

January 3, 2024

Mr. Jeff Pardo
Assistant Director of Public Works/Facilities Manager
Town of Wilton
238 Danbury Road
Wilton, CT 06897

Re: Wilton Police Department Headquarters Commissioning
Wilton, Connecticut 06897

Dear Jeff

BVH Integrated Services, Inc., a Salas O'Brien company (Salas O'Brien), is pleased to provide this proposal for Professional Commissioning Services for the new Wilton Police Department Headquarters to be built in Wilton, Connecticut. Our proposal is based on our discussion on December 28, 2023, the Bid Documents dated May 19, 2023, that included Addendums 1 thru 5. Also included, was our On-Call State Contract No. OC-DCS-Cx-012 which you provided edits for our scope of services on December 28, 2023.

It should be noted, when reviewing the specifications, there are several references made to Commissioning Section 019113; however, this section could not be located in the manuals provided.

We propose the following services:

MECHANICAL / ELECTRICAL / PLUMBING (MEP) COMMISSIONING

MEP Design Phase Commissioning

- ▲ Not applicable.

MEP Construction Phase Commissioning

- ▲ Prepare a Construction Phase Commissioning Plan to be distributed to the Construction Team at the Commissioning Scope Meeting.
- ▲ Plan and conduct a commissioning scope meeting with all involved parties and followed up with meeting minutes.
- ▲ 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 schedules, and technical expertise. Ensure that commissioning activities are being incorporated into the Master Schedule.



- ▶ Develop and distribute pre-functional equipment checklists and enhance start-up and initial systems checkout plan with the subcontractors for commissioned equipment.
- ▶ Participate in select construction team meetings, at a minimum, on a monthly basis, during the construction phase once systems and equipment begin installation. Assume six (6) total.
- ▶ Perform site visits, monthly once equipment and systems are available to observe component and system installations and start-up. Provide observation reports of system installations and start-up and shall include witnessing portions of the pipe pressure testing/flushing, any ductwork leakage testing, cleaning, and inspections. Assume six (6) total.
- ▶ Review submittals concurrent with the Design Team's review for commissioned equipment.
- ▶ Document construction checklist completion by reviewing completed construction checklists and by select site observation.
- ▶ Document systems start-up by reviewing start-up reports and by selected site observation.
- ▶ Write detailed functional performance tests procedures for equipment and systems. This will include manual functional testing and energy management control system trending and may include standalone data-logger monitoring.
- ▶ Verify air and water systems balancing by reviewing completed reports and by selected site observation. Salas O'Brien has certified NEEB Air and Water Balancing Personnel who will be onsite to verify set-up of the various spaces before the Balancing Contractor proceeds. We typically like to conduct a mock-up of a critical area and commission before both the Air and Water and Temperature Controls Contractors proceed with the entire project.
- ▶ Perform functional testing of equipment using the functional performance record sheets. Coordinate, witness, and document manual functional performance tests performed by the installing contractors. The Commissioning Agent shall include facility personnel in the functional testing process. Coordinate retesting as necessary until satisfactory performance is achieved. The functional testing shall include operating the system and components through each of the written sequences of operation, and other significant modes and sequences, including start-up, shutdown, unoccupied mode, manual mode, staging, miscellaneous alarms, power failure, security alarm when impacted, and interlocks with other systems or equipment. Sensors and actuators shall be calibrated during pre-functional checkout by the installing contractors and spot-checked by the Commissioning Authority during functional testing. Tests on respective HVAC equipment shall be executed, if possible, during both the heating and cooling season; however, some overwriting of control values to simulate conditions shall be allowed. Functional testing shall be done using conventional manual methods, control system trend logs, and read-outs or standalone data loggers, to provide a high level of confidence in proper system function, as deemed appropriate by the Commissioning Authority and Owner. Approve air systems balancing by testing and reviewing completed reports.
- ▶ Maintain a master issues log and a separate record of functional testing. Report all issues as they occur directly to the Owner's Representative. Provide directly to the Owner's Representative written progress reports and test results with recommended actions.
- ▶ Track all deficiencies and retest when corrections have been made.
- ▶ Oversee training of the Owner's operating personnel. Salas O'Brien will use our spreadsheet to help develop owner training schedules with all participants. Training of facility personnel will be



conducted by the installing contractors, documented by the Commissioning Agent, and verified to meet contract documentation.

- ▲ Verify completion and turnover of Operations and Maintenance (O&M) manuals to the Owner and the Owner's personnel.
- ▲ Monitor and finalize the Corrective Action Log items for completeness by the trades.
- ▲ Compile a Commissioning Record, which shall include:
 - ▲ A brief summary report that includes a list of participants and roles, brief building description, and an overview of commissioning and testing scope.
 - ▲ All outstanding non-compliance items shall be specifically listed. Recommendations for improvement to equipment or operations, future actions, commissioning process changes, etc., shall also be listed.
 - ▲ Also included in the Commissioning Record shall be the issues log, commissioning plan, progress reports, submittal and O&M manual reviews, training record, construction checklists, start-up reports, functional tests, and trend log analysis.
 - ▲ Include a Systems Training Manual for turnover to the Owner at completion of the Commissioning.

MEP Pre-Occupancy Phase Commissioning

- ▲ Verify that the project has met the requirements of the High-Performance Building Standards set forth in Section One of the On-Call Contract NO. OC-DCS-Cx-0012.
- ▲ Schedule and verify any required deferred seasonal testing with the contractors.
- ▲ Verify any required continuing training to be conducted by the contractors.
- ▲ Review the warranties with the Operations and Maintenance Staff.
- ▲ Prepare a Pre-Occupancy Commissioning Report.

MEP Post-Occupancy Phase Commissioning

- ▲ Analyze one (1) year of occupied energy use data against the design energy model.
- ▲ Document any adjustments made to equipment or building operations.
- ▲ Conduct a Post-Occupancy Survey of the building occupants.
- ▲ Prepare a Post-Occupancy Commissioning Report.

Functional Testing of Equipment and Systems

The purpose of the MEP Commissioning effort will be to verify and document the operation of the following building mechanical, plumbing, and electrical systems:

- ▲ Heating, Ventilation, Air Conditioning, and Refrigeration Systems and Associated Controls
 - ▲ Air-Handling Units with Dx and Energy Wheel – one (1) total
 - ▲ Rooftop Units with Dx and Energy Wheel – two (2) total
 - ▲ Exhaust Fans – seven (7) total
 - ▲ Exhaust Fume Hood – one (1) total



- ▲ Destratification Fans - two (2) total
- ▲ Ductless Split Systems – four (4) total
- ▲ Variable Air Volume Boxes with Reheat – twenty-six (26) total
- ▲ Wall-Mounted Condensing Boilers - two (2) total
- ▲ Heating HW Pumps – four (4) total
- ▲ Duct-Mounted HW Coil – one (1) total
- ▲ Glycol Make-Up System – one (1) total
- ▲ Water Treatment System – one (1) total
- ▲ Unit Heaters/Cabinet Unit Heaters – eleven (11) total
- ▲ Fin Tube Radiation/Radiant Panels – nineteen (19) total
- ▲ Miscellaneous Equipment including Supply Fan - one (1) total, and Electric Unit Heater – three (3) total
- ▲ Plumbing
 - ▲ Domestic Indirect Water Heater – one (1) total
 - ▲ Domestic HW Pump – one (1) total
 - ▲ Domestic HW Recirculating Pump – one (1) total
 - ▲ Emergency Eyewash / Shower – two (2) total
 - ▲ Trap Primers
 - ▲ Oil Interceptor
- ▲ Electrical
 - ▲ Emergency Generators and Associated Transfer Panels – one (1) total
 - ▲ Emergency Lighting
 - ▲ Lighting Control System
- ▲ Fire Protection System
 - ▲ Tamper Switches
 - ▲ Verify Fire Service Installation
- ▲ Fire Alarm system interfacing with HVAC systems.
- ▲ All Direct Digital Controls (DDC) or package controllers shall be verified for proper operation as they relate to the above equipment including interfaces for remote monitoring. All fire alarm interlocks associated with the control system shall be commissioned.

BUILDING ENVELOPE COMMISSIONING - BASE SCOPE

Construction Phase

- ▲ Review enclosure product submittals and pertinent shop drawings in Divisions 07 and 08, and provide written comments as needed.



- ▶ Develop an Enclosure Test Matrix based on the contract specifications.
- ▶ Conduct one (1) on-site air barrier kick-off meeting with the Owner, Architect, General Contractor, MEP contractors, and all subcontractors involved with the air barrier. This meeting is to describe the air barrier target and expectations, field tests of the air barrier, and possible testing outcomes. This meeting is also to discuss potential challenges in specific air barrier details and in sequencing air barrier components. We will provide meeting minutes.
- ▶ Participate in commissioning teleconference meetings as appropriate throughout the Construction Phase. We anticipate two (2) meetings.
- ▶ Five (5) site visits to review envelope mock-ups, initial assembly of major envelope systems, and during ongoing construction of the envelope. Provide written follow up field reports for each visit. Each site visit will be to review exterior envelope assemblies (slab, exterior walls, window and door assemblies, and roof) for compliance with the Construction Documents.
- ▶ Five (5) visits to monitor tests by installing contractors / subcontractors and document the results.
- ▶ Maintain and distribute the commissioning observation issues log of any items, potential issues or discrepancies found.
- ▶ Final Building Envelope Commissioning Report with a summary of all commissioning activities and a list of any outstanding items in the issues log.

Post Construction Phase

- ▶ Provide a Building Envelope Preventative Maintenance Program to the Owner for maintenance, warranty provisions, and renewal of the building envelope.

ADD ALTERNATES FOR CONSTRUCTION PHASE ENVELOPE COMMISSIONING

The following add alternates provide testing that is typically provided for a project of this type, testing listed as "owner will engage" in the project specifications, or testing that is required by the Connecticut Energy Code.

Additional Envelope Progress Inspection

- ▶ One (1) additional visit to inspect the air/thermal barriers of the roof, above grade walls, windows, and doors during construction for compliance with the Construction Documents and for quality of installation.
- ▶ Written report for each inspection visit.

Additional Progress Inspections

\$ 1,300

Air Tightness Progress Testing

- ▶ One (1) day to test building assemblies at their "first instance" of construction with pressurized fog or infrared camera. This is a non-invasive process that can occur while construction is ongoing.
- ▶ Provide a written report for each day of testing.

Air Tightness Progress Testing

\$ 2,800

Roof Infrared Scan

Scan the entire flat roof from above and outside to look for insulation anomalies and potential trapped moisture. All flat roof areas will be imaged and marked on the roof with marking paint. The optimal time



for this type of scan is at dusk on a warm and clear day within five (5) days of a significant rainstorm. The roof must have no snow and be dry. A primary date and backup date are recommended to achieve optimal weather conditions.

- ▶ One (1) test visit at completion of the entire roof.
- ▶ We will provide a written report of the infrared findings and a roof plan showing all the marked locations with measurements to each location. In the report, we will identify locations that should be opened by others to check for moisture.

Roof Infrared Scan

\$ 1,900

ASTM D 4541 Membrane Adhesion Testing

- ▶ Test air barrier membrane for adhesion in accordance with ASTM D 4541 except that the membrane shall be cut through to separate the material attached to the disk from the surrounding material. Recommend performing the test after curing period recommended by the manufacturer.
- ▶ One (1) test visit. Membrane will be tested in five (5) locations chosen at random.
- ▶ The test report shall indicate whether the minimum adhesion level established by the manufacturer for the products on the substrate has been met and if not, the mode of failure.
- ▶ This test is best performed on a temperate and cloudy day so that the membrane is not overheated by the sun.
- ▶ This is a destructive test; test locations will be identified for repair by others.

Membrane Adhesion Testing

\$ 2,200

Window or Wall Testing

- ▶ One (1) day of testing to test window units for water tightness per AAMA 501.2 (hose test) and airtightness per ASTM E783.
- ▶ This test day could alternatively be used for ASTM E783 air tightness testing of fluid-applied air barriers on the walls per Section 072726 3.06.
- ▶ Typically, two or three units can be tested in a day per the above standards depending on the size and location of the windows. We will test as many as possible in a typical working day.
- ▶ Provide a written report for completed testing.
- ▶ See notes below regarding window testing.

Window Testing – Additional Information

- ▶ Prior to testing, we will need a copy of the project and manufacturer's specifications for each window type that will be tested.
- ▶ We require the area in front of the window, both inside and outside, to be clear for at least eight feet (8') back to build a test enclosure. The test enclosure will be sealed to the window unit itself and will not include the surrounding wall.
- ▶ We assume interior finishes and sheetrock returns have been left off so the window can be inspected at the rough opening for water penetration.
- ▶ We assume all interior brackets, shades, blinds, and screens have been left off or removed so a test enclosure can be fit to the window.



- ▶ We assume all exterior shades, awnings, or brackets have been left off or removed so the spray racks can be installed outside.
- ▶ If the walls surrounding the window are not uniform in composition (i.e., framing or drywall is incomplete), we will build a test enclosure around the window that best approximates the test requirements.
- ▶ We require a standard 3/4" hose bibb connection within 200' of each test area.
- ▶ The tests cannot be conducted in the rain, temperatures below 40 deg. F, or in high wind conditions.
- ▶ We assume a lift will be provided by others for any window tests above 8 feet from grade level.

Window or Wall Testing**\$ 4,300****Whole Building Blower Door Test**

Blower Door Test per 2021 IECC requirements of the 2022 CT State Building Code, Section C402.5.3.

- ▶ Calculate the exterior surface area of the building.
- ▶ Conduct one (1) pre-test meeting for the building in person with the Owner, General Contractor, Architect, HVAC Controls Contractor, and others as needed to agree upon the state of the building for testing, to go over the test preparations, and to agree on the measured shell of the building.
- ▶ Conduct one (1) blower door test of the building per ASTM E1827.
- ▶ Conduct an infrared scan after the blower door test in case the air tightness standard is not met (0.40 CFM/sf at 75 pascals).
- ▶ Provide a written report of the blower door test result and the findings.

Whole Building Blower Door Test**\$ 4,700****EXCLUSIONS**

- ▶ Any changes to previously approved scope.
- ▶ Any contractor time associated with this effort.
- ▶ Additional return visits to the project site for re-testing purposes beyond that which is indicated in this proposal.
- ▶ Man lifts or staging needed for our work.

COMPENSATION SUMMARY

We propose that the services associated with Commissioning be billed monthly, based on the percentage of completion. The additional total cost of Commissioning Services associated with the above activities is as follows:

Commissioning Services		Fee
MEP Commissioning	\$53,000	\$ 57,900
BECx Commissioning		\$ 23,400
Estimate of Reimbursables		\$ N/A
Total	\$53,000	\$ 81,300



Optional Alternates	Fee
Add Additional Envelope Progress Inspections	\$ 1,300/ea.
Add Air Tightness Progress Testing	\$ 2,800
Add Roof Infrared Scan	\$ 1,900
Add Membrane Adhesion Testing	\$ 2,200
Add Window or Wall Testing	\$ 4,300
Add Whole Building Blower Door Test	\$ 4,700

To support the commissioning effort, some time may be required to support the commissioning efforts by the building enclosure contractors, testing and balancing contractor, and the automated temperature controls contractor. Their time has **not** been included in this proposal.

ON CALL HOURLY RATES*

Additional services can be performed if requested by the Owner. These services would be billed at the hourly rates established through our On-Call Contract (NO.OC-DCS-Cx-0012) with the State of Connecticut.

Hourly Rates	
Principal	\$ 250.00
QA/QC Manager	\$ 230.00
Commissioning Agent	\$ 150.00
Project Manager	\$ 185.00
Engineer	\$ 160.00
Architect	\$ 170.00

EXCLUSIONS

The following items are not included in this proposal:

- ▲ Changes to previously approved work.
- ▲ Any design work associated with any changes that may be deemed necessary.
- ▲ Project extension requiring additional work.
- ▲ Any contractor time to support the commissioning effort.
- ▲ Man lifts or staging needed for our work.
- ▲ Additional return visits to the project site for re-testing purposes beyond that which is indicated in this proposal.
- ▲ Except as noted above, work outside of normal business hours. Work is to be completed during normal business hours from 6:00 a.m. until 6:00 p.m.



We would like to thank you for the opportunity to submit this proposal. Please contact us to review the details of this proposal to make sure they meet your requirements. We are prepared to start this process shortly after approval. If you are in agreement with this proposal, please indicate your acceptance in the space provided below and return the original of this letter to my attention as soon as possible.

Energetically yours,

BVH Integrated Services, Inc., a Salas O'Brien company

/ DANIEL S. MORIN, BCA CCP, NEBB BSC/CP, LEED AP
Associate Vice President / Commissioning Project Manager

DSM/eg

Accepted By

Date

Initial each of the Commissioning options accepted:

- _____ M/E/P -FP Commissioning
- _____ BECx Commissioning

Optional Add Alternates

- _____ Added Additional Envelope Progress Inspections
- _____ Added Air Tightness Progress Inspections
- _____ Added Roof Infrared Scan
- _____ Added Membrane Adhesion Testing
- _____ Added Window or Wall Testing
- _____ Added Whole Building Blower Door Test

