

# Memorandum

**To:** NHPS Finance and Operations Committee  
**From:** Thomas Smith  
**Re:** Approval of Amendment #3 to Consultant Agreement – SSRCx  
 Helene Grant School Project  
**Meeting Date:** April 19, 2021

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**Executive Summary:**

Approval is requested for **Amendment #3** to the Consultant Agreement for the Helene Grant School Project with **SSRCx** of 2995 Sidco Drive, Nashville, TN 37204. This amendment is for additional services for electrical and mechanical commissioning. The amount of this amendment is **\$58,200.00**.

**Amount of Agreement and Amendment History:**

Item	Amount	Cumulative Contract Value
Agreement		\$198,228.00
Amendment #1	\$16,500.00	\$214,728.00
Amendment #2	\$52,500.00	\$267,228.00
<b>Amendment #3</b>	<b>\$58,200.00</b>	<b>\$325,428.00</b>

Funding Source: 3078 H912 58001

The Amendment and complete scope of services are attached

**THIRD AMENDMENT TO AGREEMENT  
FOR CONSULTANT SERVICES DATED DECEMBER 18, 2013  
BY AND BETWEEN THE CITY OF NEW HAVEN BOARD OF EDUCATION  
("OWNER") AND SSRcx  
("CONSULTANT")**

**A021\_\_\_\_\_**

THIRD AMENDMENT dated as of the \_\_\_\_\_ day of \_\_\_\_\_ 2021 by and between the City of New Haven Board of Education of 54 Meadow Street, New Haven, Connecticut 06519 ("Owner") and SSRcx of 2995 Sidco Drive, Nashville, TN 37204.

WHEREAS, the Owner and the Consultant entered into an agreement dated December 18, 2013 ("Agreement", A13-1229), Amendment #1 (A14-0532) and Amendment #2 (A15-0664) for the provision of commissioning services in connection with the Helene Grant School ("Project"); and

WHEREAS, the Owner has requested the Consultant to provide additional services to the project.

NOW THEREFORE, the parties hereto do hereby agree as follows:

1. Additional Compensation: In exchange for the additional services to be provided by the Consultant, the Owner agrees to pay the Consultant an amount not to exceed Fifty-Eight Thousand Two Hundred Dollars and No Cents (\$58,200.00). The Consultant acknowledges, agrees and confirms that in accordance with the terms of the Agreement, the Consultant shall not be entitled to any compensation in excess of the Additional Compensation referenced herein.
2. Not to Exceed: This additional payment will result in an increase of the Contract value from Two Hundred Sixty Seven Thousand, Two hundred Twenty Eight Dollars and No Cents (\$267,228.00) to a new Contract Value not to exceed Three Hundred Twenty Five Thousand, Four Hundred Twenty Eight Dollars and No Cents (\$325,428.00).
3. Additional Services: In exchange for the additional payment described in the preceding paragraph, the Consultant agrees to provide the additional services as indicated in Exhibit A and B attached to this Agreement and fully incorporated herein.
4. No Waiver: Except as specifically described in this Amendment, nothing in this Agreement shall be construed as a waiver by the Board of any of the provisions of this Agreement.
5. Effectiveness: On and after the date hereof, each reference in the Agreement to "the Agreement," "this Agreement", "hereunder," "hereof," "herein," or words of like import shall mean and be in reference to the Agreement as amended.
6. Survival: Except as otherwise amended herein, the Agreement shall remain in full force and effect. Subject to the amendment specifically described herein, the Consultant and the Board hereby ratify and confirm the remaining provisions of the Agreement.

**IN WITNESS WHEREOF**, the parties have executed three (3) counterparts of this Agreement as of the day and year first above written.

**WITNESS**

**NEW HAVEN BOARD OF EDUCATION**

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**Yesenia Rivera**  
**President, Board of Education**

**WITNESS**

**SSRCX**

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**Duly Authorized**

**Approved as to Form and Correctness**

\_\_\_\_\_  
**Stacy Lynn Werner**  
**Senior Assistant Corporation Counsel**

	Item	Proposal	Cumulative Contract Value
<b>Agreement</b>			
	<b><u>Base Contract:</u></b>		
	Operational Review of Engineering Desgin	SSRCx	\$31,540.00
	Commissioning Preparation and Organization	SSRCx	\$34,270.00
	Systems Installation Inspection	SSRCx	\$49,550.00
	Systems Performance Verification	SSRCx	\$42,073.00
	Verify & Support the Correction of Deficiencies	SSRCx	\$13,820.00
	Maint Planning, Operation training & Turnover	SSRCx	\$17,450.00
	Warranty Phsae System Performance Verification	SSRCx	\$9,525.00
	<b>Total Agreement:</b>	<b>\$198,228.00</b>	<b>\$198,228.00</b>
<b>Amendment #1</b>			
	<b><u>Building Envelope Commissioning Services:</u></b>		
	Design Phase	SSRCx	\$3,900.00
	Pre-Construction Phase	SSRCx	\$4,000.00
	Construction Phase	SSRCx	\$6,800.00
	Operations & Maintenance Phase	SSRCx	\$1,800.00
	<b>Total Amendment #1:</b>	<b>\$16,500.00</b>	<b>\$214,728.00</b>
<b>Amendment #2</b>			
	Testing and Balancing being done by Environmental Testing and Balancing		
	Air Test & Balance		\$27,000.00
	Water Test & Balance		\$18,000.00
	Commissioning Support		\$7,500.00
		SSRCx	\$52,500.00
	<b>Total Amendment #2:</b>	<b>\$52,500.00</b>	<b>\$267,228.00</b>
<b>Amendment #3</b>			
	Additional Services for Mechancial/Electrical Commissioning		\$58,200.00
	<b>Total Amendment #3:</b>	<b>\$58,200.00</b>	<b>\$325,428.00</b>



April 9, 2021

Mr. Webster M. Groueten, Jr.  
 Gilbane Program Management  
 New Haven School Construction Program  
 54 Meadow Street  
 New Haven, CT 06519

**RE: Building Commissioning Services - Contract Amendment  
 Helene Grant  
 New Haven Public Schools  
 New Haven, CT**

Dear Webb:

SSRCx would like to provide this request for amendment to the contract which will add additional system retesting to the commissioning scope.

Electrical Commissioning Scope:

Additional scope associated with the commissioning of the electrical systems is detailed in the attached add service request dated October 27<sup>th</sup>, 2017. The following commissioning site visits were made to conduct functional performance testing for electrical systems and to observe correction of the electrical items on the Master Issues List:

- SSR Commissioning Electrical Site Visit 11 – September 2016
- SSR Commissioning Electrical Site Visit 12 – October 2016
- SSR Commissioning Electrical Site Visit 13 - December 2016
- SSR Commissioning Electrical Site Visit 15 – July 2017

This additional service request includes the cost of the following items:

- Multiple failed attempts to observe correction of electrical MIL items that remained open beyond one year of building occupancy.
- Retesting and observation of open items on the MIL to verify correction and to close the issues.
- Functional performance testing of equipment in the electrical commissioning scope that could not be tested during the electrical commissioning site visits listed above.
- Additional site visit detailed in the attached SVR 19 that was only necessary due to the items listed above. SSR is requesting reimbursement for this site visit (SVR 19) that was necessary to complete failed testing and to close the electrical items on the commissioning Master Issues List (MIL).

The total cost breakdown for each additional commissioning site visit is provided below:

TASK	HOURLY RATE	HOURS	LABOR COST
Commissioning Site Visit	\$150	30	\$4,500
Travel	\$150	14	\$2,100
Reports and Documentation	\$150	2	\$300
Expenses	N/A	N/A	\$800
<b>Total Labor Cost (Per Site Visit)</b>			<b>\$7,700</b>

Filming Of System Training Sessions:

As outlined in the original commissioning agreement, the SSR scope includes attendance by SSR (or a representative) at training classes for the purposes of filming Owner training. The agreement also states that the construction team is responsible for providing all Owner training in the SSR Commissioning scope within a two-week time period and all costs associated with exceeding that limitation will be considered as an additional service. Any requests for additional Owner training of any systems and/or equipment in the commissioning scope will be an additional service for the providers that will require additional compensation beyond the costs outlined in this document.

Testing, Adjusting and Balancing (TAB) Scope:

The following items reflect effort and expenses that are beyond the original agreement for services in the testing, adjusting and balancing (TAB) scope:

- The following additional costs related to the testing and balancing scope are detailed in the attached add service request from Environmental Testing & Balancing dated February 19<sup>th</sup>, 2019.

<u>TASK</u>	<u>HOURLY RATE</u>	<u>HOURS</u>	<u>LABOR COST</u>
CAO Bldg Pump & DOA	\$150	8	\$1,200
CAO Bldg Bypass TAB	\$150	8	\$1,200
Chiller Rm SOO Support	\$150	16	\$2,400
<b>Total Labor Cost</b>			<b>\$4,800</b>

Requests For Additional Commissioning Services:

Multiple failed attempts to complete functional performance testing for the mechanical and electrical systems in the commissioning scope has resulted in the following additional service requests:

- July 2018 Electrical Site Visit (SVR 19) - Continue Functional Performance Testing of Electrical Systems (Fifth Electrical Testing Attempt) and Close Electrical Items On The Commissioning MIL - **\$7,700**
- Additional Costs Associated with the Testing, Adjusting and Balancing (TAB) Scope - **\$4,800**

The total proposed fee for additional costs related to the items listed above is **Twelve Thousand Five Hundred Dollars (\$12,500)**.

Please contact me with any questions.

Sincerely,



Randall Dean, PE, CEM, CxA  
Commissioning Project Manager

**Additional Service Request  
ACCEPTED:**

\_\_\_\_\_  
Authorized Agent:

\_\_\_\_\_  
Date

# **ENVIRONMENTAL TESTING & BALANCING, INC.**

**154 State Street Suite 204 North Haven, Connecticut 06473**

**(203) 234-2089 Fax (203) 234-2147**

**e-mail: john@etbct.com**

**website: www.etbct.com**

**AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER**

February 19, 2019

**Randall Dean  
Project Manager  
SSRCx, LLC**

**Dear Randall:**

**Re: Helene Grant School  
185 Goffe Street New Haven, CT**

**Request for change order**

**Please issue change order in the amount of \$ 4800.00 for the testing and balancing related to the following work, this is an extra to our contract:**

<b>Pump &amp; DOA-CAO Building Re-Testing</b>	<b>\$1200.00</b>
<b>CAO-Building Bypass Balancing</b>	<b>\$1200.00</b>
<b>Chiller Room Sequence TAB Support</b>	<b>\$2400.00</b>

**Thank you for your prompt attention to this matter.**

**Very truly yours,**

**John E. Burgess**

**John E. Burgess, President & NEBB Professional**





October 4, 2016

Webster Groueten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Site Visit of September 27-29, 2016 – SSRCx Site Visit Report 11  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Groueten,

SSRCx, represented by Randall Dean, was on site on the above referenced date with the intent of completing functional testing for the following electrical systems:

- Lighting Controls (Including Occupancy Sensors, Exterior Lighting and Scheduled Lighting Events)
- Daylight Harvesting System
- Stage Lighting
- Public Address (PA) System
- Master Clock System
- Area of Refuge
- Lighting Level Measurements

**I. General Commissioning Comments**

SSRCx was unable to finish functional performance testing for the above referenced systems due to deficiency items that prevented completion. The following general commissioning comments pertain to items observed during the site visit. Please refer to the attached Master Issues List (MIL) for more information.

**A. Lighting Controls:**

- 1) Occupancy sensors in the classrooms are not energizing the lights when someone enters the room. In most cases, the occupant must walk through the room before lights are activated. The direction and sensitivity of the occupancy sensors should be examined by the construction team.
- 2) SSRCx observed a sampling of the wall-mounted occupancy sensors throughout the building and could not observe proper operation of any device. The devices all failed to operate the lights as expected when the spaces became occupied. The construction team should verify proper installation and operation of these devices.
- 3) The lights at Entrance Lobby 115 are not energizing at night and a light level of only 1.5 foot-candles was measured at the building entry door.

**B. Daylight Harvesting:**

SSRCx conducted functional testing of the daylight harvesting system by simulating an increased level of lighting in each space with the expectation that the sensors would respond by dimming the lights. Light level measurements were taken once when the space was initially observed and once at the minimum light level. SSRCx made the following observations during the testing:

- 1) Daylight harvesting sensor is not installed in Classroom 102.
- 2) Daylight harvesting sensor is not operating properly in Classroom 119.
- 3) Daylight harvesting sensor in Classroom 124 is turned and the sensor is not directly facing the windows.
- 4) Occupancy sensors in Classroom 125 were not energizing the lights during this site visit and the daylight harvesting sensor could not be tested.
- 5) The daylight harvesting sensor in Classroom 126 is installed in the wrong direction and the sensor is facing away from the window.
- 6) Occupancy sensors in Classroom 127 were not energizing the lights during this site visit and the daylight harvesting sensor could not be tested.
- 7) The daylight harvesting sensor in Classroom 210 does not dim as many lights as the sensor in other Classrooms and the foot-candle measurement at the minimum level was 14 FC. In comparison, the lighting level measurement taken in other classrooms was between 2 FC and 5 FC at the minimum level.

**C. Scheduled Lighting Events:**

- 1) SSRCx observed the scheduled lighting sweep in the facility that turns off the corridor and stairwell lighting at 11 PM. After the sweep occurred, the occupancy sensors in the corridors only enabled some of the lights in the building. As a result, several corridor areas remained dark while occupied and the stairwell lights remained off while occupied. The construction team should determine how the occupancy sensors should operate after the lighting sweep occurs as well as verify consistent and proper operation in all areas of the facility.

**D. Exterior Lighting:**

SSRCx witnessed the scheduled operation of the exterior lighting and made the following observations:

- 1) It was the understanding of SSRCx that the exterior lighting was operating on an astronomical clock that would energize the lights 30 minutes prior to sunset and shut off the lights 30 minutes after sunrise. On the day of the testing, sunset was estimated to occur at 6:39 PM EDT but the exterior lights were energized at 5:09 PM EDT. The observed time difference of 90 minutes is exactly one hour longer than the planned 30 minutes prior to sunset. SSR requests that the construction team verify the proper time delay in the system as well as verify the correct time zone setting and the correct setting for daylight savings time.
- 2) Exterior light on far north side of the concrete island at the bus drop off did not energize.
- 3) Exterior light at the property line directly across from the CAO entrance did not energize

**E. Public Address (PA) System:**

- 1) A noticeable amount of static feedback was observed at the PA Speakers in most of the classrooms while the system was off. The amount of static feedback was the most disturbing in Classrooms 103, 104, 106, 128 and 206.

**F. Area of Refuge:**

- 1) Area of Refuge system has the ability to dial 911 but it is not currently connected. The construction team has requested direction on this feature regarding the call destination and the concern of dialing 911 if the Help Buttons are needlessly activated.
- 2) The Area of Refuge control panel was not properly labeled at the time of this site visit. The panel should be labeled to indicate the specific location where each call originates.

**G. Clock System:**

SSRCx observed the clocks in the spaces to verify operation and accuracy. A sampling of clocks in the space were disconnected from power and SSRCx verified that the clock returned to the accurate time when the power was reconnected. SSRCx made the following observations during this testing:

- 1) Clock in classroom 119 is not operating.
- 2) Clock in classroom 120 is not operating.
- 3) Clock in classroom 128 is not operating.
- 4) Clock is not operating in CAO Room 105 Assessment
- 5) Clock is not operating properly in CAO Room 104 Reception. The second hand is constantly jumping and the motion is not smooth.
- 6) The clock in Classroom 101 does not appear to be installed on the proper hanger.
- 7) The clock in Classroom 102 does not appear to be installed on the proper hanger.

#### **H. Stage Lighting**

- 1) The installation of receptacles and connection plugs at the stage are incomplete at this time.
- 2) The labels in the kitchen/stage lighting control panel should be changed to provide an accurate description of the lights being controlled. For example, the lights are currently labeled in the control panel as “1E 1-21” and “2E 31-41.”

#### **I. Lighting Level Measurements**

SSRCx took light level measurements in various spaces throughout the facility and made the following observations:

- 1) A light is out in Classroom 119 and a measurement of only 19 FC was taken on the table below
- 2) A light is out in Classroom 224 and a measurement of only 19 FC was taken on the table below

#### **J. Mechanical Systems**

- 1) There is excessive noise from the overhead HVAC system in Classroom 210.
- 2) HVAC equipment noise and vibration is extremely loud above the corridor area at Electrical Rooms 217A-C.

K. Please refer to the attached photo report for more information regarding the construction progress at the time of this site visit.

### **II. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.

SSRCx requests that the Engineers of Record review the MIL and respond where required.

The contractors should review the MIL and:

- 1) Make the necessary corrections to resolve any new or open issue items or...
- 2) Respond to SSRCx (in writing or via e-mail) if there are any comments or disagreement with the MIL item. The contractors should clearly explain the disagreement with the issues item and why the item is not required to be corrected.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

**III. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

The next commissioning site visit is currently scheduled to occur during the week of October 10<sup>th</sup> to test the Fire Alarm System and to continue testing the electrical systems.

Please contact me with any questions or comments.

Sincerely,

A handwritten signature in cursive script that reads "Randall Dean".

Randall Dean, PE, CEM, CxA  
Commissioning Project Manager



October 20, 2016

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Site Visit of October 11-12, 2016 – SSRCx Site Visit Report 12  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by Dennis Marsh and Jason Perigo, was on site on the above referenced date with the intent of back-checking corrected items from the Master Issues List (MIL) and completing functional testing for the following electrical systems:

- Access Controls
- Camera System
- Fire Alarm System

**I. General Commissioning Comments**

SSRCx was informed by the contractor that issues noted previously and added to the MIL were ready for verification; however, many items had not been addressed prior to our visit or were only partially corrected. For example, lights were not energized in two classrooms during the September 27-29 site visit and lighting controls could not be verified. During this visit the lights switched on, but the daylight sensor had not been configured properly. We have provided comments for open electrical issues which have not been corrected.

**A. Access Controls**

SSRCx verified the operation of card readers and door contacts throughout the school and CAO building with deficiencies noted on the attached MIL. Generally, doors unlocked as expected after a valid card was presented and door activity was reported and recorded at the control system interface. Several doors were noted to be unlocked by default and after a valid card swipe, likely due to wiring issues at those particular doors.

As a general comment, we witnessed several delays in reporting for doors that were propped open. Rather than reporting the open condition immediately, the propped open status would annunciate at the controller only after the door was re-secured. The installing technician was unable to identify the cause for these delays and was unable to offer a solution.

SSRCx was unable to verify any of the glass break sensors which are installed throughout the first floor. The installing contractor attempted to trigger the sensors using a test device which produces the sound of breaking glass at 100 decibels; however, even with the system armed, none of the sensors were triggered and we are not satisfied that the system will operate as intended during a break-in.

Duress buttons were verified to annunciate at the alarm panel. During a brief conversation with an individual at the alarm monitoring station, it was stated that the monitoring service receives a general burglar alarm from the alarm system and it was not clear that duress alarms would annunciate

distinctly from glass break or motion sensor alarms. Our expectation is that duress button alarms would be distinct to allow for discretion when responding to the alarm. The EOR is requested to comment and clarify intent.

**B. Camera System**

Installation and setup of the cameras was incomplete at the time of testing. Several cameras are installed but are not yet communicating with the system head end and several others have not been aimed and adjusted. We verified that the cameras which were ready have been adjusted to provide a clear view of the areas under observation and that the cameras have been integrated into the recorder and multiplexer for viewing.

At the time of viewing, all cameras were labeled “Camera 1” within the multiplexer interface. In our experience, cameras labels describe the area under observation but this requirement was not identified in the contract documents. The owner or EOR should provide direction if the labels should be modified.

**C. Fire Alarm System**

Initiating devices such as pull stations, ceiling smoke detectors, heat detectors, and duct smoke detectors were sampled throughout the school and CAO building to verify alarm activation and device descriptions. Air handlers were verified to shut down and door hold-open devices were verified to release upon alarm activation. All devices and system interfaces operated as expected.

Specification 283100 section 1.9 calls for fan control switches to allow for individual unit shutdown and restart from the fire alarm control panel. This feature has not been provided and the issue has been added to the MIL for tracking.

**D. Lighting Controls:**

One item was noted during our September 27 site visit that has not been corrected and is of particular concern from a safety standpoint. **As installed, all corridor and stairway lighting is switched off at the relay panel during the 11PM sweep, including all emergency fixtures.** Occupancy sensors in the corridors switch on lights in some areas of the corridors only – **stairways remain completely dark.** This is a clear safety issue as adequate egress lighting is not being maintained. In the contractor’s defense, the drawings do indicate that the designated emergency fixtures are to be switched via the relay panel. **The EOR is requested to review the installed configuration and insure the installation meets applicable life safety codes to provide the required minimum lighting level at the walking surface.**

SSRCx also commented regarding the activation of lighting within the classrooms via the wall mounted occupancy sensors. This situation has not improved, and an occupant may walk to the back of the classrooms before the sensor switches on the lights. The wall mounted sensors are the dual technology type, meaning they sense motion via infrared and ultrasonic detection, and sensor activity is indicated via green and red LEDs on the front of the unit. We observed that the lights did not switch on until motion was detected via both the ultrasonic and infrared sensor. This is designed to cut down on false activations, but the units can typically be adjusted to switch on lights after activation of either sensor. We suggest having the installer adjust this setting to in an effort to have the lights switch on sooner upon an occupant entering the space.

**II. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.

SSRCx requests that the Engineers of Record review the MIL and respond where required.

The contractors should review the MIL and:

- 1) Make the necessary corrections to resolve any new or open issue items or...
- 2) Respond to SSRCx (in writing or via e-mail) if there are any comments or disagreement with the MIL item. The contractors should clearly explain the disagreement with the issues item and why the item is not required to be corrected.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

**III. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact me with any questions or comments.

Sincerely,



Randall Dean, PE, CEM, CxA  
Commissioning Project Manager



December 8, 2016

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Site Visit of December 1, 2016 – SSRCx Site Visit Report 13  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by Randall Dean, was on site on the above referenced date with the intent of back-checking corrected items from the Master Issues List (MIL) and to make observations regarding progress of the control system installation. The attached MIL has been updated to reflect observations made during this site visit.

**I. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.

SSRCx requests that the Engineers of Record review the MIL and respond where required.

The contractors should review the MIL and:

- 1) Make the necessary corrections to resolve any new or open issue items or...
- 2) Respond to SSRCx (in writing or via e-mail) if there are any comments or disagreement with the MIL item. The contractors should clearly explain the disagreement with the issues item and why the item is not required to be corrected.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

**II. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact me with any questions or comments.

Sincerely,

A handwritten signature in black ink that reads 'Randall Dean'.

Randall Dean, PE, CEM, CxA  
Commissioning Project Manager





August 2, 2017

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Site Visit of July 22, 2017 – SSRCx Site Visit Report 15  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by Jason Perigo and Tim Gallagher, were on site on the above referenced date with the intent of completing remaining electrical Cx PFC items, complete functional testing of the lighting controls, clock system, paging system, security system, PV system, and to back check all MIL items.

**I. PFC Completion Items**

- a. PFC items for all electrical equipment under Cx scope have been completed and documented in Building Start. The following issues were noted:
  - i. Panels RP-2 and RP-3 internal components were dirty and panel cover missing screws.
  - ii. Panel schedules and labeling requirements noted in specification 260501 and 262300 were not provided or incomplete for panels GDP, RP-2, RP-3, RP-4, and TC-1. In addition, panel schedules for GP-1B, GP-2A, and MP-2B were inaccurate and did not match breaker installation of panels.
  - iii. Panel MDP had a broken circuit breaker handle and the surge protection device (SPD) did not operate as intended by 262300 2.5.A.
  - iv. Panels associated with the lighting controls (RP-2, RP-3, RP-4) had a BAS communication cable installed but it was disconnected. The lighting control display interface was not functional and was disconnected for all panels.
  - v. Panel TC-1 did not communicate with BAS per sheet E6.3 note 4.

**II. FPT Completion Items**

- a. Lighting controls and programmed schedule testing was completed with the following observations:
  - i. Fire alarm and security alarm interface with the lighting control system did not provide override on function when the fire or security alarm was activated. Corridor lighting was observed to be off prior to testing and remained off during alarm conditions.
- b. Clock system including master clock functional testing were completed with the following issues:
  - i. MIL items 0117 and 0118 remain uncorrected. Classrooms 101 and 102 clocks are mounted on a junction box screw supplying the clock wiring. A separate mounting bracket and screw is provided for all other clocks, as required by 275117 3.2.B.
- c. The paging system and area of refugee intercom functional testing was completed with the following issue:
  - i. MIL item 0119 remains open and was not verified as corrected.
- d. The security system functional testing was completed with the following comments:
  - i. The glass break sensors installed in the 1<sup>st</sup> floor office areas did not operate as intended by design. The glass break sensors were tested with the security installer and retested during this site visit. The glass break sensors never acknowledged a glass break alarm and did not provide notification of alarm to main panel. The glass

- break sensors are a dual motion / glass break sensor, the motion part of the sensor activated per design.
- ii. Multiple door hold open and forced entry alarms did not function when tested and retested. Exact location noted on attached MIL.
  - iii. Multiple door access control and locking mechanisms did not work. These locations were tested and retested but failed to operate per design. Exact locations are noted on the attached MIL.
  - iv. CCTV devices have a two issues remaining with the system: 1) The CCTV system is not integrated with the access control and intrusion detection systems as required per specification 281600 2.7-D. 2) The CCTV cameras have five cameras that did not function and could not be viewed at NHPS main security office. (Cameras #135, #134, #122, #106, and #83).
- e. Photo Voltaic System functional testing of normal utility power interface was tested with the following issues noted:
- i. Surge protection devices for panels PV1 and PV2 were not operational. Set up of the (SPD) were not complete with system display flashing.
  - ii. Testing of system safety time delay for reconnection to utility power did not have a time delay of 5 minutes per specification 264500 3.7.C. Actual time delay was 10 seconds.
  - iii. Despite attempts to coordinate this commissioning effort, the web based monitoring capability was unable to be demonstrated during the site visit due to the absence of a member of the construction team or a manufacturers rep knowledgeable enough to demonstrate the system control interface.
  - iv. Testing documentation for system start up and base line recordings have not been provided. SSRCx request a copy of system start up documentation and base line measurements.
- f. A copy of contractor and vendor testing documentation for equipment under Cx scope has been requested. Functional Testing templates will be updated once documentation is received.

### **III. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.

SSRCx requests that the Engineers of Record review the MIL and respond where required.

The contractors should review the MIL and:

- 1) Make the necessary corrections to resolve any new or open issue items or...
- 2) Respond to SSRCx (in writing or via e-mail) if there are any comments or disagreement with the MIL item. The contractors should clearly explain the disagreement with the issues item and why the item is not required to be corrected.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

**IV. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact me with any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Randall Dean". The signature is written in a cursive style with a large initial 'R' and 'D'.

Randall Dean, PE, CEM, CxA  
Commissioning Project Manager



July 11, 2018

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Revised Site Visit of July 11, 2018 – SSRCx Site Visit Report 19**

**NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by Jason Perigo, was on site on the above referenced date to back check all electrical MIL items with an open or recheck status. The attached Master Issues List (MIL) has been updated to reflect observations made during this site visit.

**I. General Observations**

**A. CAO Building**

1. The CAO building fire alarm pull stations did not have the plastic protective cover plates with audible tamper alarm installed per specification. This was true for all pull stations in the CAO building.

**B. PV System**

1. The NEXGEN energy monitoring equipment module connection to the PV system had a “Check Install” notification displayed. The NEXGEN system was not monitoring or recording the PV systems outputs. Set up and configuration of the PV system monitoring module required.

**C. Testing Documentation**

1. SSRCx has not received copies of all required electrical testing documentation. A copy of all electrical testing documentation required is attached. SSRCx request that the electrical contractor review list and provide all testing documentation not previously provided.

**II. Master Issues List (MIL)**

All electrical Issues on the MIL marked as open or recheck were checked during this site visit and have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor. Thirty-six (36) electrical MIL items were marked as fixed or accepted and nine (9) electrical MIL items were checked but remain uncorrected.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

**III. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact me with any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Randall Dean". The signature is written in a cursive style with a large initial 'R' and 'D'.

Randall Dean, PE, CEM, CxA  
Commissioning Project Manager



April 9, 2021

Mr. Webster M. Groueten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**RE: Building Commissioning Services - Contract Amendment  
Helene Grant  
New Haven Public Schools  
New Haven, CT**

Dear Webb:

SSRCx would like to provide this request for amendment to the contract which will add additional system retesting to the commissioning scope.

Mechanical Commissioning Scope:

The following is a brief description of failed attempts to conduct functional performance testing on the systems and equipment in the SSR Commissioning Scope.

- SSR Commissioning Mechanical Site Visit 14 Occurred in July 2017 – SSR Commissioning attempted functional performance during this site visit. Despite assurances from the construction team that the systems were ready for testing, SSR observed that the associated equipment was either not functioning properly or installation remained incomplete. Please refer to the attached Site Visit Report SVR 14 for more information. Additional information is also provided in the attached add service request dated July 31<sup>st</sup>, 2017. Additional services are requested for the site visit detailed in SVR 17 that was only necessary as a result of the failed testing described above.
- SSR Commissioning Mechanical Site Visit 16 Occurred in August 2017 – SSR Commissioning attempted functional performance during this site visit. Despite assurances from the construction team that the systems were ready for testing, all plans for the week were cancelled by the construction team when SSR arrived at the project site. Cancellation by the construction team was due to lack of construction progress and systems were not ready for functional performance testing. Please refer to the attached Site Visit Report SVR 16 for more information. Additional information is also provided in the attached add service request dated August 14<sup>th</sup>, 2017. Additional services are requested for the site visit detailed in SVR 18 that was only necessary as a result of the failed testing described above.
- SSR Commissioning Mechanical Site Visit 20 Occurred in October 2018 – SSR Commissioning conducted this site visit with the construction team with the understanding that all issue items on the commissioning Master Issues List (MIL) had been corrected by the installing contractors. The collective intention of this site visit was to verify correction of all open MIL items and close all items on the MIL. During the site visit, only seven (7) items were closed and an additional fifteen (15) items were added. Please refer to the attached SVR 20 for more information. Due to the circumstances of this site visit and the duration of unresolved issue items, SSR is requesting reimbursement for all site visits after SVR 20 that are necessary to close the issue items on the commissioning MIL. This includes the site visit detailed in the attached SVR 21 and a future site visit to close the items that remain open at this time. As detailed in attached SVR 21, SSR returned to the project site again in February 2019 with the collective intention of verifying and closing the open items on the MIL. During the site visit (SVR 21), eleven (11) items were closed and an additional thirteen (13) items were added.

The total cost breakdown for each additional commissioning site visit is provided below:

Rate Structure A:

<b>TASK</b>	<b>HOURLY RATE</b>	<b>HOURS</b>	<b>LABOR COST</b>
Commissioning Site Visit	\$150	30	\$4,500
Travel	\$150	14	\$2,100
Reports and Documentation	\$150	2	\$300
Expenses	N/A	N/A	\$800
<b>Total Labor Cost (Per Site Visit)</b>			<b>\$7,700</b>

Rate Structure B:

<b>TASK</b>	<b>HOURLY RATE</b>	<b>HOURS</b>	<b>LABOR COST</b>
Commissioning Site Visit	\$150	40	\$6,000
Travel	\$150	14	\$2,100
Reports and Documentation	\$150	4	\$600
Expenses	N/A	N/A	\$900
<b>Total Labor Cost (Per Site Visit)</b>			<b>\$9,600</b>

Filming Of System Training Sessions:

As outlined in the original commissioning agreement, the SSR scope includes attendance by SSR (or a representative) at training classes for the purposes of filming Owner training. The agreement also states that the construction team is responsible for providing all Owner training in the SSR Commissioning scope within a two-week time period and all costs associated with exceeding that limitation will be considered as an additional service. Any requests for additional Owner training of any systems and/or equipment in the commissioning scope will be an additional service for the providers that will require additional compensation beyond the costs outlined in this document.

Testing, Adjusting and Balancing (TAB) Scope:

The following items reflect effort and expenses that are beyond the original agreement for services in the testing, adjusting and balancing (TAB) scope:

- The following additional costs related to the testing and balancing scope are detailed in the two attached add service requests from Environmental Testing & Balancing dated February 9<sup>th</sup>, 2018 and April 24<sup>th</sup>, 2019.

<b><u>TASK</u></b>	<b><u>HOURLY RATE</u></b>	<b><u>HOURS</u></b>	<b><u>LABOR COST</u></b>
Bulletin #20 (Circuit Setters)	\$150	16	\$2,400
Space Pressure Issues (MIL)	\$150	8	\$1,200
<b>Total Labor Cost</b>			<b>\$3,600</b>

Requests For Additional Commissioning Services:

Multiple failed attempts to complete functional performance testing for the mechanical and electrical systems in the commissioning scope has resulted in the following additional service requests:

- July 2017 Mechanical Site Visit – Failed Testing of SVR 14 and Reimbursement of Additional Site Visit SVR 17 In September 2017 - **\$9,600**
- August 2017 Mechanical Site Visit – Failed Testing of SVR 16 and Reimbursement of Additional Site Visit SVR 18 In January 2018 - **\$9,600**
- Additional Site Visit (SVR 21) To Verify Correction Of All Open Items On The Commissioning Master Issues List (MIL) - **\$7,700**
- Future Site Visit To Verify Correction Of All Items On The Commissioning Master Issues List (MIL) That Are Currently Open - **\$7,700**
- Additional Costs Associated with the Testing, Adjusting and Balancing (TAB) Scope - **\$3,600**
- Additional Costs Associated with Deferred Functional Testing That Exceeds One Year Beyond Building Occupancy That Include But Are Not Limited To The Following: Project Management, Scheduling and Coordination Of Cancelled Site Visits and Development of Additional Site Visit Reports - **\$7,500**


The cost of effort related to additional site visits and additional post-occupancy scope are calculated as follows:

<u>TASK</u>	<u>HOURLY RATE</u>	<u>HOURS</u>	<u>LABOR COST</u>
Post-Occupancy Expenses	\$150	50	\$7,500
<b>Total Labor Cost</b>			<b>\$7,500</b>

The total proposed fee for additional costs related to the commissioning of mechanical systems in the commissioning scope is **Forty-Five Thousand Seven Hundred Dollars (\$45,700)**.

Please contact me with any questions.

Sincerely,



Randall Dean, PE, CEM, CxA  
Commissioning Project Manager

**Additional Service Request  
ACCEPTED:**

\_\_\_\_\_  
Authorized Agent:

\_\_\_\_\_  
Date



# **ENVIRONMENTAL TESTING & BALANCING, INC.**

**154 State Street Suite 204 North Haven, Connecticut 06473**

**(203) 234-2089 Fax (203) 234-2147**

**e-mail: john@etbct.com**

**website: www.etbct.com**

**AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER**

**February 9, 2018**

**Randall Dean  
Project Manager  
SSRCx, LLC**

**Dear Randall:**

**Re: Helene Grant School – Bulletin #20  
185 Goffe Street New Haven, CT**

**Request for change order**

**Please issue change order in the amount of \$ 2400.00 for the testing and balancing of added circuit setters in Bulletin #20 and the connected radiant floor headers. This is an extra to our contract.**

**Thank you for your prompt attention to this matter.**

**Very truly yours,**

**John E. Burgess**

**John E. Burgess, President & NEBB Professional**

# **ENVIRONMENTAL TESTING & BALANCING, INC.**

**154 State Street Suite 204 North Haven, Connecticut 06473**

**(203) 234-2089 Fax (203) 234-2147**

**e-mail: john@etbct.com**

**website: www.etbct.com**

**AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER**

**April 24, 2019**

**Randall Dean  
Project Manager  
SSRCx, LLC**

**Dear Randall:**

**Re: Helene Grant School – Commissioning Issue 242  
185 Goffe Street New Haven, CT**

**Request for change order**

**Please issue change order in the amount of \$ 1200.00 for the testing and balancing required to confirm negative space pressure. This is an extra to our contract.**

**Thank you for your prompt attention to this matter.**

**Very truly yours,**

**John E. Burgess**

**John E. Burgess, President & NEBB Professional**



July 19, 2017

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Site Visit of July 11 – 14, 2017 – SSRCx Site Visit Report 14  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by Steven Metzgar, was on site on the above referenced date to functionally test all mechanical and plumbing systems in the commissioning scope (with the exception of operating sequences related to the heating systems). The attached Master Issues List (MIL) has been updated to reflect observations made during this site visit.

## **I. General Observation**

1. All unit heaters located in the penthouses do not have a disconnect switch. It is a code requirement to have a disconnect switch within the line of site of the piece of equipment.
2. Chilled water plant was not functionally tested because Chiller 1 was not capable of functioning at 100% during this site visit and the BAS was not reading feedback from the chilled water pumps. This prevented SSRCx from witnessing the lead/lag sequence for the chillers as well as the lead/lag sequences for the hydronic pumps.
3. The domestic hot water system has not been balanced at this time. Heating hot water was not available at the Nurses sink on the first floor after waiting for 15 minutes.
4. Glycol Tanks are not operational and have no glycol in the tanks. M.J. Daley stated the glycol will be added after the issues with the pumps have been resolved.
5. Since there is no glycol in the system at this time, it is difficult to ensure the systems are meeting the design requirements because adding glycol to the water will reduce the cooling capacity of the equipment. Cooling capacity of the system will have to be revisited and observed again after the glycol has been added to the system.
6. All pumps are not programmed to communicate with BAS. Therefore, when a pump fails, the BAS does not have the ability to switch to the lag pump.
7. FD/FSD is closed in the supply duct of AHU-1. This is preventing the air terminal units from meeting their supply airflow set point.

## **II. Functional Testing**

### *Dedicated Outside Air Units*

SSRCx and Johnson Goodyer functionally tested DOA-1 through DOA-3, located in the penthouses on the roof. These air handling units provide conditioned outside air to the chilled beams located throughout the facility. The testing effort focused on observing the equipment airflows and the equipment supply air temperatures. The deficiencies observed during this site visit are noted below. Please consult the attached Master Issues List (MIL) for more information on all open deficiency items.

1. DOA-1, DOA-2 and DOA-3
  - a. Exhaust airflow and outside airflow are both reading at the airflow measuring station but they are not being read or displayed on the BAS equipment graphics.

- b. Exhaust relative humidity and exhaust static pressure are not being read or displayed on the BAS equipment graphics.
  - c. Chilled water valve is not maintaining proper supply air temperature set point. The supply air temperature is fluctuating between 10°F above set point and 10°F below set point.
2. DOA-2
- a. Supply static pressure sensor is only reading 0.01" w.c. The construction team should investigate the issue to determine the cause for such a low static pressure measurement.
  - b. Exhaust airflow measuring station is not functioning.
  - c. It is possible that a FD/FSD could be closed in the ductwork connected to air handling unit DOA-2. The supply air duct is only delivering 0.04" w.c of static pressure but the static pressure at the unit is extremely high.

#### *Air Handling Unit-1*

SSRCx and Johnson Goodyer functionally tested air handling unit AHU-1, which is located in the penthouse and serves the kitchen and cafeteria/gymnasium. The deficiencies observed during this site visit are noted below. Please consult the attached Master Issues List (MIL) for more information on all open deficiency items.

1. Return fan has not been programmed to control to building space pressure. The current program is controlling the return fans to track the supply fan by 10%.
2. Supply static pressure sensor is only reading 0.01" w.c.. The construction team should investigate the issue to determine the cause for such a low static pressure measurement.
3. Programming for the CO2 control sequence has not been provided for AHU-1.
4. Supply air temperature control is not functioning per the sequence of operation. When return air humidity rises above 60%, the supply air temperature is not resetting down to its lowest programmed set point.
5. Supply air temperature set point is currently resetting based on the measured return air temperature. According to the specified control sequence of operation, the supply air temperature reset schedule should be based on the measured space temperature.
6. High static pressure safety switch has not installed on the equipment. Without this safety switch installed, the supply ductwork on the unit is currently susceptible to damage from high pressure conditions. One example of such high pressure condition could be a fire damper in the supply ductwork closing while the supply fan is energized.
7. Static pressure reset sequences have not been programmed at this time and the equipment is currently maintaining a constant static pressure set point of 1.0" w.c.

#### *Chilled Beams*

SSRCx and Johnson Goodyer functionally tested 100% of the chilled beams to ensure they are functioning correctly. It was observed that several rooms were not cooling properly due to several closed isolation valves, air terminal units that were not operating and chilled water valves that were not functioning. All these issues were corrected during the site visit and the only items that remain open are the issues noted below.

1. Room 105 return air grill is noisy.
2. Diffuser at the end of Corridor C101 is extremely loud.

#### *CAO – DOAS*

This air handling unit was functionally tested and it was discovered that the unit is not maintaining supply air temperature. The unit has 45°F chilled water supply temperature but it will only provide 75°F supply air temperature. The construction team should investigate the cause of this issue.

#### *CAO Chilled Beam System*

SSRCx and Johnson Goodyer functionally tested the system and discovered a few issues that should be reviewed by the construction team. The issues are noted below.

1. The chilled beam pumps are operating but are reading a flow of 0 GPM. The water temperature sensor on the chilled beam supply side of the heat exchanger is 70°F and the temperature sensor located 12 feet downstream at the pump is reading 90°F. The construction team should investigate the cause of this issue.
2. SSRCx requests clarification from the construction team regarding the current control sequence for the CAO chilled beam system. Is the system controlling to maintain a water temperature set point at the sensor leaving the heat exchanger or is the system controlling to maintain a water temperature set point on the discharge side of the pump?
3. The chilled beams in the CAO were not functionally tested due to insufficient water flow.

#### *Main Building Chilled Beam System*

1. Sheet M8.02 of the construction documents states that the chilled beam supply temperature should be 2°F warmer than the average space dew point in the building. This control sequence is not functioning and has not been programmed at this time.
2. Control sequences and alarms for the pumps cannot be functionally tested until the pump feedback issues have been corrected.
3. Dual supply temperature sensor error alarm is not set up. An alarm condition should be generated if the measurements from the two sensors are not within 10% of each other.

#### *Domestic Hot Water Recirculation Pump*

The equipment operation was observed and the following deficiency item has been added to the attached MIL:

1. The equipment currently does not have an occupied/unoccupied schedule programmed for its operation. For purposes of energy conservation, this should be provided as soon as possible to enable and disable the pump according to the building occupancy schedule.

### **III. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

**IV. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact me with any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Randall Dean". The signature is written in a cursive style with a large, prominent 'R' and 'D'.

Randall Dean, PE, CEM, CxA  
Commissioning Project Manager



August 17, 2017

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

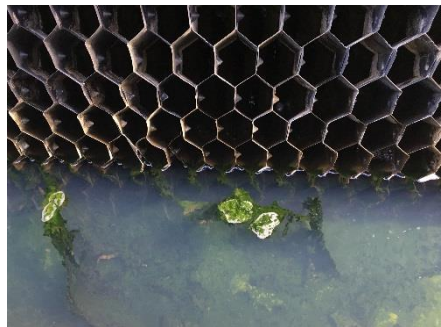
**Re: Commissioning Site Visit of August 15, 2017 – SSRCx Site Visit Report 16  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by Steven Metzgar, was on site on the above referenced date. Our initial intent for the week was to functionally test the chilled water system and associated equipment with cooling capacities. All intended testing was canceled after SSRCx arrived at the project site on Tuesday, August 15<sup>th</sup>.

**I. General Observation**

1. SSRCx was able to observe correction of items on the attached Master Issues List (MIL) during this site visit. However, the items on the MIL pertaining to the functionality and operation of equipment could not be observed. Verification of those issues will require the presence of the controls contractor. The items listed below should be considered the most urgent issues that are currently open on the commissioning MIL. Please refer to the attached MIL for more information on all deficiency items.
  - a. Item 0030: A valve package has not been installed for the fin tube heater in room 207K. The valve package has been installed but the actuator has been removed from the valve body. A picture has been attached to the Master Issue List to better illustrate the issue.
  - b. Item 0078: Filters located in DOA-3 have fallen out of the filter rack and are currently on the floor of the unit. As of now, there are no means of filter protection for the air side of the coil. This should be corrected as soon as possible.
  - c. Item 0066: The cooling tower fill has been cleaned but the basin of the cooling tower has algae growing on the fill and in the basin. The biocide program should be reviewed to ensure it is working properly.



**Figure 1: This is referring to item  
0066 - Algae in the basin of the  
tower.**

## **II. Functional Performance Testing**

### *Exhaust Fans EF-10 Through EF -13*

SSRCx functionally tested exhaust fans located in the penthouses on the roof. The exhaust fans and an associated outside air louver are controlled by a thermostat located in the space. The intent of the exhaust fans is to energize the fans when the space temperature rises above the set point. During this condition, the exhaust fans are enabled and the outside air louvers open. Deficiencies observed during testing are noted below:

1. The thermostats for all exhaust fans noted above are operating incorrectly. The thermostats are wired up to warm the space instead of cool the space. As currently programmed, when the space temperature drops below the set point, the fans enable and outside air louvers open. The fans and louvers should be programmed to operate and open when the space temperature rises above the set point.

## **III. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

## **IV. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact me with any questions or comments.

Sincerely,



Randall Dean, PE, CEM, CxA  
Commissioning Project Manager





September 22, 2017

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Site Visit of September 19 – 20, 2017 – SSRCx Site Visit Report 17  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by Steven Metzgar, was on site on the above referenced date to functionally test the chilled water system and to troubleshoot ongoing issues at the Central Administration Office (CAO) building. The attached Master Issues List (MIL) has been updated to reflect observations made during this site visit.

#### **I. General Observations**

1. Spaces in area three of the school building were having temperature control issues and rooms were noticeably warm in the mornings. Some troubleshooting revealed that the control sequence was controlling to the wrong set point and the unit was entering heating mode every morning and providing 80°F supply air temperature to the spaces. SSRCx observed that this same incorrect control sequence had been provided for all of the units. This was corrected during the site visit and SSRCx observed the equipment operating correctly to maintain the appropriate set points.
2. The maintenance department informed SSRCx that the open MIL items relating to lighting controls have not been corrected. The construction team should review and correct these issues as soon as possible.
3. The Cooling Tower has been cleaned and the chemical system has been checked for proper operation. The open MIL item regarding cleanliness of the cooling tower has been closed.

#### **II. CAO Building**

Neither the chilled beam loop nor the Dedicated Outside Air System (DOAS) in the CAO building are operating properly and the cooling system in this building has not been functioning for several months. The following comments and observations are a result of the troubleshooting that took place during this site visit:

1. Excessive amounts of air in the chilled beam loop has been causing the pumps to cavitate. The construction team manually bled the air out of the system and flushed the system with fresh water to temporarily restore operation of the pumps. The construction team should verify that the air vent is located at the high point of the system to ensure proper operation.
2. Water balancing of the chilled beam loop cannot be completed until the issues with pump cavitation and improper air venting have been corrected.
3. The DOAS serving the CAO Building is not meeting the design temperature drop across the chilled water coil. SSRCx observed an air temperature of 60°F entering the chilled water coil and a supply air temperature of 68°F. This is only an 8°F temperature drop across the coil but the design temperature drop is 17°F. According to the testing and balancing measurements, both the airflow through the unit and the water flow through the coil are meeting the design requirements. The construction team should investigate the cause of the supply air temperature issue.

### **III. Functional Testing**

#### *Chilled Water System*

SSRCx conducted functional performance testing of the chilled water system equipment located in Room M103 (Boiler/Fan Room). The testing effort focused on observing the equipment function per the design intent. The deficiencies observed during this site visit are noted below. Please consult the attached Master Issues List (MIL) for more information on all open deficiency items.

1. Glycol Tanks are currently not operational and glycol has not been added to the tanks or to the chilled water system. Glycol directly influences the cooling capacity of all equipment associated with the chilled water system and it should be provided to ensure the facility is operating per the design intent. SSRCx requests clarification from the construction team regarding the absence of glycol in the chilled water system at this phase of the project.
2. The bypass valve for the condenser water loop is located on the entering side of the chiller and opening the valve currently bypasses the chillers and causes the chillers to shut down on loss of water flow. SSRCx requests clarification from the Engineer of Record and the construction team regarding the design intent and proper location of the bypass valve.
3. High water alarm for the cooling tower is continuously active.
4. Heat trace in the condenser water return line has a fault that is causing the heating element to remain energized continuously.
5. Chiller 1 was showing an alarm condition for chilled water flow loss but it was actually a condenser water flow loss. The alarm is reading correctly at the BAS but not on the front panel of the chiller.

#### *School Building Chilled Beam System*

During Commissioning Site Visit 14, SSRCx was able to test the sequence of operation for the chilled beam system in the school to verify the system functioned correctly. At the time of that site visit, the building automation system was unable to obtain feedback from the pumps which prevented system monitoring of the pump status and pump VFD speed. This issue prevented functional testing of the sequences related to pump failures and alternating pump operation. These issues have since been corrected and the proper pump sequences were demonstrated to SSRCx with no noted deficiency items.

### **IV. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

**V. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact me with any questions or comments.

Sincerely,

A handwritten signature in cursive script that reads "Randall Dean".

Randall Dean, PE, CEM, CxA  
Commissioning Project Manager



January 22, 2018

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Revised Site Visit of January 9 – 13, 2018 – SSRCx Site Visit Report 18 – Revision 1**

**NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by Steven Metzgar, was on site on the above referenced date to functionally test the Heating Hot system, Unit Heaters, Cabinet Unit Heaters, Exhaust Fans, Air Handling Units and Dedicated Outside Air Units. The attached Master Issues List (MIL) has been updated to reflect observations made during this site visit. **Revisions of the report are in BOLD lettering.**

**I. General Observations**

**A. COA Building Chilled Beam Loop**

**Item 1 below has been added to the MIL for tracking purposes. The air vent was to be located at the high point of the system to prevent this issue from happening in the future.**

1. Excessive amounts of air in the chilled beam loop have been causing the pumps to cavitate. The construction team manually bled the air out of the system and flushed the system with fresh water to temporarily restore operation of the pumps. The construction team should verify that the air vent is located at the high point of the system to ensure proper operation.
2. Water balancing of the chilled beam loop cannot be completed until the issues with pump cavitation and improper air venting have been corrected.

**B. SSRCx and Earthwise reviewed all of the metering for both the Grant School and the CAO building. It was observed that several meters were either not operating properly or not installed. Listed below are the meters that could not be verified. These meters have been added to the attached MIL.**

1. Gas Meters – Earthwise has ordered a device to communicate with the meters
  - a. Boiler gas consumption meter is not reading.
  - b. Domestic hot water consumption meter is not reading
  - c. Main Gas consumption meter is not installed.
2. Electrical Meters
  - a. Nexgen panel is operating and recording KWh. Earthwise is working with Nexgen to acquire the IP address and to resolve any issues Earthwise might have communicating with Nexgen.
3. Water Consumption
  - a. Once Earthwise has installed the device that will allow them to communicate to the meters, SSRCx will verify the meter is reading properly.

**C. Graphics**

The majority of the graphics are complete with the exceptions of the floor plan needing to be linked to see the temperatures, relative humidity and space pressures on the floor. Once this link has been fixed, SSRCx will verify the graphics are complete.

**D. CAO Split System**

Outdoor air temperature was too cold for the split system to operate.

**II. Functional Performance Testing (FPTs)**

**A. Heating Hot Water System**

SSRCx and Earthwise verified the heating hot water system operated per the design intent in all modes of operation (Unoccupied, Occupied and Morning Warm-Up). During testing of the heating hot water system, SSRCx verified the operation of the Glycol tanks for both the hot water and chilled water system. There were no new issues to add to the MIL regarding this system.

**B. AHU-1 Issues and Resolutions**

SSRCx and Earthwise functionally tested the air-handling unit serving the Kitchen and Cafeteria/Gymnasium. The issues that were encountered are listed below. There are no open issues with the unit at this time.

1. Building pressure sensor was located in the kitchen to control the return fan to maintain a slight positive pressure. The location of the sensor was relocated to the Cafeteria/Gymnasium area in order to maintain the proper pressure in the building. With the sensor located where it was, it would not be able to control correctly due to the kitchen exhaust and dishwasher exhaust.
2. The VAV boxes in the kitchen were not reading any airflow at the start of testing. After troubleshooting the issue with no resolution, ETB (TAB) was called to assist in troubleshooting. It was discovered that a manual volume control damper installed in the branch duct serving the kitchen was partially closed. The manual volume damper was removed to allow air to be delivered to the kitchen VAV boxes.
3. Found the low side of the building static pressure tube referencing the corridor of the building. The project specifications require this sensing tube to be located outside of the building. This was corrected during the site visit to allow the building static pressure sensor to reference the correct pressure.

**C. Unit Heaters and Cabinet Unit Heaters**

SSRCx and Earthwise functionally tested all of the unit heaters and cabinet unit heaters to verify the equipment operated per the design intent. The open issues listed below should be reviewed by the project team.

1. UH-6 and UH-7 do not have a disconnect installed within line of sight of the unit. At this time, the unit can only be disconnected from power at the circuit breaker. SSRCx requests clarification from the design team and the electrical contractor regarding the need to install a disconnect for the equipment.

**D. Exhaust Fans (Grant and CAO Building)**

SSRCx and Earthwise functionally tested all of the exhaust fans in both buildings. The issues that were observed are listed below. **One more issue has been added to all the radon exhaust fans.**

1. EF-01 (Grant Building): The unit does not have a disconnect switch located at the fan. SSRCx was unable to verify the fan failure alarm due to the missing disconnect.

2. **EF-7, EF-8, and EF-9 (Grant Building): Air proving switches have not been installed in the riser of the duct. Refer to sheet M5.01 Note 13 for further detail.**
3. EF-01 (CAO Building): Power has not been terminated to the fan. Verification of proper operation cannot occur until power is available to the equipment.
4. **EF-01 (CAO Building): Air proving switches have not been installed in the riser of the duct. Refer to sheet M5.01 Note 13 for further detail.**

**E. Radiant Floor Heat**

SSRCx and Earthwise were able to test the radiant floor heating system located throughout the first floor. One issue was observed during testing and it was corrected and verified during this site visit. **During functional testing of the radiant floor heating system, SSRCx observed hammering in the piping manifolds when the control valves modulated. After the additional balancing of the system valves is complete, SSRCx will revisit the issue to determine if the hammering has stopped. At this time, the ball valves at the radiant panel have been closed down to prevent the hammering. This issue item has been added to the MIL.**

**F. Refrigerator/Freezer Alarms**

The refrigerator and freezer alarms have not been installed at the time of this site visit. This issue has been added to the MIL for tracking purposes.

**III. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit.


The contractor should provide written notification when open items on the Master Issues List have been addressed.

**IV. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact me with any questions or comments.

Sincerely,



Randall Dean, PE, CEM, CxA  
Commissioning Project Manager



October 5, 2018

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Revised Site Visit of October 2-3, 2018 – SSRCx Site Visit Report 20  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by David Corley, was on site on the above referenced date to functionally test the Heating Hot Water System, Unit Heaters, Cabinet Unit Heaters, Exhaust Fans, Air Handling Units and Dedicated Outside Air Handling Units. The attached Master Issues List (MIL) has been updated to reflect observations made during this site visit.

**I. Functional Performance Testing (FPTs)**

A. SSRCx and Earthwise conducted functional performance testing for the following:

- Air Handling Unit AHU-2 Heating section and Exhaust Fan.
- Exhaust Fans EF-2, EF-5, EF-7, EF-8, EF-9, KEF-1.
- BAS control points and graphics New issues were added to the master issues list (MIL).

Please refer to the attached Master Issues List (MIL) for more information on issue items observed during functional performance testing.

**II. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit. Fifteen new issues were added to the MIL. Seven (7) issues are shown as corrected.

The contractor should provide written notification when open items on the Master Issues List have been addressed.

**III. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

Please contact us with any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Randall Dean". The signature is written in a cursive, flowing style.

Randall Dean, PE, CEM, CxA

Commissioning Project Manager





February 22, 2019

Webster Grouten, Jr.  
Gilbane Program Management  
New Haven School Construction Program  
54 Meadow Street  
New Haven, CT 06519

**Re: Commissioning Revised Site Visit of February 20-21 2019 – SSRCx Site Visit Report 21  
NHPS – Helene Grant School  
New Haven, Connecticut  
SSRCx #1344061.0**

Dear Mr. Grouten,

SSRCx, represented by David Corley, was on site on the above referenced date to back check open MIL items, functionally test the radiant floor heating system and fin tube heating system and back check the deficiency items on the attached Master Issues List (MIL).

**I. Functional Performance Testing (FPTs)**

A. SSRCx and Earthwise conducted functional performance testing for the following:

- Radiant floor Heating and Fin Tube Heating
- BAS control points and graphics

Please refer to the attached Master Issues List (MIL) for more information on issue items observed during functional performance testing.

**II. Master Issues List (MIL)**

Issues on the MIL have been updated to every extent possible during this site visit. Any issues resolved will be removed and any additional issues found will be added and assigned to the associated contractor.

The current Master Issues List (MIL) is attached as part of this report. Please refer to the attached MIL for more information regarding the items listed above and a complete list of all issues noted during this commissioning site visit. Thirteen (13) new issues were added to the MIL. Eleven (11) issues were marked as corrected. The contractor should provide written notification when open items on the Master Issues List have been addressed.

**III. Commissioning 'Next Steps'**

Future commissioning activities will be coordinated with Gilbane and Giordano Construction.

The occupied AHU cooling sequences were not observed during this site visit as the cooling system has been shut down for the winter.

Please contact us with any questions or comments.

Sincerely,

A handwritten signature in black ink that reads "Randall Dean". The signature is written in a cursive, slightly slanted style.

Randall Dean, PE, CEM, CxA  
Commissioning Project Manager