2) General Project Information
        3) Systems to be commissioned
    b. Commissioning Team
        1) Team members, roles and responsibilities.
        2) Communication protocol, coordination, meetings, field visits, and overall commissioning project management.
    c. Description of Commissioning Process Activities
        1) Documenting the Construction Documents Review Process
        2) Developing the Commissioning Plan

3) Conducting Pre-Construction Kick-off Meeting

4) Conducting Site Visits and commissioning meetings

5) Reviewing Contractor Submittals

6) Developing draft and final Pre-Functional Checklists (PFC)

7) Developing draft and final systems Functional Performance Test (FPT) procedures.

8) Prepare systems for FPT demonstration to the Commissioning Team.

9) Verifying systems performance.

10) Maintaining Master Issues Log for tracking non-compliance issues and deficiencies found during testing.

11) Verification of training of operations personnel.

12) Accepting the building systems.

13) Compiling Final Commissioning Report and Systems Manual

14) Conducting Post-Construction Meeting for review.

15) Conducting 10-month post-occupancy warranty review

5. CxA shall review Contractor submittals applicable to systems being commissioned.

6. CxA shall verify the installation and performance of commissioned systems.

   a. Installation Observation.

   b. Systems Performance Testing.

   c. Evaluation of Results compared to OPR/BOD.

7. CxA shall assist the development with the Commissioning Team of a Systems Manual for the commissioned systems. The Systems Manual provides future operating staff the information needed to understand and optimally operate the commissioned systems. A Systems Manual is in addition to the O&M Manuals submitted by the Contractors. The Systems Manual requires the following for each commissioned system:

   a. Final version of the BOD (provided by the Design Team).

   b. System single-line diagrams (provided by the Design Team and may include the TAB system flow diagrams and the CxA's system flow diagrams).

   c. As-built sequences of operations, control drawings and original set points (provided by the ATC/BMS Contractor and each Equipment Manufacturer's ATC submittal for pre-packaged ATC).

   d. Operating instructions for integrated building systems (provided by the Contractor).

   e. Recommended schedule of maintenance requirements and frequency requirements and frequency, if not already included in the project O&M Manuals (provided by the Contractor).

   f. Recommended schedule for retesting of commissioned systems with blank test forms from the original Commissioning Plan (provided by the CxA).

g. Recommended schedule for calibrating sensors and actuators (provided by the ATC/BMS Contractor and each Equipment Manufacturer's ATC submittal for pre-packaged ATC).

h. PFC documents specified herein (provided by Cx Agent for the Contractor).

8. CxA shall verify that the requirements for training are completed by the CM and their team Contract Documents.

9. CxA shall review building operation within 10-months after substantial completion.

10. CxA shall complete a Summary Commissioning Report.

1.2 SYSTEMS TO BE COMMISSIONED

A. Systems to be commissioned shall be listed below. Systems include all interconnected components and are not limited to the equipment listed within this specification. Refer to Cx Test Plan & Equipment Matrix that is located at the end of this commissioning specification.

1. Mechanical

- Building Automation System as pertains to systems being commissioned.
- Variable Refrigerant Flow Fan Coil Units

B. Commissioning Activities

1. Construction Phase

a. Facilitate a Commissioning Team Kick-off Meeting with handouts referencing Commissioning Test Plan & Schedule and the Systems Manual Table of Content to provide a Commissioning Education Platform to the Commissioning Team.

b. Participate in regularly scheduled commissioning field coordination meetings facilitated by the CxA at intervals based on meetings with the Contractor, TAB Firm, installing Trade Sub-Contractors, Control Contractor (both the ATC/BMS firm and each Equipment Manufacturer providing packaged ATC) and Owner facility manager representative. The purpose of the meetings will be to review the status of commissioning activities, schedule future activities, and resolve commissioning process issues.

c. Respond to comments on submittals that have been reviewed for commissionability.

1) Review for conformance with the OPR and basis of design.

2) Fulfilling Operation and Maintenance Requirements.

3) Facilitating performance testing.

d. Coordinate and schedule the pre-functional and functional performance activities, as well as the TAB and other trade activities.

e. Review the following in the shop drawing phase:

1) Equipment submittals for equipment/ systems to be commissioned.

2) TAB submittal including the TAB Plan and associated system flow diagrams indicating design data at pertinent test points in the air and water systems.

3) Equipment and System Training Plan submittal.

4) ATC/BMS submittal (both the ATC/BMS firm and each Equipment Manufacturer providing packaged ATC).

5) Systems Manual Table of Content.

f. Document PFCs for system being commissioned.

g. Observation of Installation per contract documents equipment to be commissioned using Observation Checklists.

h. Observe and document randomly observed equipment manufacturer's startup for systems being commissioned.

i. Review of the Systems Manual as it is developed during the Construction Phase.

j. Facilitate and document FPTs for systems being commissioned.

k. Maintaining and resolving Corrective Actions Log issues.

l. Verify System Education/Training.

2. Post-Construction Phase:

a. Perform seasonal/deferred FPT demonstration.

b. Facilitate in a Warranty/Project Closeout meeting at month 10.

c. Complete Final Commissioning Report document.

d. Final Report to include Systems Manual.

1.3 COMMISSIONING TEAM

A. The Commissioning Team shall consist of representatives from the following parties involved in the design and construction of this facility and associated with the scope of Commissioning work:

1. Owner's Project Manager
2. Owner's Facility Operator and/or Manager
3. Commissioning Firm
4. Design Team Professionals
5. Construction Manager (C.M.)
6. Mechanical, Electrical, Plumbing Contractors (MEP)
7. Testing Adjusting & Balancing (TAB) Contractor
8. Automatic Control Contractor
9. Equipment Manufacturers (associated with system to be commissioned).
10. Equipment Manufacturer's Automatic Control Engineer (associated with equipment furnished with pre-packaged automatic controls as part of systems to be commissioned).
11. Independent Testing Agencies (As Required)
12. Regulatory Agency (As Required)

1.4 COMMISSIONING TEAM MEMBER RESPONSIBILITIES

A. The responsibilities of the various parties in the commissioning process are provided in this section. The responsibilities of the mechanical contractor (included TAB), ATC/BMS

Contractor and the electrical contractor are included herein. The Design Engineer, Owner's Project Manager or Owner's Representative are also part of the Commissioning Team.

B. All Parties

1. Attend commissioning scoping meeting and additional meetings as necessary.

C. Owner Project Manager shall:

1. Champion the commissioning process.
2. Participate in the development of the Owner's Project Requirement (OPR) document.
3. Review and comment on any revisions to the Basis of Design (BOD) document.
4. Attend commissioning specific coordination meetings.
5. Participate in Pre-Functional Checklist observation.
6. Participate in Functional Performance Testing.
7. Participate in system education/training.

D. Owner Facility Operator and/or Manager shall:

1. Periodically visit the construction site to become familiar with the project equipment/system installation.
2. Attend all commissioning coordination meetings.
3. Review equipment, system and control submittals for Basis of Design (BOD).
4. Work with other Commissioning Team members with system education/training.
5. Witness and, to the greatest extent possible, participate in the following commissioning activities:
    a. Initial equipment startup
    b. Testing, adjusting and balancing
    c. ATC/BMS point-to-point checkout
    d. Pre-Function Checklists (PFC)
    e. Functional Performance Tests (FPT)
6. Work with the Commissioning Team with interface of automatic control systems with existing building automation system.
7. Work with Commissioning Team to develop the Current Facilities Requirements and Operations and Maintenance Plan
8. Work with Commissioning Team to develop the Systems Manual.
9. Review commissioning progress and deficiency reports.
10. Arrange for facility operating personnel and maintenance personnel to attend various field commissioning activities and field training sessions.
11. Assist the CxA as necessary in the seasonal or deferred testing and deficiency corrections required by the specifications.
12. Participate in any seasonal or deferred testing and any deficiency issues resolution.

E. The CxA is not responsible for design concept, design criteria, compliance with codes, design or general construction scheduling, cost estimating, or construction management. The CxA may assist with the problem solving of non-conformance or deficiencies, but ultimately that responsibility resides with the individual trade contractors and the design team. The primary role of the CxA is to develop and coordinate the execution of the testing

plan, observe and document performance that systems are functioning in accordance with the documented design intent and in accordance with the Contract Documents. The Contractors will provide all tools or use of tools to start, check-out and functionally test the equipment. The CxA does not touch the equipment, run the equipment of manipulate the building automation system.

F. The Commissioning Authority Shall:

1. Facilitate commissioning scoping meeting and other commissioning meetings with the Commissioning Team.
2. Coordinate and direct the commissioning activities in a logical, sequential and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties, frequently updated timelines and scheduled and technical expertise.
3. Coordinate the commissioning work with the Construction Manager, verify that the commissioning activities are being scheduled into the master schedule.
4. Request and review additional information required to perform commissioning tasks, including O&M Materials, contractor start-up and check-out procedures.
5. Provide pre-functional checklists to the MEP/FP sub-contractors for them to complete prior to system startup unless manufacturer's startups to be completed.
6. Before start-up, gather and review the current control sequences and interlocks and with the contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.
7. Review and approve normal Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with A/E and Construction Manager/GC reviews.
8. Receive and review construction documentation (Requests for Information, Bulletins, Change Orders, etc.) for impact on commissioning process.
9. Maintain Pending Issues Log
10. Review commissioned equipment, system and control submittals for OPR and BOD compliance.
11. Monitor the collection of the O&M Manuals by the Contractor immediately following the individual approval of equipment submittals.
12. Work with other Commissioning Team members with system education/training and monitor that training was conducted for all commissioning features and systems. Training program needs to address all training/education aspects.
13. Complete random installation observation according to contract documents for system readiness assessment and complete each site visit with a Field Visit Report and record of any deficiencies.
14. Monitor the Contractor's development of the Facilities and Systems Manuals. Pre-Functional Checklists will be completed by the installing contractors and signed-off and collected by the CxA prior to testing of systems.
15. Randomly observe startup and checkout of equipment completed by the Contractor and documented per the manufacturer's instructions and contract documents. The CxA shall apply a sampling method of start-up observation for systems to be commissioned.
16. With assistance of the design engineer and installing contractors, write the FPT procedures for equipment and systems.
17. Provide final "draft" FPT procedures to installing contractors for their use in "dry-run" of systems prior to CxA observing testing. A sign-off FPT is required by the

installing contractors to be provided to the CxA before commissioning of the systems is to be scheduled.

18. Work with ATC/BMS Contractor(s) to create and maintain system trending data. Analyze any functional performance trend logs and monitoring data to verify performance.

19. Facilitate and observe FPT demonstrations by observing each Sequence of Operation for each system being commissioned. Observe to the greatest extent possible, the following commissioning activities:

    a. Initial equipment startup

    b. Testing, adjusting, and balancing

    c. ATC/BMS point-to-point component test

    d. PFC's

20. Maintain a Master deficiency and resolution log i.e., Corrective Actions Logs and provide the Construction Manager/GC with written progress reports and test results.

21. Maintain Commissioning Pending Issues Log of any issues or concerns identified in the Construction Phase that is Design Team or Owner related.

22. Assist in the development of the Facilities and System Manuals for the below topics and assignments that is finalized during the Post-Commissioning Phase.

23. Provide a final commissioning report.

24. Coordinate and supervise required seasonal or deferred testing and deficiency corrections.

G. Architect Professionals shall:

1. Fulfill construction administration per their contract with the Architect.

2. Attend the commissioning scoping meeting and selected commissioning team meetings.

3. Perform normal submittal review, construction observation, as-built drawing validation, O&M Manual validation, etc., as contracted.

4. Provide any design narrative documentation requested by the CxA.

5. Coordinate resolution of system deficiencies identified during commissioning, according to the contract documents.

6. Prepare and submit final as-built design intent documentation for inclusion in the O&M Manuals. Review and approve the O&M Manuals.

7. Coordinate resolution of design non-conformance and design deficiencies identified during warranty-period commissioning.

H. Mechanical and Electrical Designers/Engineers (Construction/Acceptance Phase):

1. Perform normal submittal review, construction observation, as-built drawing turnover to client along with O&M Manuals, etc., as contracted. On-site observation should be completed just prior to system start-up.

2. Provide any design narrative and sequences documentation requested by the CxA. The designers shall assist (along with the contractors) in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.

3. Attend commissioning scoping meetings and other selected commissioning team meetings.

4. Prepare and submit the final as-built design intent and operating parameters documentation for inclusion in the O&M manuals. Review and approve the O&M manuals.

5. From the Contractor's drawings, edit and update one-line diagrams developed as part of the design narrative documentation and those provided by the vendor as shop drawings for the chilled and hot water, condenser water, domestic water, steam and condensate systems; supply, return and exhaust air systems and emergency power system.

6. Witness testing of all pieces of equipment and systems.

7. Review the HVAC piping test and flushing procedure, sufficient to be confident that proper procedures are being followed. Notify Owner's Project Manager of any deficiencies in results or procedures.

8. Review the testing and cleaning procedures sufficient to be confident that proper procedures are being followed. Notify Owner's Project Manager of any deficiencies in results or procedures.

9. Witness performance testing of smoke control systems by others and all other owner contracted tests or tests by manufacturer's personnel over which the CxA may not have direct control. Document these tests and include this documentation in Commissioning Record in O&M Manuals.

10. Participate in the resolution of non-compliance, non-conformance and design deficiencies identified during commissioning during warranty-period commissioning.

I. Construction Manager shall:

1. Champion and support the commissioning process.

2. Review commissioning progress and deficiency reports.

3. Attend commissioning coordination meetings.

4. Manage the master scheduling process with regard to timing and duration of the commissioning activities, as well as manage the Commissioning Test Plan & Schedule document.

5. Coordinate the completion, by the subcontractors of the Pre-Functional Performance Checklist (PFC) and notify CxA of completion prior to scheduling functional Performance Testing.

6. Manage the master shop drawing log, O&M Manuals, Current Facilities Requirements and Operations and Maintenance Plan, Systems Manual, and training schedule log.

7. The Contractor shall provide for the assembly of the O&M Manuals. An all-inclusive Table of Contents shall be displayed for the Trade Contractors to highlight open items and scheduled due dates of O&M insertions. The O&M Manuals will be built on a construction progress basis and will be reflective of each equipment/system that has been accepted and installed thus being in a completed state prior to demonstration of equipment/systems to Owner. Contractor shall assign a Project Coordinator to monitor this process thru to completion.

8. Coordinate the completion and delivery of shop drawings, and O&M Manuals prior to system FPT demonstration to allow facility staff to reference during system education/training provided by the Contractor and monitored by the Commissioning Firm.

9. Ensure that Contractor correct deficiencies and make necessary adjustments to O&M Manuals and as-built drawings for applicable issues in any testing.

10. Coordinate and schedule all equipment and system education/training. Completion of the Operation and Maintenance Training Record within Division 1 and also at the end of this section is required by the Construction Manager/GC for all systems requiring training. The Agenda portion depicting the training and personnel to be included, shall be completed 2 months prior to training and approved by the Owner's Representative.
11. A Training Schedule shall be developed by the Construction Manager/GC and a meeting with the CxA, Owner and Owner's facility personnel shall be implemented to discuss and finalize.
12. Coordinate and schedule all testing compliance and maintain Test Log for pipe testing and flushing and duct testing of system distribution.
13. Coordinate and schedule the Trade Contractor's initial dry-run FPT demonstration and collect and sign-off (final approval) on individual commissioning tests as completed.
14. Coordinate and schedule deferred/seasonal tests in the appropriate season. The heating system sequence shall be tested in the winter and air-conditioning sequences in the summer.
15. Coordinate and schedule retest activities.
16. Assemble and deliver Systems Manual to the CxA for sign-off before forwarding to the Owner.

J. Mechanical (including TAB), Electrical, and ATC/BMS Contractors:

1. The commissioning responsibilities applicable to each of the mechanical, controls and TAB contractors are as follows (all references apply to commissioned equipment only):
2. Trade Contractors are as follows:
    a. HVAC
    b. Testing, Adjusting and Balancing Contractor
    c. Sheet Metal
    d. Automatic Controls
    e. Electrical
    f. Plumbing
    g. Fire Protection
    h. Low Voltage Systems
    i. Automatic Temperature Controls / Building Management System (ATC/BMS)
3. Include and itemize the cost of commissioning in the contract price.
4. In each purchase order or subcontract written, include requirements for submittal data, commissioning documentation, O&M data and training.
5. Require equipment manufacturer's provides self-contained building automation equipment representative to participate in the commissioning process.
6. Attend a commissioning scoping meeting and other commissioning coordinating meetings.
7. Contractors shall provide the CxA with normal cut sheets and shop drawing submittals of commissioned equipment.

8. Provide additional requested documentation, prior to normal O&M manual submittals to the CxA for the development of start-up and functional testing procedures.
    a. Typically this will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, full details of any owner-contracted tests, fan and pump curves, full factory testing reports, if any, and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition, the installation, start-up and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the CxA.
    b. The CxA may request further documentation necessary for the commissioning process. This data request may be made prior to normal submittals.
9. Provide a copy of the O&M Manuals and submittals of commissioned equipment, through the submittal process, to the CxA for review and approval.
10. Prepare a preliminary schedule of MEP pipe and duct system testing, flushing and cleaning, equipment start-up and TAB start-up and completion for use by the CxA.
11. Contractors shall assist (along with design engineers) in clarifying the operation and control of the commissioned equipment in the areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.
12. Fill out completely the pre-functional checklists provided by the CxA. These pre-functional forms should be completed prior to start-up of the associated piece of equipment. Completed pre-functional checklists are to be reviewed and approved by the CxA, prior to any functional testing of equipment begins.
13. Provide assistance to the CxA in preparing the specific FPT procedures. Trade contractors shall review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during the tests.
14. Develop a full start-up plan and initial checkout plan using manufacturer's start-up procedures and the prefunctional checklists from the CxA for all commissioned equipment. Submit to CxA for review and approval prior to start-up.
15. During the start-up and initial checkout process, execute the mechanical-related portions of the prefunctional checklists for all commissioned equipment.
16. Perform and clearly document all completed start-up and system operational checkout procedures, providing a copy to the CxA.
17. Address current A/E punch list items before functional testing. TAB shall be completed with discrepancies and problems remedied before the functional testing of the respective air and water related systems.
18. Provide skilled technicians to execute starting of equipment and to execute the FPTs. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.
19. Provide skilled technicians to perform FPTs under the direction of the CxA for commissioned systems. Assist the CxA in interpreting the monitoring data as necessary.
20. Correct deficiencies (differences between specified and observed performance) as interpreted by the CxA, CM and A/E to retest the equipment.
21. Prepare O&M manuals according to the Contract Documents, including clarifying and updating the original sequence of operation to as-built conditions.

22. Develop and deliver O&M manuals immediately after associated equipment submittal is approved.

23. Refine and implement FPT Test procedures and, where applicable, have equipment manufacturer participation where controls are packaged.

24. Contribute to Current Facilities Requirements and Operations and Maintenance Plan

25. Contribute to the Systems Manual.

26. Develop and implement equipment education/training compliant with Contract Documents.

27. Prior to the system demonstrations with the Commissioning Team, perform systems dry-run FPT demonstration and submit documented results to the Commissioning Firm.

28. Demonstrate systems working with the Commissioning Team implementing FPTs.

29. Demonstrate systems working with the Commissioning Team implementing deferred/seasonal test FPTs.

30. Correct all Contractor-related deficiencies identified during FPTs and retest the corrected functions with the Commissioning Team.

31. Make necessary adjustments to the O&M manuals and as-built drawings for applicable issued identified in any seasonal or deferred testing.

32. Provide Systems Manual portions that pertain to your discipline to the CxA.

K. Controls Contractor:

The commissioning responsibilities of the controls contractor, in addition to those listed above are:

1. Assist and cooperate with the CxA in the following manner:

   a. Using a skilled technician who is familiar with this building, execute the functional testing of the controls system as specified for the controls contractor. Assist in the functional testing of all equipment specified.

   b. Execute all control system trend logs specified.

2. Provide a signed and dated certification to eh CxA and GC upon completion of the checkout of each controlled device, equipment and system prior to functional testing for each piece of equipment or system, that all system programming is complete as to all respects of the Contract Docuements, except functional testing requirements.

3. Beyond the control points necessary to execute all documented control sequences, provide monitoring, control and virtual points as requested by the CxA to demonstrate system operation.

4. List and clearly identify on the as-built duct and piping drawings, the location of all static and differential pressure sensors (air, water and building pressure).

L. Testing, Adjusting, & Balancing (TAB) Firm

The commissioning responsibilities of the TAB contractor, in addition to those listed above are:

1. Attend all commissioning coordination meetings.

2. Submit TAB Plan including TAB shop drawing submittal requirements (i.e., system flow diagrams with design data at pertinent test points) during the submittal phase period of the job.

3. Review and comment on field coordination drawings during the mechanical-electrical field drawing coordination meetings relative to testing, adjusting and balancing.

4. Participate in PFC completing Pre-TAB field visits.

5. Complete testing, adjusting and balancing of systems.

6. Provide a draft TAB report within two weeks of completion. A copy will be provided to the CxA. The report will contain a full explanation of the methodology, assumptions and the results in a clear format with designations of all uncommon abbreviations and column headings. The report should follow the latest and most rigorous reporting recommendations by the AABC, NEBB and ASHRAE.

7. Communicate in writing to the controls contractor all setpoint and parameter changes made or problems and discrepancies identified during TAB which affect the control system setup and operation.

8. Provide the CxA with any requested data, gathered, but not shown on the draft reports.

9. Participate in FPT system demonstrations.

10. Provide system performance verification data for commissioned systems.

11. Provide a final TAB report for the CxA with details, as in the draft.

M. Equipment Manufacturers shall:

1. Participate in the commissioning process. Participation shall include demonstration of furnished equipment operation and packaged control system functions, including compatibility with BAS.

2. Prior to the systems demonstrations with the Commissioning Team, perform system dry-run FPTs in conjunction with the Trade Contractor.

3. Demonstrate systems working with the Commissioning Team including joint automation demonstration with the ATC/BMS Contractor implementing FPTs in conjunction with the Trade Contractor.

4. Demonstrate systems working with the Commissioning Team implementing deferred/seasons test FPT in conjunction with the installation subcontractor.

5. Correct all equipment deficiencies identified during FPT and retest the corrected functions with the Commissioning Team.

PART 2 - PRODUCTS

2.0 TEST EQUIPMENT

A. All testing equipment required to perform startup and initial checkout and required functional performance testing shall be provided by the Division contractor for the equipment being tested.

B. Special equipment, tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment, according to these Contract Documents shall be included in the base bid price and left on site.

C. All testing equipment shall be of sufficient quality and accuracy to test and/or measure system performance with the tolerations specified in the Specifications.

PART 3 - EXECUTION

3.0 CONSTRUCTION PHASE DOCUMENTS

A. The documentation associated with the activities in the Construction Phase of the project is as follows:

1. Commissioning Meeting Minutes for documenting regularly scheduled meeting discussions, responsibilities, and action agenda due dates.
2. Pending Issues Log for documenting issues identified and/or commissioning activities that are directed to design issues/concerns, field visit reporting, and other issues not directly related to the seasonal and/or deferred FPTs.
3. Shop Drawing Log for documenting equipment submittals and associated documents to be commissioned and associated O&M requirements.
4. Commissioning Plan & Equipment Matrix is used to document and track the Commissioning Process by listing all systems to be commissioned, documentation to be provided/collected during process and anticipated dates of demonstration of systems to Owner.
5. Manufacturer/Contractor Test Log for documenting Contract Specification test requirements by Contractor that are directly related to the systems to be commissioned.
6. Pre-functional Performance Checklist (PFC) for documenting Contractor required start-up compliance for systems to be commissioned.
7. Commissioning Field Report documenting CxA's visits and observations.
8. Equipment and System Training Log for documenting Contractor required training of Owner personnel.
9. Commissioning Trending Checklist for documenting and assisting during the start-up of systems and for continuous monitoring and measuring of building systems through the Warranty Period.
10. Commissioning O&M Checklist for documenting the O&M Manual Process during the Construction Phase. This checklist can be used during the FPT demonstration to ensure proper documentation control is available to the Facility Department and compliance has been met with the Contract Documents.
11. Functional Performance Test Narratives (FPTs) for documenting Trade Contractor required demonstration of system (s) to be commissioned.
12. Corrective Actions Log for documenting system installation of observation deficiencies, start-up deficiencies and deficiencies noted during demonstration of systems to the Owner (FPT). Each corrective action shall require a Trade Contractor or Design Team signoff that the corrective measure has been completed. Each FPT corrective action shall require a re-test of that deficiency by the contractor to demonstrate Contract Document compliance.

3.1 COMMISSIONING TEST PLAN & EQUIPMENT MATRIX

A. The Commissioning Test Plan & Equipment Matrix is a list of activities that must occur leading up to and including the FPT demonstration to the Commissioning Team. The document lists the systems and associated equipment that will be commissioned.

B. The Contractor shall work closely with the CxA to input and keep current the activities within the Commissioning Test Plan & Equipment Matrix.

3.2 TRAINING

A. The Construction Manager/GC shall submit the Training Plan in the Submittal Phase based on the specification herein. Each Trade Contractor shall include their training plan and class handouts. Once Training Plan is reviewed by the Construction Manager/GC, and approved by CxA, they shall coordinate the following classes leading up to the final Training.

1. Introduction to the Training Plan at end of Submittal Phase
2. Progress training with walk-thru of site once major equipment has been installed.

3. System Training when commissioning of systems (FPT) occurs.

4. Final Training as within specifications.

3.3 OBSERVATION OF INSTALLATION – SYSTEM READINESS

A. The CxA will visit the project site and randomly perform a system-readiness check on systems being commissioned. The approved submittals and RFIs that are on record will be referenced to ensure all field installation/design changes are noted on the completed during the observations prior to distribution to the Commissioning Team. CxA will submit Field Reports along with Observation of Installation.

B. All deficiencies will be noted in a Corrective Actions Log and distributed to the Commissioning Team for corrective measures.

C. All deficiencies noted on the Corrective Actions Log shall be corrected by the appropriate responsible Trade, given to the Contractor who will provide the completed Corrective Actions Log updates to the CxA prior to system FPT demonstration to Owner.

D. In addition to the Static Inspection checklists, the Contractors' equipment manufacturer and/or service department startup technician shall also provide their own inspection/system readiness checklists for each piece of equipment.

3.4 PRE-FUNCTIONAL PERFORMANCE CHECKLIST

A. Each PFC is the initial system ready checklist to be signed off by each applicable Trade Contractor as they complete their work on the specific piece of equipment.

B. Using the enhanced PFC checklists, the Trade Contractor (i.e., for HVAC, the associated ATC/BMS and TAB firms, etc.) shall complete the Pre-Functional Performance Checklist documents and submit the completed signed forms and other appropriate start-up sheets. Trade Contractor shall submit the completed forms, initialed by the technician in-charge and attach other appropriate start-up sheets including but not limited to documents noted above prior to the start of the demonstration of the FPT Demonstration(s) to the Owner.

C. Each step in the PFC process shall be initially scheduled within the Commissioning Test Plan & Equipment Matrix and updated as work is completed, and each step shall be completed with a document indicating the work completed.

3.5 FUNCTIONAL PERFORMANCE TEST NARRATIVES

A. The Contractor, the Design Engineer, and the ATC/BMS Contractor, along with the rest of the Commissioning Team members, shall review and comment on the FPT narratives specified herein and edit them based on the approved sequence of operation submittals and return documents to the CxA prior to system commissioning for final FPT narratives.

B. The CxA shall revise the FPT narratives during the Construction Phase to incorporate any changes required to comply with the approved submittals and any contract document changes. The revised FPT narratives shall be issued as final and Approved for executed documents.

C. The Contractor shall use the FPT narratives to test the systems prior to demonstrating the FPT to the Owner, Facility Manager, and Commissioning Firm. The Contractor shall submit a completed and signed Final FPT form to the CxA as evidence that the Contractor and associated Trade Contractors have dry-run tested the systems. All deficiencies noted by the Contractor during the dry-run, will be corrected and noted on the signed off/completed FPT document prior to the CxA scheduling the demonstration of the systems to the Owner.

D. The Contractor shall make available, during the testing phase, the manufacturer's representative/technician to execute sequences of operation that cannot be demonstrated by the Contractor to the Owner and CxA due to their being part of an packaged unit not under their control.

E. The Contractor shall use the Final FPT narrative format to commission the building systems demonstrating the Functional Performance to the Owner and the CxA. During the Owner demonstration all deficiencies that can be corrected within 10 minutes, may be completed.

Any corrective measures that will require more than a 10-minute corrective measure will be documented by the CxA in a Corrective Actions Log for re-testing at a later, scheduled date. Trades will execute retesting of deficiencies on systems documented on the Corrective Actions Log by the Commissioning Agent and update and send the Corrective Actions Log to the Commissioning Agent for verification of the corrections and retesting implemented.

F. The Contractor shall respond to the Commissioning Firm's Corrective Actions Log depicting non-compliant system demonstration items to be corrected within (7) business days after receipt of Corrective Actions Log. Upon Commissioning Firm's receipt of executed Corrective Actions Log from Contractor, re-testing of system will be scheduled upon notifying Owner of such intent. Trades will execute retesting of deficiencies on systems documented on the Corrective Actions Log by the Commissioning Agent and update and send the Corrective Actions Log to the Commissioning Agent for verification of the corrections and retesting implemented.

G. Seasonal deferred FPT system demonstrations shall be completed in the Warranty Phase by the Commissioning Team. Leading up to the FPT demonstration(s), the Owner shall be trending the associated systems to assure the equipment is functioning per the Basis of Design. If the system(s) is not maintaining trend set points, the FPT demonstration shall be delayed until the Contractor has corrected the problem.

H. Only that part of the system requiring deferred testing shall be demonstrated (i.e., heating mode during the heating season or cooling mode during cooling season).

I. A review of the building operation within 8-10 months after substantial completion with O&M staff and occupants. A plan for resolution of outstanding commissioning-related issues is provided. All outstanding construction deficiencies or deficiencies identified in this post-occupancy review should be documented and corrected under manufacturer or Contractor warranties.

J. Team Member Responsibilities

1. Owner Project Manager

   a. Maintain records of problems or concerns associated with the systems during normal operation.

   b. Distribute Post Construction Evaluation information to other Commissioning Team members for review and comment.

   c. Coordinate and facilitate the meeting with the Commissioning Team at the 8-10 month mark to discuss operational problems and concerns.

   d. Oversee the revision of the OPR and BOD based on the results of the 10-month warranty meeting.

2. Owner Facility Manager

   a. Maintain problems/complaints from occupants and Owner personnel regarding commissioned systems.

   b. Participate in seasonal/deferred FPTs.

   c. Maintain "as-commissioned" proper operation of the building systems.

   d. Participate in 8-10 month Warranty meeting present the problems, issues, and concerns.

   e. Identify warranty versus operational issues and concerns.

3. Commissioning Agent

   a. Maintain Commissioning Corrective Actions Log until all issues are resolved. All updates shall be provided by the Contractor to the CxA.

   b. Facilitate seasonal/deferred FPTs.

c. Complete Final Commissioning Report document.

d. Facilitate the update of the System Manual by Contractor on any significant issues that were identified by the CxA that will not be corrected and should be recorded in this System Manual.

e. Review of system trends.

4. Design Professionals

a. Be available to consult on the results of the seasonal/deferred FPT results.

b. Meet with the Commissioning Team at the 8-10 month mark to discuss operational problems and concerns.

5. Construction Manager / General Contractor

a. Coordinate scheduling of seasonal/deferred FPTs.

b. Participate in 10-month Warranty meeting present the problems, issues, and concerns.

c. Provide completed training documentation.

d. Update of the Systems Manual on any significant issues that were identified by the CxA that will not be corrected and should be recorded in the Systems Manual.

e. Address outstanding warranty issues and tasks identified as being under the original construction contract.

6. Trade Contractors

a. Be present for and conduct seasonal/deferred FPTs.

b. Address outstanding warranty issues and tasks identified as being under the original construction contract.

c. Be available to meet with the Commissioning Team at the 8-10 month mark to discuss operational problems, issues, and concerns.

7. Equipment Manufacturers

a. Be present for and conduct seasonal/deferred FPTs.

b. Participation shall include demonstration of furnished equipment operation and packaged control system functions.

c. Address outstanding warranty issues and tasks identified as being under the original construction contract.

d. Be available to meet with the Commissioning Team at the 8-10 month mark to discuss operational problems, issues and concerns.

8. Independent Test Agency

a. Conduct seasonal/deferred TAB associated with FPTs.

3.6 SYSTEMS MANUAL

A. The Contractor shall be responsible for coordination and development of the System Manual beginning immediately following the acceptance of equipment and component in the submittal phase of the project.

B. CxA shall assist the Contractor with the development of a Systems Manual for the commissioned systems. The Systems Manual provides documentation of all pertinent, system readiness checklists leading up to the FPT system demonstration.

C. This Manual, shall also include but is not limited to the following documents.

1. Final OPR and BOD documentation

2. As-built sequences of operation for all equipment and control drawings
3. A list of time-of-day schedules and a schedule frequency to review them for relevance and efficiency
4. A list of all user-adjustable set points and reset schedules
5. Recommendations for recalibration frequency of sensors and actuators
6. Operation and maintenance instructions for all commissioned systems
7. Dry-run FPT sign off documents (blank)

3.7 SYSTEM TRENDING DATA

A. The Contractor shall provide system trending of specific points (i.e., discharge air temperature) for a minimum of 16 hours prior to system FPT demonstration and shall continue the trending after the system has been commissioned. During the Commissioning meetings, trending points shall be mutually agreed upon for the ATC/BMS Contractor(s) to program into the commissioning process.

B. Contractor shall work with the CxA and the Owner's Facility Manager in development of trending points during the ATC/BMS shop drawing phase.

3.8 FINAL COMMISSIONING REPORT

A. The Final Commissioning Report shall contain the following and be delivered to the Owner within a reasonable time after occupancy:

1. Executive Summary & Overview
2. Commissioning Specification/Execution Plan & Test Plan & Equipment Matrix
3. Correspondence (Commissioning Meeting Notes, Field Notes and Critical Emails)
4. Commissioning Agent Reviews (Design, Shop Drawings, O&M Manuals)
5. Equipment/System Pre-Functional Tests and Startup Reports
6. HVAC Testing, Adjusting and Balancing Reports (TAB)
7. Commissioning Logs (Corrective Action Log & Pending Issue Log)
8. Pre-functional Checklists
9. Functional Performance Tests
10. Training Documentation
11. Documentation (Associated with Commissioning)

<u>Systems Manual</u>

a. Owner's Project Requirements/Basis of Design (OPR/BOD)
b. Recommended Re-Commissioning Documents
d. ATC As-builts
e. System Operating Instructions Documents and Narrative
f. Recommended Schedule of Maintenance Documents and Narrative

B. The Contractor with the participating Trade Contractors shall contribute to the successful project closeout and Final Commissioning Report by providing the following documentation. Contractors shall address and closeout any open items in the Commissioning Logs associated with Commissioning deficiencies found.

1. Submission of the required information for the current facilities requirements and operations and maintenance plan documents required, to the CxA.
2. Submission of the completed Systems Manual documents required to the CxA.

3. Submission of the corrected and completed deficiencies as listed in the Commissioning Corrective Actions Log to the CxA.

4. Project Closeout documents per the project contract.

END OF SECTION

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AIA® Document A305™ – 2020

Contractor's Qualification Statement

THE PARTIES SHOULD EXECUTE A SEPARATE CONFIDENTIALITY AGREEMENT IF THEY INTEND FOR ANY OF THE INFORMATION IN THIS A305-2020 TO BE HELD CONFIDENTIAL.

SUBMITTED BY:
(Organization name and address.)
« »

SUBMITTED TO:
(Organization name and address.)
« » North Kingstown School Department
100 Romano Vineyard Way, Suite 120,
North Kingstown RI 02852

TYPE OF WORK TYPICALLY PERFORMED
(Indicate the type of work your organization typically performs, such as general contracting, construction manager as constructor services, HVAC contracting, electrical contracting, plumbing contracting, or other.)
« »

THIS CONTRACTOR'S QUALIFICATION STATEMENT INCLUDES THE FOLLOWING:
(Check all that apply.)

[« »] Exhibit A – General Information
[« »] Exhibit B – Financial and Performance Information
[« »] Exhibit C – Project-Specific Information
[« »] Exhibit D – Past Project Experience
[« »] Exhibit E – Past Project Experience (Continued)

CONTRACTOR CERTIFICATION
The undersigned certifies under oath that the information provided in this Contractor's Qualification Statement is true and sufficiently complete so as not to be misleading.

_____ « »
Organization's Authorized Representative Signature — Date

« »
_____
Printed Name and Title

NOTARY
State of: « »
County of: « »
Signed and sworn to before me this « » day of « » « »

_____
Notary Signature

My commission expires: « »

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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Rowse Architects

Project #21064
Date: March 23, 2022

2:00 PM

MANDATORY PRE-BID CONFERENCE SIGN-IN
Project: First Floor Classroom A/C Improvements at North Kingstown High School - Bid #2022-10
North Kingstown, RI

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