

PROJECT #19MIL22301

MAY 15, 2019

ADDENDUM #1

PROJECT NAME: BOILER AND WATER HEATER REPLACEMENT AT NEW LONDON ARMORY

SUBJECT: RESPONSE TO BIDDERS' QUESTIONS

Original Bid Due Date / Time: May 29, 2019 2:00 pm

The bid dates are unchanged by this addendum.

To: Prospective Bid Proposers:

This Addendum forms part of the "Contract Documents" and modifies or clarifies the original "Contract Documents" for this project referenced above. Prospective Bid Proposers shall acknowledge receipt of the total number the Addenda issued for this Project on the space provided on Section 00 41 00 Bid Proposal Form. Failure to do so may subject Bid Proposers to disqualification.

Addendum Item 1:

The DAS Contractor Prequalification Classification has been added as:

1. Group B – General Building Construction

Addendum Item 2: RFI Responses

Question 1) Please clarify the scope and intent of the hazardous materials abatement. There does not appear to be a report or spec section on this.

Response: Attachment A is TRCs pre-renovation investigative survey for asbestos-containing materials (ACM) and lead based paint (LBP) at New London Armory Boiler and Utility Room.

Scope of work for the abatement of Hazardous Materials will be provided as Addendum 2. Site visits with subcontractors can be requested by contacting Ronna Cannata, Purchasing Supervisor @ Ronna.Cannata@ct.gov

GC is responsible for abatement of hazardous materials; hires the subcontractor, and Military Department hires the third party oversight consultant.

Workers must be lead trained and wear protective equipment if they will be scraping / grinding or otherwise disturbing lead paint.

Question 2) Type of existing roof.

Response: The existing New London Armory roof is a urethane roof over a built-up roof.

Question 3) What is the intention for the boiler room floor? Note #3 on DM-101 calls for epoxy coating for all floors, stairs, and landings. Please clarify this. The floors are not included in the specs. Also please specify the type of paint or other material.

RESPONSE: All surfaces within boiler room shall be properly prepared and painted, per product Manufacturer's printed instructions, and as follows. Submit Manufacture's full range of standard colors for Owner color selections.

PAINTED SURFACES:

A. Use heavy-duty grade products for Boiler Room application.

1. Multi-coat systems as manufactured by PPG Industries, Inc, Sherwin Williams, Benjamin Moore & Co, or approved equal.

B. Schedule:

1. Wood - Painted:

- a. One (1) coat of latex primer sealer.**
- b. Two (2) coats of latex enamel, gloss.**

2. Steel - Galvanized:

- a. One (1) coat galvanized primer.**
- b. Two (2) coats of alkyd enamel, gloss.**

3. Steel - Primed:

- a. One (1) coat of latex primer.**
- b. Two (2) coats of latex enamel, gloss.**

4. Gypsum Board:

- a. One (1) coat of latex primer sealer.**
- b. Two (2) coats of latex enamel, semi-gloss.**

5. Concrete, Concrete Block:

- a. One (1) coat of primer sealer latex.**
- b. Two (2) coats of acrylic latex, gloss.**

EPOXY FLOORING:

A. Use heavy-duty, highly chemical and stain resistant epoxy/urethane flooring system.

1. Multi-coat systems as manufactured by Dur-A-Flex, Inc., shall establish to level of quality and set the design intent.

2. Provide floor finish system manufactured by one of the following, or approved equal:

- a. Dur-A-Flex**
- b. Stonhard**
- c. Tenant**
- d. Tnemec**

B. Ensure moisture level in the floor slab has been tested prior to installation to validate products being considered for use.

1. Where epoxy flooring is proposed as a new finish over an existing slab, provide moisture level testing during design to ensure the appropriate product is specified. Project to require warranty of the installed system in the event that delamination or bubbling occurs.

C. Design shall require the manufacturer to verify the product being proposed for use is appropriate for the application and moisture levels tested and that it will be covered by the manufacturer's warranty.

D. Ensure product compatibility when used in electronics areas or other areas requiring static dissipation.

E. Design to pay particular attention to expansion joint coverage and movement. Provide caulked joints in epoxy materials at locations where substrate has expansion joints if selected material cannot flex over joints.

F. Provide minimum grit level that meets code requirements for slip resistance.

G. Provide minimum 6" high integral rubber cove base at perimeter walls.

Question 4) There is no spec section for VFD's. Please provide.

VARIABLE FREQUENCY DRIVES

MANUFACTURERS

A. Variable Speed Drives and Motors: Subject to compliance with project requirements, manufacturers offering Products which may be incorporated in the Work include the following:

- 1. ABB, New Berlin WI, (414) 785-8605.*
- 2. Cutler-Hammer Eaton Corp., Milwaukee WI, (800) 833-3927.*
- 3. MagneTek, La Vergne TN, (800) 624-6383.*

VARIABLE FREQUENCY DRIVE EQUIPMENT

A. System shall be compatible with electrical characteristics of motors furnished and rated for operation with equipment furnished.

B. System shall feature the following minimum operating characteristics:

- 1. Input ac voltage tolerance of 480V, plus or minus 10 percent.*
- 2. Input frequency tolerance of 50/60 Hz, plus or minus 6 percent.*
- 3. Minimum Efficiency: 96 percent at 60 Hz, full load.*
- 4. Minimum Displacement Primary-Side Power Factor: 96 percent.*
- 5. Overload Capability: 1.1 times the base load current for 60 seconds; 2.0 times the base load current for 3 seconds.*
- 6. Starting Torque: 100 percent of rated torque or as indicated.*
- 7. Speed Regulation: Plus or minus 1 percent.*

C. Isolated control interface to allow controller to follow control signal over an 11:1 speed range.

- 1. Electrical Signal: 4 to 20 mA at 24 V.*

D. Internal Adjustability Capabilities:

- 1. Minimum Speed: 5 to 25 percent of maximum rpm.*

2. *Maximum Speed: 80 to 100 percent of maximum rpm.*
 3. *Acceleration: 2 to a minimum of 22 seconds.*
 4. *Deceleration: 2 to a minimum of 22 seconds.*
 5. *Current Limit: 50 to a minimum of 110 percent of maximum rating.*
- E. *Self-Protection and Reliability Features:*
1. *Input transient protection by means of surge suppressors.*
 2. *Under- and overvoltage trips; inverter overtemperature, overload, and overcurrent trips.*
 3. *Motor Overload Relay: Adjustable and capable of NEMA 250, Class 10 performance.*
 4. *Notch filter to prevent operation of the controller-motor-load combination at a natural frequency of the combination.*
 5. *Instantaneous line-to-line and line-to-ground overcurrent trips.*
 6. *Loss-of-phase protection.*
 7. *Reverse-phase protection.*
 8. *Short-circuit protection.*
 9. *Motor overtemperature fault.*
- F. *Automatic Reset/Restart: Attempts three restarts after controller fault or on return of power after an interruption and before shutting down for manual reset or fault correction. Bidirectional autospeed search shall be capable of starting into rotating loads spinning in either direction and returning motor to set speed in proper direction, without damage to controller, motor, or load.*
- G. *Power-Interruption Protection: To prevent motor from re-energizing after a power interruption until motor has stopped.*
- H. *Torque Boost: Automatically varies starting and continuous torque to at least 1.5 times the minimum torque to ensure high-starting torque and increased torque at slow speeds.*
- I. *Motor Temperature Compensation at Slow Speeds: Adjustable current fall-back based on output frequency for temperature protection of self-cooled, fan-ventilated motors at slow speeds.*
- J. *Minimum 5% line reactor.*
- K. *Status Lights: Door-mounted LED indicators shall indicate the following conditions:*
1. *Power on.*
 2. *Run.*
 3. *Overvoltage.*
 4. *Line fault.*
 5. *Overcurrent.*
 6. *External fault.*
- L. *Panel-Mounted Operator Station: Start-stop and auto-manual selector switches with manual speed control potentiometer and elapsed time meter.*
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- M. *Indicating Devices: Digital display and selector switch, mounted flush in controller door and connected to indicate the following controller parameters:***
- 1. *Output frequency (Hz).***
 - 2. *Motor speed (rpm).***
 - 3. *Motor status (running, stop, fault).***
 - 4. *Motor current (amperes).***
 - 5. *Motor torque (percent).***
 - 6. *Fault or alarming status (code).***
 - 7. *PID feedback signal (percent).***
 - 8. *DC-link voltage (VDC).***
 - 9. *Set-point frequency (Hz).***
 - 10. *Motor output voltage (V).***
- N. *Control Signal Interface:***
- 1. *Electric Input Signal Interface: A minimum of 2 analog inputs (0 to 10 V or 0/4-20 mA) and 6 programmable digital inputs.***
 - 2. *Remote Signal Inputs: Capability to accept any of the following speed-setting input signals from the BMS or other control systems:***
 - a. *0 to 10-V dc.***
 - b. *0-20 or 4-20 mA.***
 - c. *Potentiometer using up/down digital inputs.***
 - d. *Fixed frequencies using digital inputs.***
 - e. *RS485.***
 - f. *Keypad display for local hand operation***
 - 3. *Output Signal Interface:***
 - a. *A minimum of 1 analog output signal (0/4-20 mA), which can be programmed to any of the following:***
 - 1) *Output frequency (Hz).***
 - 2) *Output current (load).***
 - 3) *DC-link voltage (VDC).***
 - 4) *Motor torque (percent).***
 - 5) *Motor speed (rpm).***
 - 6) *Set-point frequency (Hz).***
 - 4. *Remote Indication Interface: A minimum of 2 dry circuit relay outputs (120-V ac, 1 A) for remote indication of the following:***
 - a. *Motor running.***
 - b. *Set-point speed reached.***
 - c. *Fault and warning indication (overtemperature or overcurrent).***
 - d. *PID high- or low-speed limits reached.***
- O. *Communications Interface: Provide BACnet compliant MS/TCP interface to be used with an external system within a multidrop LAN configuration. Communication capabilities shall include, but not be limited to; run-stop control, speed set adjustment, proportional/integral/derivative PID control adjustments, current limit, acceleration/deceleration time adjustments, and lock and unlock the keypad. The interface shall allow monitoring of process variable feedback, output speed / frequency, current (in amps), % torque, power (kW), kilowatt hours (resettable), operating hours (resettable), and drive temperature, VSD relay output status, digital input status, and all analog input and analog output values.***
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All diagnostic warning and fault information shall be transmitted over the communications interface.

- P. Manual bypass shall be provided for each VFD and bypass components shall be mounted inside a common NEMA 1 enclosure, fully pre-wired and ready for installation as a single UL listed device. Bypass shall include the following:*
- 1. Input, output, and bypass contactors, to disconnect power to the VFD, when the motor is running in the bypass mode.*
 - 2. 115 V.A.C. control transformer, with fused primary.*
 - 3. Thermal overload relay, to protect the motor while operating in the bypass mode.*
 - 4. Circuit breaker/disconnect switch, with a "through-the-door" handle mechanism.*
 - 5. Control and safety circuit terminal strip.*
 - 6. "Drive-Off-Bypass" selector switch.*
 - 7. Pilot lights for "Power On" and "Fault".*
 - 8. "Normal/Test" selector switch, to allow testing and adjustment of the VSD while the motor is running in the bypass mode.*

Question 5) Demolition of the existing concrete equipment pads is not called out on DM-101. Is the demolition of the existing pads to be in the scope of work?

Response: Existing concrete equipment pads are being expanded as shown on M-101

Ronna Cannata, Purchasing Supervisor



**PRE-RENOVATION
INVESTIGATIVE SURVEY FOR
ASBESTOS-CONTAINING MATERIALS AND
LEAD BASED PAINT
NEW LONDON ARMORY
NEW LONDON, CONNECTICUT**

DCS No. 43408

Prepared for
State of Connecticut
Military Department
Hartford, Connecticut

Prepared by
TRC
Windsor, Connecticut

Donald LePage

Donald LePage
Project Manager

TRC Project No. 326372-0000-0000
April 26, 2019

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EXECUTIVE SUMMARY

On January 22, 2019 TRC of Windsor, Connecticut conducted an inspection for suspect asbestos-containing materials (ACM) and lead based paint (LBP) at the New London Armory in New London, Connecticut. The inspection was initiated prior to planned boiler and water heater replacement activities in accordance with USEPA Asbestos National Emissions Standard for Hazardous Air Pollutants (NESHAPS) requirements.

The scope of the inspection was limited to the Boiler Room and Utility Room areas at the subject building. A Connecticut licensed asbestos inspector from TRC conducted the inspection in accordance with USEPA AHERA protocols and ASTM Standard E2356-04. Boilers were assumed to contain ACM as they were active at the time of the inspection. All remaining pipe and duct insulation found during the 2012 TRC survey had been previously abated with the exception of a single 8 linear feet (LF) section of pipe insulation remaining in the Utility Room outside of the boiler room. ACM to be impacted by renovation activities must be removed prior to disturbance in accordance with OSHA, USEPA, CTDPH, and CTDEEP standards for asbestos abatement/disposal. Bulk sampling was not conducted during this inspection as all suspect materials to be impacted by boiler/water heater replacement activities have already been identified and/or previously abated. Please see Appendix C for the previous 2012 inspection report.

A Connecticut licensed lead inspector from TRC conducted a LBP survey throughout the area to be impacted by boiler/water heater replacement activities and low levels ($<1.0 \text{ mg/cm}^2$) of lead paint were identified on various metal components on the structures that are scheduled for impact. High levels ($>1.0 \text{ mg/cm}^2$) of lead paint were not identified in the subject area. Detailed results of the lead survey can be found in Table 4 and Appendix B.

PROJECT OUTLINE

Project Address: New London Armory
New London, CT

CT Military Project Manager: Robert Dollack

DCS Building No: 43408

TRC Project No.: 326372-0000-0000

TRC Project Manager: Don LePage

Asbestos Inspector: Zachary Smith (LIC #000985)
Jonathan Gentile (LIC #000603)

Lead Inspector: Zachary Smith

Date of Inspection: 1/22/19

Asbestos Identified: Yes (previous 2012 survey)

Lead Based Paint Identified: Yes, however all XRF shots were below 1.0 mg/cm²

Additional Notes:

The site investigation was limited to the collection and analysis of suspect asbestos-containing materials and lead based paint from within the Boiler Room and Utility Room of the subject building. No samples taken during this inspection as all suspect materials related to the project have been previously identified and/or abated.

**TABLE 2
 IDENTIFIED ASBESTOS CONTAINING MATERIALS (>1%)
 NEW LONDON ARMORY
 NEW LONDON, CONNECTICUT**

Material	Sampled- Assumed (mo/yr)	General Location	NESHAP Category	AHERA Category	Estimated Quantity
NO BULK SAMPLING PERFORMED DURING THIS INSPECTION AS ALL SUSPECT MATERIALS RELATED TO THE PROJECT HAVE BEEN PREVIOUSLY IDENTIFIED AND/OR ABATED					

AHERA Categories = thermal system insulation (TSI), surfacing material or miscellaneous
 NESHAP Categories = friable, category I non-friable or category II non-friable
 Friable = crumbled, pulverized or reduced to powder by hand pressure when dry
 Category I Non-friable = packings, gaskets, resilient floor covering and asphalt roofing
 Category II Non-friable = all non-friable that is not Category I

**TABLE 3
CONFIRMED NON-ASBESTOS CONTAINING MATERIALS
NEW LONDON ARMORY
NEW LONDON, CONNECTICUT**

Material	General Location
NO BULK SAMPLING PERFORMED DURING THIS INSPECTION AS ALL SUSPECT MATERIALS RELATED TO THE PROJECT HAVE BEEN PREVIOUSLY IDENTIFIED AND/OR ABATED	

**TABLE 4
SUMMARY OF LEAD PAINT XRF MEASUREMENTS
NEW LONDON ARMORY
NEW LONDON, CONNECTICUT**

Structure	No. of Measurements	Calibrations	Void	Lead Detected	No Lead Detected via XRF*
Utility Room & Boiler Room	27	8	0	11	8

*A XRF cannot determine if paint is "lead free" since it can only detect lead down to 0.1 mg/cm². Paint can only be determined as "lead free" by a laboratory using Atomic Absorption Spectrometry (AAS). See Lead Paint XRF Measurement Table in Appendix D.



Lead Based Paint Measurement Summary Table

Device(s): Niton XLP301-A (Serial #24792) X Ray Fluorescence (XRF) Spectrum Analyzer
Site: New London Armory, New London, Connecticut
Project # : 326372-0000-0000
Date(s): 1/22/2019
Inspector: Zachary Smith

Number	Room	Side	Structure	Feature	Material	Color	Condition	Reading (mg/cm ²)	Precision (mg/cm ²)	Depth Index	Duration (sec)	Date/Time
1	Shutter calibration											
2	Shutter calibration											
3	0.0 calibration											
4	0.7 calibration											
5	1.6 calibration											
6	Boiler Room	C	Wall		Block	White	Intact	0.0	0.0	3.28	3.52	1/22/2019 12:04
7	Boiler Room	B	Wall		Block	White	Intact	0.0	0.0	1.47	3	1/22/2019 12:04
8	Boiler Room	B	Wall		Block	Grey	Intact	0.0	0.0	1	1	1/22/2019 12:04
9	Boiler Room	B	Wall		Block	Grey	Intact	0.0	0.0	2.64	4.03	1/22/2019 12:05
10	Boiler Room	B	Wall		Block	Red	Intact	0.0	0.0	1.31	4.19	1/22/2019 12:05
11	Boiler Room	B	Electrical conduit		Metal	Red	Intact	0.2	0.5	10	1.34	1/22/2019 12:06
12	Boiler Room	B	Electrical conduit		Metal	White	Intact	0.0	0.1	1	0.17	1/22/2019 12:06
13	Boiler Room	B	Electrical conduit		Metal	White	Intact	0.1	0.1	3.11	3.01	1/22/2019 12:07
14	Boiler Room	B	Electrical conduit		Metal	White	Intact	0.1	0.1	6.87	8.17	1/22/2019 12:07
15	Boiler Room	C	Window	Sill	Metal	Green	Intact	0.1	0.0	1.24	6.87	1/22/2019 12:09
16	Boiler Room	D	Electrical conduit		Metal	Grey	Intact	0.1	0.0	1.45	6.68	1/22/2019 12:10
17	Boiler Room	D	Electrical conduit		Metal	Grey	Intact	0.1	0.1	2.6	5.2	1/22/2019 12:11
18	Boiler Room	A	Pipe rise		Metal	Grey	Intact	0.3	0.6	10	2.17	1/22/2019 12:12
19	Boiler Room	A	Pipe rise		Metal	Grey	Intact	0.1	0.2	9.89	4.19	1/22/2019 12:12
20	Boiler Room	A	Pipe rise		Metal	Grey	Intact	0.2	0.3	10	4.19	1/22/2019 12:13
21	Boiler Room	A	Pipe rise		Metal	Grey	Intact	0.0	0.0	1	2.18	1/22/2019 12:13
22	Boiler Room	--	Boiler		Metal	Blue	Intact	0.0	0.0	1	1.34	1/22/2019 12:14
23	Utility Room	A	Electrical conduit		Metal	Green	Defective	0.2	0.1	5.83	6.54	1/22/2019 12:19
24	Utility Room	A	Electrical box		Metal	Grey	Intact	0.2	0.1	5.89	8.16	1/22/2019 12:20
25	0.0 calibration											
26	0.7 calibration											
27	1.6 calibration											

Lead paint includes paint found to contain **any detectable** amount of lead by Atomic Absorption Spectrophotometry (AAS) or X-Ray Fluorescence (XRF).

Side A = Street side; Sides B,C,D follow clockwise