

Quote/Bid Proposal for
**Installment Purchase Contract Lease/Purchase Financing for
“Energy Performance Contract”**

R.G. Timbs, Inc. at the request of:

Chateaugay Central School District
Franklin County, New York
(the “School District”)

1. Requests for written, email, or fax bids for providing Installment Purchase Contract (Lease/Purchase) Financing are due no later than **May 31, 2023 at 11:00 o’clock A.M. EST** at the office of:

R.G. Timbs, Inc.
11 Meadowbrook Road
Whitesboro, NY 13492
Attn: Jessica Bianchi`
Phone:(877) 315-0100 x2
Email: JessicaB@rgtimbsinc.net
Fax Bid Number: (315) 266-9212

2. The principal amount of the installment purchase contract will be \$3,080,309.
3. The lease purchase financing will be used to fund various projects of the School District as defined in “Project Scope” attached as “Exhibit – A” to this Request for Proposals. The energy service company is Day Automation Systems, 7931 Rae Blvd, Victor, New York 14564.
4. The interest rate quoted will be fixed as of the time of the bid and will remain constant throughout the lease term and will include any and all fees or expenses associated with this financing.
5. The financing entity will be provided with an opinion of Bond Counsel to the effect that the interest component of payments to be made by the School District pursuant to the financing contract (“interest”) is excluded from gross income for federal income tax purposes and is not an item of tax preference for purposes of the federal alternative minimum taxes. The opinion set forth in the preceding sentence will be subject to the condition that the School District comply with all requirements of the Internal Revenue Code of 1986, as amended (the “Code”) that must be satisfied subsequent to the date of the financing contract in order that interest be, or continue to be, excluded from gross income for federal income tax purposes. The School District will covenant to comply with all such requirements. Failure to comply with all such requirements may cause the interest to be included in the gross income for federal income tax purposes retroactive to the date of closing. Bond Counsel will not express opinion regarding other federal tax consequences arising with respect to the lease and the related documents. **The installment purchase contract will be designated by the School District as a “qualified tax-exempt obligation” pursuant to the provisions of Section 265 of the Code.**

6. All bids shall remain in effect for 30 days from the day quotes are due. It is expected that the District Board of Education will approve the lease purchase agreement at their regular meeting scheduled on June 12, 2023. It is anticipated that funds will need to be available on or about June 29, 2023. All quotes should be based upon this estimated time line.
7. Each bid accompanied by a repayment schedule listing principal, interest and total annual payments. Such schedule shall be compliant with Article 9 of the NYS Energy Law. **No award is final until formally approved by the Board of Education.** Upon verbal or written notification of successful bid award, (which shall be conditional upon successful negotiation of all transactional documents and opinions), the successful bidder shall be required to deliver the proposed forms of the leasing documents to R.G. Timbs, Inc. (address listed on page 1) and to Bond Counsel and School Attorney at:

Law offices of Timothy R. McGill, Esq.
Attention: Timothy R. McGill, Esq.
248 Willowbrook Office Park
Fairport, New York 14450
Tel: (585) 381-7470 Fax: (585) 318-7498
Email: mcgill_law@frontiernet.net

Ferrara Fiorenza PC
Attention: David E. Tinker
5010 Campuswood Drive
East Syracuse, New York 13057
Tel: (315) 437-7600
Email: detinker@ferrarafirm.com

8. **There shall be no prepayment penalty.**
9. The current S&P Global Ratings (“S&P”), a division of Standard & Poor’s Financial Services, LLC bond rating of the School District is “A+”.
10. The School District is in material compliance with its Continuing Disclosure requirements related to SEC Rule 15c2-12 for the past five years.
 - a. A copy of the School District’s most recent Continuing Disclosure Statement for fiscal year ending June 30, 2022 can be found here: <https://emma.msrb.org/P21648940-P11268403-P21695900.pdf>. A copy of the School District’s audited financial statements for the fiscal year ending June 30, 2022 can be found here: <https://emma.msrb.org/P21648940-P11268403-P21695901.pdf>
11. Among other factors, the low bid/quote will be determined by the lowest amount indicated for a total of payments with the requirement that the quote will meet all other conditions listed herein that are not affirmatively waived by the School District.
12. Prior to complete delivery of equipment, it will be necessary to make partial payment to vendor(s). In this case, unexpended funds shall be held in an interest bearing escrow fund account established by the winning bidder (the “Lessor”) in the name of the School District. Interest earnings will begin to accrue to the School District on the date of the deposit to the escrow fund. All interest earnings shall be applied to reduce the last scheduled payment(s) at the end of the financing term. Any unexpended funds after payment to all vendors shall be recalculated to reduce remaining payment amounts equally unless otherwise authorized by the School District. The escrow agent must be a bank or trust company located in and authorized to do such business in New York State. The bank must have an office in New York State which is stated in the proposed Escrow Contract. Investments shall be made solely at the prior written direction of the School District and shall be made in accordance with the requirements of General Municipal law Sections 10 and 11 and the School District’s formal investment policy. The School District is not

authorized to invest in mutual funds or similar liquid investment vehicles. All monies held in escrow fund are monies of the School District and shall not be subject to levy, attachment or lien of escrow agent. All charges of the escrow agent shall be paid by the Lessor.

13. The installment purchase contract financing will be in the amount of \$3,080,309. Interest will be due and payable on December 15, 2023 and semi-annually thereafter on June 15 and December 15. Principal will be payable on December 15, 2024 and due semi-annually thereafter on June 15 and December 15 until June 15, 2039. **The School District reserves the right to modify the above principal payments post sale, in any amounts as deemed necessary to achieve substantially level annual payment and/or equal annual payments.**
14. There shall be no additional fees for charges (including any Escrow Agent Fees) to the School District other than the annual debt service payments.
15. There shall be a \$1 (one dollar) buyout option in favor of the School District at lease expiration.
16. All manufacturers' warranties shall be assigned by the Lessor to the School District.
17. The Agreement shall be subject to cancellation by the School District annually and shall include the following paragraph:

“Pursuant to the requirements of Energy Law Section 9-103 and General Municipal Law section 109-b, the financing contract shall contain the appropriate executory clause which shall state in substance as required by such cited statutes that should financing contract payments not be appropriated by the School District the School District will not be obligated to pay the amounts due beyond the end of last funded fiscal year. The financing contract shall be deemed executory only to the extent of monies appropriated and available therefor, and no liability on account thereof shall be incurred by the School District beyond the amount of such monies. The financing contract is not a general obligation of the School District. Neither the full faith and credit nor the taxing power of the School District are pledged to the payment of any amount due or to become due under the financing contract. In the case of a failure to appropriate, the sole security shall be the improvements that are the subject of the financing contract. It is understood that neither this contract nor any representation by any public employee or officer creates any legal or moral obligation to appropriate or make available monies available for the purpose of the financing contract. In the event that no funds or insufficient funds are appropriated by the School District the financed improvements may be acquired and sold by or on behalf of the financing entity entitled to receive payments provided that any excess proceeds from such a sale, after deduction for and payment of fees, expenses and any taxes levied on the sale, shall be paid to the School District as provided in section 109-b of the General Municipal Law.
18. The sole security shall be the equipment, machinery or apparatus financed pursuant to the Agreement. In the event insufficient funds are appropriated to pay this obligation, such equipment, machinery and apparatus may be sold on behalf of the Lessor entitled to receive such payments, provided that any excess proceeds from such a sale shall be paid to the School District after deduction of obligations, taxes or other expenses of the Lessor.
19. Payments by the Lessor shall be made only at the written direction of the School District and may likely require multiple payments. Payments required by either check or electronic wiring depending on equipment vendor requirements. All associated costs for these services must be included in the quote.

20. Proposals will be evaluated based on total cost, ability to perform, requirements of the bidder, experience in New York State, and any other terms or conditions stipulated in each proposal.
21. The School District reserves the right to reject any or all bids/quotes, to waive any or all informalities, to request new proposals, and to award based upon the overall best interests of the School District. The attached Quote Proposal Form must be completed and included with each quote. The proposed forms of the lease purchase agreement, escrow contract and related documents must be submitted with the bid. Closing is subject to successful negotiation and approval of all such documents by counsel to the School District. The School District reserves the right to rescind an award due to failure of successful negotiation of the parties to agree to terms and conditions thereof.
22. All agreements and contractual conditions are required to conform with the laws of the State of New York, including, but not limited to, the General Municipal Law, the Energy Law, the Education Law, and regulations of the State Education Department and the Office of the State Comptroller. The School District's legal counsel will review and approve all documents on behalf of the Board of Education.
23. The Lessor shall be responsible for all of the Lessor's legal issuance and closing costs.
24. Annual Appropriation: The annual lease payments are subject to appropriation each year by the Board of Education of the School District. Certificates of Participation may not be issued without the consent of the School District.
25. The School District will not provide a legal description for each School District property in connection with this financing. In the event the Lessor requires this information for the purposes of making a fixture filing pursuant to the applicable provisions of the Uniform Commercial Code, the Lessor may obtain such information at its own effort and expense.
26. By submitting a bid/quote, each bidder is agreeing to abide by all provisions of this Request for Proposals. No terms or conditions of the Lessor may be imposed on the School District that supersede or contradict the terms set forth in this Request for Proposals.

Dated: May 24, 2023

EXHIBIT A

Project Scope

Article 1: Scope of Work

1.1. Specific Elements: The Work shall include the following:

1.1.1 In accordance with the Energy Code, replacement of 50% or more of light fixtures in spaces requires the installation of automatic lighting shut off and evaluation and inclusion of daylight zone controls for spaces as defined in the Energy Code. Day Automation will provide these controls as required.

1.1.2 ECM Descriptions

1.01 - LED Lighting Upgrade School Building, Bus Garage

Scope of Work

Lighting will be addressed school building:

The following lighting improvements will be made:

- Bulb/driver replacement will be installed according to the lighting tables included in the Lighting Appendix for this energy audit and on the drawings for the accompanying contract.
- All outdoor fixtures not already upgraded to LED will be upgraded.
- Screw-in and plug in incandescent and Compact Fluorescent bulbs (CFLs) will also be replaced with LED equivalent replacement bulbs.
- Existing lighting room occupancy sensors and switching to remain as currently installed.
- Day Automation will install mockup rooms, maximum one per building, in the district to demonstrate the proposed installation and verify that new fixtures will meet current needs.
- See project drawings for lighting tables and details.

- Installation will coordinate with the capital project(s) to ensure that lighting work will not interfere with capital work and will be scheduled with other improvements such as ceiling replacements.

2.01 - Convert to Day Automation Controls

School Building

Scope of Work

The following work (summary) will be performed:

Furnish and install all cable, conduit and tubing required for installation of DDC systems. “Mount” as used below shall mean to install in place including all required blocking, kindorf, and misc. materials in a finished condition. “Tube” as used below shall mean to furnish and install the required hard or soft copper or poly tubing as specified. Provide all required fittings, accessories and hangers, and terminate at both ends. “Wire” as used below shall mean to furnish and install the required conduit and/or conductors as specified and all required fittings, accessories and hangers, and terminate at both ends.

Wire types: Communication Wiring to be Cat 6. Sensor wiring shall be 18 AWG 2 Conductor Plenum Rated Wiring unless otherwise noted, Cardinal Supply PN D1801 or equivalent.

Chateaugay Central School District
Exhibit B – Scope of Services

Notes:

- Remove all unused controls and turn-over devices to Customer upon request, otherwise dispose of properly
- Provide controls removal for (45) UV's and VUV's.
- Provide controls removal for (12) Fan Coil Units.
- Provide controls removals for (18) AHU's and RTU's.
- Provide controls removals associated with all work included in the (22) new miscellaneous panels.

CONSTRUCTION:

- MAIN BUILDING CONTROLLERS (2 TOTAL):
 - Mount and wire main building controller panel, provide connection to owner's network and provide 110v power.
- Heat Exchanger, Pumps P-1 & P-2-Wire the following to new panel:
 - Remove (2) well temp sensors and install new.
 - Remove and reconnect (2) existing start/stop relays for P-1 & P-2.
 - Remove and reconnect (2) existing current transducers for P-1 & P-2.
 - Remove and reconnect (2) existing alarm inputs for P-1 & P-2.
 - Remove and reconnect (2) existing speed reference for P-1 & P-2.
 - Remove and reconnect (2) new feedback points for P-1 & P-2.
 - Remove and reconnect (2) existing outputs for 1/3 & 2/3rds valve.
 - Remove and reconnect existing DPT for hot water loop.
 - Mount and wire new Boiler room space sensor.
 - Remove and reconnect existing Boiler Room Humidity sensor and install new.
 - Remove and reconnect existing start/stop relay for EF-3.
 - Remove and reconnect existing current transducer for EF-3.
 - Wire new fill pressure sensor.
- Domestic Water Pumps, wire the following to new panel:
 - Remove and reconnect (5) existing start/stop relays for domestic water pumps.
 - Mount and wire (5) new current transducers for domestic water pumps, new wire pull.
 - Remove and wire (5) existing domestic water loop well temp sensors and replace with new.
- Miscellaneous Boiler Room and Convectector Points (move these points to new panel, wiring is 120v for convectector valves):
 - Wire existing generator status.
 - Wire existing Sump Pump alarm.
 - Wire existing Boiler Room sump alarm.
 - Wire existing High School sump alarm.
 - Wire (6) existing convectector valves.
- UNIT VENTILATORS (38 TOTAL):
 - Day Automation to provide a control panel and power supply with integrated magnetic mounting strips. Transformer, (1) start/stop relay for supply fan and (1) current sensor, are pre-mounted with a whip for wiring connections. Wire communications cable to controller.
 - Wire start/stop relay.
 - Wire current transducer for status.
 - Wire existing low limit temp sensor.
 - Wire existing mixed air damper actuator.
 - Wire existing output for heating valve.
 - Mount and wire new space temp sensor with slider (4 conductor).
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new mixed air sensor.
 - For (6) Unit ventilators:
 - Wire existing fin tube radiation valve.

Chateaugay Central School District
Exhibit B – Scope of Services

- For (6) Unit ventilators:
 - Wire existing DX start/stop enable.
 - Mount and wire DX safety interlock current transducer.
 - Wire DX cond. Water overflow switch.
- For (15) Unit Ventilators:
 - Wire existing exhaust fan start/stop relay.
 - Wire existing exhaust fan speed reference.
 - Provide new wire for interlocking damper with exhaust fan.
- For (13) Unit Ventilators:
 - Mount and wire new relay for exhaust fan.
 - Mount and wire new relay for current transducer.
 - Provide new wire for interlocking damper with exhaust fan.
- For (25) Unit Ventilators:
 - Wire existing face and bypass damper actuator.
- For (8) Unit Ventilator:
 - Mount and wire new face and bypass actuator.
- For (8) Unit Ventilator:
 - Mount and wire new mixed air damper actuator.
- For (8) Unit Ventilators:
 - Wire output for new control valve.
- For (36) Unit Ventilators:
 - Disconnect and reconnect wiring for new valve.
- For Library Unit Ventilator:
 - Mount and wire space sensor for sick room.
 - Mount and wire space sensor with slider (4 conductor required).
- LIBRARY UNIT VENTILATORS (2 TOTAL):
 - Day Automation to provide a control panel and power supply with integrated magnetic mounting strips. Transformer, (1) start/stop relay for supply fan and (1) current sensor, are pre-mounted with a whip for wiring connections. Wire communications cable to controller.
 - Wire start/stop relay.
 - Wire current transducer for status.
 - Wire existing low limit temp sensor.
 - Mount and wire mixed air damper actuator.
 - Wire new output for new valve.
 - Mount and wire new space temp sensor with slider (4 conductor).
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new mixed air sensor.
 - For (1) Unit ventilators:
 - Wire new fin tube radiation valve.
 - For (1) Unit ventilators:
 - Wire existing DX relay enable.
 - Mount and wire DX safety interlock current transducer.
 - For (1) Unit Ventilators:
 - Mount and wire new relay for exhaust fan.
 - Mount and wire new relay for current transducer.
 - Provide new wire for interlocking damper with exhaust fan.
 - For (1) Unit Ventilator:
 - Mount and wire new face and bypass actuator.
 - For (2) Unit Ventilator:
 - Mount and wire new mixed air damper actuator.

- VERTICAL UNIT VENTILATORS (5 TOTAL):
 - Day Automation to provide a control panel and power supply with integrated magnetic mounting strips. Transformer, (1) start/stop relay for supply fan and (1) current sensor, are pre-mounted with a whip for wiring connections. Wire communications cable to controller.
 - Wire supply fan start/stop relay.
 - Wire supply fan current transducer for status.
 - Wire exhaust fan start/stop relay.
 - Wire exhaust fan current transducer.
 - Wire existing low limit temp sensor.
 - Wire existing mixed air damper actuator.
 - Wire existing output for new heating valve, disconnect and reconnect wiring.
 - Mount and wire new space temp sensor with slider (4 conductor).
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new mixed air sensor.
 - Mount and wire new exhaust air temp sensor.
 - Wire output for convector (1 location only).
- ADMIN OFFICE FAN COIL UNITS (8 TOTAL):
 - Day Automation to provide a control panel and power supply. Wire communications cable to controller.
 - Wire existing supply fan start/stop relay.
 - Wire existing supply fan current transducer for status.
 - Wire existing exhaust fan current transducer.
 - Wire existing low limit temp sensor.
 - Wire existing mixed air damper actuator.
 - Wire existing output for heating valve.
 - Wire existing output for exhaust fan vfd speed.
 - Wire new output for OA isolation damper interlock with supply fan.
 - Mount and wire new space sensor, provide (4) conductor for sensor bias.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new mixed air sensor.
 - Mount and wire new exhaust fan start/stop relay.
 - Wire new output for exhaust air damper interlock.
 - Wire existing DX start/stop enable.
 - Mount and wire DX safety interlock current transducer.
 - Wire existing DX cond. water overflow switch.
 - Wire new output for hot water radiation valve (2 units only).
- CORRIDOR FAN COIL UNIT (1 TOTAL):
 - Day Automation to provide a control panel and power supply. Wire communications cable to controller.
 - Wire existing supply fan start/stop relay.
 - Wire existing supply fan current transducer for status.
 - Wire existing low limit temp sensor.
 - Wire existing mixed air damper actuator.
 - Wire existing output for heating valve.
 - Wire new output for OA isolation damper interlock with supply fan.
 - Remove existing space temp sensor and reuse existing wiring.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new mixed air sensor.

- FAN COIL UNITS FCU-9 & FCU-10 (2 TOTAL):
 - Day Automation to provide a control panel and power supply. Wire communications cable to controller.
 - Wire existing supply fan start/stop relay.
 - Wire existing supply fan current transducer for status.
 - Wire exhaust fan current transducer.
 - Wire existing low limit temp sensor.
 - Wire existing mixed air damper actuator.
 - Wire existing output for heating valve.
 - Wire existing output for exhaust fan vfd speed.
 - Wire new output for OA isolation damper interlock with supply fan.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new mixed air sensor.
 - Mount and wire new space temp sensor with slider (4 conductor).
 - Mount and wire new exhaust fan start/stop relay.
 - Wire new output for exhaust air damper interlock.
 - Wire existing DX start/stop enable.
 - Mount and wire DX safety interlock current transducer.
 - Wire existing DX cond. water overflow switch.
 - Extend wiring from existing controller location to existing radiation valve (1 location).
 - Wire existing radiation valve (1 location).
- PANEL FOR AHU-1 & AHU-2 (2 UNITS TOTAL):
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - Mount and wire new space temp sensor with slider (4 conductor, 1 unit only).
 - Mount and wire new discharge air temp sensor, reuse wiring.
 - Mount and wire new mixed air sensor, reuse wiring.
 - Mount and wire Stage temp sensor, reuse wiring.
 - Wire existing supply fan VFD status.
 - Wire existing supply fan VFD alarm.
 - Wire existing low limit temp sensor.
 - Mount and wire DX safety interlock current transducer.
 - Wire existing supply fan VFD enable/disable.
 - Wire (3) relays for stages of DX cooling.
 - Wire existing mixing damper.
 - Wire new output for existing relief damper.
 - Wire existing hot water valve.
 - Wire (2) existing fin tube radiation valves (AHU-1 only).
 - Wire (1) Auditorium North Valve, disconnect and reconnect for new valve (AHU-1 only).
 - Wire (3) existing Auditorium North convector valve, disconnect and reconnect for new valve (AHU-2 only).
 - Wire existing output for supply fan VFD speed.
 - Wire existing input for HS sump pump (AHU-2 only).
- PANEL FOR AHU-3 & AHU-4 ES GYM AND PRE-K (2 UNITS TOTAL):
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - AHU-3:
 - Mount and wire (2) new gym space temp sensors, reuse wiring.

- Mount and wire new discharge air temp sensor, reuse wiring.
- Mount and wire new HRW discharge air temp sensor, reuse wiring.
- Mount and wire new return air temp sensor, reuse wiring.
- Mount and wire new exhaust air temp sensor, reuse wiring.
- Mount and wire new ceiling temp sensor, reuse wiring.
- Wire existing input for supply fan VFD drive status.
- Wire existing input for supply fan VFD alarm.
- Wire existing input for exhaust fan VFD status.
- Wire existing input for exhaust fan VFD alarm.
- Wire existing input for Gym exterior lights.
- Wire existing input for low temp sensor.
- Wire existing unput for space humidity.
- Wire existing input for floor humidity.
- Wire existing supply fan VFD enable.
- Wire exiting output for exhaust fan VFD enable.
- Wire existing output for HRW bypass damper.
- Wire existing output for HW coil valve.
- Wire existing output for (2) Gym FTR valves.
- Wire existing output for supply fan VFD speed.
- Wire existing output for exhaust fan VFD speed.
- AHU-4:
 - Mount and wire new space temp sensor with slider (4 conductor, 1 unit only).
 - Mount and wire new office temp sensor with slider (4 conductor, 1 unit only).
 - Mount and wire new discharge air temp sensor, reuse wiring.
 - Mount and wire new mixed air temp sensor, reuse wiring.
 - Mount and wire new return air temp sensor.
 - Mount and wire new exhaust temp sensor.
 - Wire existing input for supply fan VFD drive status.
 - Wire existing input for supply fan VFD alarm.
 - Wire existing input for return fan VFD status.
 - Wire existing input for return fan VFD alarm.
 - Wire existing input for low temp sensor.
 - Wire existing output for supply fan VFD enable.
 - Wire exiting output for return fan VFD enable.
 - Wire existing output for mixing damper.
 - Wire new output for relief damper.
 - Wire existing output for HW coil valve.
 - Wire existing output for supply fan VFD speed.
 - Wire existing output for exhaust fan VFD speed.
 - Wire existing relay for Exterior Lights Enable/Disable.
- HVU-3, LOBBY AREA:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - Mount and wire new space temp sensor, reuse wiring.
 - Mount and wire new discharge air temp sensor.
 - Wire existing input for supply fan status.
 - Wire existing output for supply fan enable.
 - Wire existing hot water valve output.

- Wire existing radiation valve output.
- Mount and wire (3) new space sensors for lobby area radiation.
- Wire (3) new valve outputs for lobby area.
- RTU-1 LIBRARY AREA:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new space temp sensor with slider (4 conductor, 1 unit only).
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new reheat coil supply air temp sensor, reuse wiring.
 - Mount and wire new current transducer for exhaust fan status.
 - Wire existing input for supply fan status.
 - Wire existing low temp sensor, reuse wiring.
 - Mount and wire (4) CO2 sensors.
 - Mount and wire DX safety interlock current transducer.
 - Wire existing output for supply fan VFD enable.
 - Wire existing output for DX enable.
 - Mount and wire new relay for exhaust fan enable.
 - Wire existing mixing damper actuator.
 - Wire existing output for HW reheat coil valve.
 - Wire existing output for exhaust fan VFD speed.
- VHR-4 & KITCHEN AREA:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new space temp sensor with slider (4 conductor, 1 unit only).
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new return air temp sensor, reuse wiring.
 - Mount and wire new exhaust air temp sensor, reuse wiring.
 - Mount and wire new HR wheel temp sensor, reuse wiring.
 - Mount and wire new reheat coil supply air temp sensor, reuse wiring.
 - Wire existing input for supply fan status.
 - Wire new input for exhaust fan VFD alarm.
 - Mount and wire new current transducer input for exhaust fan VFD status.
 - Mount and wire new current transducer input for HR wheel status.
 - Wire existing status input for PRE-7 hood.
 - Wire existing status input for PRE-8 hood.
 - Wire existing input for sump alarm.
 - Wire existing input for Elementary sump alarm.
 - Wire existing low temp sensor, reuse wiring.
 - Wire existing kitchen static pressure sensor.
 - Wire existing output for supply fan VFD enable.
 - Wire existing output for exhaust fan VFD enable.
 - Wire existing output for HR wheel enable.
 - Wire existing output for recirculation damper.
 - Wire existing output for F/B damper.
 - Wire existing output for steam coil valve.
 - Wire existing output for steam reheat coil valve.

- RTU-2:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new (2) space sensors, wire cat6 space sensor cable for new digital display.
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new reheat coil supply air temp sensor, reuse wiring.
 - Mount and wire new current transducer for exhaust fan status.
 - Mount and wire current transducer input for supply fan status, reuse wiring.
 - Wire existing low temp sensor, reuse wiring.
 - Mount and wire DX safety interlock current transducer.
 - Wire existing output for supply fan enable.
 - Wire existing output for DX enable.
 - Mount and wire new relay for exhaust fan enable.
 - Wire existing mixing damper actuator.
 - Wire existing output for HW reheat coil valve, disconnect and reconnect to new valve.
 - Wire existing output for exhaust fan VFD speed.
 - Wire existing output for FTR valve, extend wire from existing controller location in Principal's office to RTU panel located in Elem. Administration.
- PANEL FOR VHR1 & HVU1: & VHR2
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - VHR1:
 - Mount and wire space temp sensor, reuse wiring.
 - Mount and wire new discharge air temp sensor, reuse wiring.
 - Mount and wire new return air temp sensor.
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new exhaust air temp sensor, reuse wiring.
 - Mount and wire new HR wheel sensor, reuse wiring.
 - Wire existing input for supply fan VFD drive status.
 - Wire new input for supply fan VFD alarm.
 - Wire new input for supply fan feedback, extend wires from panel in MER260.
 - Wire existing input for exhaust fan VFD status.
 - Wire new input for exhaust fan VFD alarm.
 - Wire new input for exhaust fan feedback.
 - Mount and wire new current transducer for HR Wheel status.
 - Wire existing input for Emergency shutdown.
 - Wire existing input for low temp sensor.
 - Wire existing input for OA humidity.
 - Wire existing supply fan VFD enable, extend wires from panel in MER260.
 - Wire exiting output for exhaust fan VFD enable, extend wires from panel in MER260.
 - Wire existing output for HR wheel enable.
 - Wire existing output for intake hood.
 - Wire existing output for pole lights.
 - Wire existing output for Gym wall pack lights.
 - Wire existing output for recirc damper.
 - Wire existing output for F&B damper.

- Wire existing output for return air damper AD-1.
- Remove (2) existing damper actuators, mount and wire (2) new damper actuators.
- Wire output for new steam coil valve.
- Wire existing output for supply fan VFD speed.
- Wire existing output for exhaust fan VFD speed.
- Mount and wire (2) space CO2 sensors.
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- VHR2:
 - Mount and wire new space temp sensor.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new return air temp sensor.
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new exhaust air temp sensor, extend wire from MEC02 to MEC01.
 - Mount and wire new HR wheel supply sensor, extend wire from MEC02 to MEC01.
 - Wire new input for supply fan VFD drive status.
 - Wire new input for supply fan VFD alarm.
 - Wire new input for supply fan feedback.
 - Wire existing input for exhaust fan VFD status.
 - Wire new input for exhaust fan VFD alarm.
 - Wire new input for exhaust fan feedback.
 - Mount and wire new current transducer for HR Wheel status.
 - Wire existing input for low temp sensor, extend wire to new panel.
 - Wire existing supply fan VFD enable extend wire from FLNC6 TO MEC01.
 - Wire exiting output for exhaust fan VFD enable extend wire from FLNC6 TO MEC01.
 - Wire existing output for HR wheel enable, extend wire to new panel.
 - Wire existing output for OA intake hood, extend wire to new panel.
 - Wire existing output for recirc damper, extend wire to new panel.
 - Wire existing output for F&B damper, extend wire to new panel.
 - Wire existing output for return air damper AD-1, extend wire to new panel.
 - Remove (2) existing damper actuators, mount and wire (2) new damper actuators.
 - Wire output for new steam coil valve.
 - Wire new output for supply fan VFD speed extend wire from FLNC6 TO MEC01.
 - Wire new output for exhaust fan VFD speed extend wire from FLNC6 TO MEC01.
 - Mount and wire (2) space CO2 sensors.
- HVU-1:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - Mount and wire new space temp sensor.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new return air temp sensor.
 - Wire new input for supply fan status.
 - Wire new input for exhaust fan PRE-3 status.
 - Wire new input for exhaust fan PRE-4 status.
 - Wire new input for supply fan enable.
 - Wire new input for exhaust fan PRE-3 enable.
 - Wire new input for exhaust fan PRE-4 enable.
 - Wire new output for steam coil valve.

- HVU-2:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - Mount and wire new space temp sensor.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new return air temp sensor.
 - Wire new input for supply fan status.
 - Wire new input for supply fan enable.
 - Wire new output for steam coil valve.
- PANEL FOR VHR3:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - VHR3:
 - Mount and wire new space temp sensor with slider (4 conductor).
 - Mount and wire new discharge air temp sensor, reuse wiring.
 - Mount and wire new return air temp sensor.
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new exhaust air temp sensor, reuse wiring.
 - Mount and wire new HR wheel supply sensor, reuse wiring.
 - Wire existing input for supply fan status.
 - Wire existing input for exhaust fan status.
 - Mount and wire new current transducer for HR Wheel status.
 - Wire existing input for low temp sensor, extend wire to new panel.
 - Wire existing supply fan enable.
 - Wire exiting output for exhaust fan enable.
 - Wire existing output for HR wheel enable.
 - Wire existing output for OA intake hood.
 - Wire existing output for recirc damper.
 - Wire existing output for F&B damper.
 - Wire output for new steam coil valve.
- PANEL FOR VHR5 AND SCIENCE ROOMS:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - VHR5:
 - Mount and wire new discharge air temp sensor, reuse wiring.
 - Mount and wire new return air temp sensor.
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new exhaust air temp sensor, reuse wiring.
 - Mount and wire new HR wheel supply sensor, reuse wiring.
 - Wire existing input for supply fan status, reuse wiring.
 - Wire existing input for exhaust fan status, reuse wiring.
 - Mount and wire new current transducer for HR Wheel status.
 - Wire existing input for low temp sensor, reuse wiring.
 - Wire existing supply fan enable.
 - Wire exiting output for exhaust fan enable.

- Wire existing output for HR wheel enable.
- Wire existing output for recirc damper.
- Wire existing output for F&B damper.
- Wire output for new steam coil valve.
- PANEL FOR VHR6:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - VHR6:
 - Mount and wire new space temp sensor.
 - Mount and wire new discharge air temp sensor.
 - Mount and wire new return air temp sensor.
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new exhaust air temp sensor.
 - Mount and wire new HR wheel supply sensor.
 - Mount and wire new reheat coil supply air temp sensor.
 - Wire existing input for supply fan status.
 - Wire existing input for exhaust fan status.
 - Mount and wire new current transducer for HR Wheel status.
 - Wire existing input for low temp sensor.
 - Wire existing supply fan enable.
 - Wire exiting output for exhaust fan enable.
 - Wire existing output for HR wheel enable.
 - Wire existing output for recirc damper.
 - Wire output for new steam coil valve.
- PANEL FOR AHU-1 MUSIC:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.
 - AHU-1:
 - Mount and wire new space temp sensor.
 - Mount and wire new space temp sensor with slider (4 conductor).
 - Mount and wire new discharge air temp sensor, reuse wiring.
 - Mount and wire new mixed air temp sensor.
 - Mount and wire new supply fan status.
 - Mount and wire new exhaust fan status.
 - Wire existing input for low temp sensor.
 - Wire existing supply fan enable.
 - Mount and wire exhaust fan start/stop relay.
 - Mount and wire new mixing damper actuator.
 - Mount and wire new F&B damper actuator.
 - Mount and wire new relief damper actuator.
 - Wire output for new steam coil valve.
- PANEL FOR STORAGE 213, AHU-2:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide 120v power.

Chateaugay Central School District
Exhibit B – Scope of Services

- Mount and wire new space temp sensor with slider (4 conductor, 1 unit only).
- Mount and wire new discharge air temp sensor, reuse wiring.
- Mount and wire new mixed air sensor, reuse wiring.
- Mount and wire new current transducer for fan status.
- Wire existing low limit temp sensor.
- Mount and wire DX safety interlock current transducer.
- Wire existing supply fan relay enable .
- Wire existing DX cooling enable relay.
- Wire new output for steam coil valve.
- Mount and wire new mixed air damper actuator.

MISCELLANEOUS PANELS:

- ACU-1, DATA 126A:
 - Disconnect wiring and remove existing control panel. Remove all existing temp sensors and replace with new, extend all existing wiring to new panel.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new space sensor, reuse wiring.

- REHEAT COILS RH-1 & RH-2 (2 REHEAT COILS TOTAL):
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new space sensor, reuse existing wire.
 - Mount and wire supply air temp sensor, reuse existing wire.

- Disconnect existing valve and reconnect to new valve.
- STORAGE 213, MISC PANEL 1:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new current transducer for EF PRE-2, provide new wire pull.
 - Mount and wire new space temp sensor, provide new wire pull.
 - Mount and wire current transducer for CUH, provide new wire.
 - Mount and wire (2) new current transducers for EF-3-198 & EF-3-210, provide new wire pull.
 - Mount and wire new relay enable for PRE-2.
 - Mount and wire new relay for CUH-2.
 - Wire output for CUH steam coil valve, provide new wire.
 - Mount and wire new (2) new relays for EF-3-198 & EF-3-210.

- JANITOR 298b, MISC PANEL 2:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new space temp sensor, provide new wire pull
 - Wire existing control valve, disconnect/reconnect wiring at valve.

- VESTIBULE 243A, MISC PANEL 3:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new space temp sensor, provide new wire pull.
- MISC PANEL 6:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Wire existing exhaust fan status.
 - Wire existing Crawl Space Humidity sensor to new panel.
 - Wire existing exhaust fan relay enable.
 - Wire (2) existing damper actuators.
- MISC PANEL 7:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Wire existing exhaust fan status.
 - Wire existing exhaust fan relay enable.
 - Wire (2) existing damper actuators.
- BOILER ROOM, MISC PANEL 8 (3 UNIT HEATERS TOTAL):
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new space sensor, new wire pull.
 - Mount and wire relay enable, new wire pull.
 - Wire output to floating point valve (4 conductor).
- MISC PANEL 9:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Wire existing exhaust fan status.
 - Wire exiting South crawl space humidity sensor, new wire pull.
 - Wire existing exhaust fan relay enable.
 - Wire (3) existing louver damper actuators.
- MISC PANEL 10:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Wire (4) existing louver damper actuators.

- STORAGE 139, MISC 17:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire (1) new space temp sensors, provide new wire pull.
 - Wire output to existing radiation valve, provide new wire pull.
 - Wire (2) existing current transducers for exhaust fans, provide new wire pull.
 - Mount and wire (2) new current transducers, provide new wire pull.
 - Wire (2) existing relay enables, provide new wire pull.
- COORIDOR 118A, MISC 18:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire (2) new space temp sensors, provide new wire pull.
 - Wire output to existing radiation valve, provide new wire pull.
 - Wire output for existing CUH valve, provide new wire pull.
 - Wire existing current transducer for CUH, provide new wire pull.
 - Wire existing relay enable for CUH, provide new wire pull.
- COORIDOR 233:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire
 - new space temp sensors, provide new wire pull.
 - Wire output to existing radiation valve, provide new wire pull.
 - Wire output for existing CUH valve, provide new wire pull.
 - Wire existing current transducer for CUH, provide new wire pull.
 - Wire existing relay enable for CUH, provide new wire pull.
- REVISED MISC. PANELS:
 - POWER PANELS (13 TOTAL):
 - Mount and wire power panel to supply 24v to miscellaneous panels, provide 120v power to power panels.
 - CRAWLSPACE PANELS, C-1 THROUGH C-5 (5 PANELS TOTAL):
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, reuse wire.
 - Wire output to control valve, reuse wire.
 - DRY STORAGE 186 (2 PANELS TOTAL):
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, reuse wire.
 - Mount and wire supply air temp sensor, reuse wire.
 - Mount and wire current transducer for fan status, reuse wire.
 - Mount and wire start/stop relay for fan, reuse wire.
 - Wire output for hot water valve, reuse wire.

- MAIN RECEIVING 185:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, reuse wire.
 - Mount and wire supply air temp sensor, reuse wire.
 - Mount and wire current transducer for fan status, reuse wire.
 - Mount and wire start/stop relay for fan, reuse wire.
 - Wire output for hot water valve, reuse wire.
- COORIDOR 233:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Mount and wire current transducer, provide new wire pull.
 - Wire output to control valve, provide new wire pull.
- COORIDOR 244, MISC4A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire (2) new space sensors, provide new wire pull.
 - Wire existing exhaust status, reuse existing wiring.
 - Wire existing exhaust fan enable, reuse existing wiring.
 - Wire (2) new outputs for convector valves, provide new wire pull.
- GYM STORAGE 228, MISC4B:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Wire new output for steam coil valve, provide new wire pull.
- PRE-K 232, MISC5:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Disconnect and reconnect existing wiring for new steam radiation valve, reuse existing wiring.
- COORIDOR 233, MISC5A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Disconnect and reconnect existing wiring for existing exhaust fan status, reuse existing wiring.
 - Disconnect and reconnect existing wiring for existing exhaust fan relay, reuse existing wiring.

- Corridor 233, MISC5B:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire (2) new space sensors, provide new wire pull.
 - Disconnect and reconnect existing wiring for (2) new steam radiation valves, reuse existing wiring.
- Corridor 233, MISC5C:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire (2) new space sensors, provide new wire pull.
 - Disconnect and reconnect existing wiring for (2) new steam radiation valves, reuse existing wiring.
- MISC11A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, reuse wire.
 - Mount and wire current transducer for fan status, reuse wire.
 - Mount and wire start/stop relay for fan, reuse wire.
 - Wire output for steam valve, reuse wire disconnect/reconnect.
- MISC11B:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Mount and wire current transducer for fan status, reuse wire.
 - Mount and wire start/stop relay for fan, reuse wire.
 - Wire output for steam valve, reuse wire & disconnect/reconnect.
- MAIN ELECTRICAL ROOM, MISC12:
 - Disconnect wiring and remove existing controllers.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Wire (2) existing alarm points for walk in cooler and freezer, reuse wiring.
 - Wire existing input for Building Fire Alarm, reuse wiring.
 - Wire (3) existing outputs for lighting, reuse existing wire.
- MISC12A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Wire (2) existing exhaust fan status inputs, reuse wiring.
 - Wire (2) existing exhaust fan enables, reuse wiring.
 - Wire new exhaust fan damper interlock (1 location), provide new wire pull.

- MISC12B:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new exhaust fan start/stop relay, provide new wire pull.
 - Mount and wire new exhaust fan current transducer, provide new wire pull.
- MISC12C:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire (2) exhaust fan start/stop relays, provide new wire pull.
 - Mount and wire (2) exhaust fan current transducers, provide new wire pull.
- MISC12D:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new exhaust fan start/stop relay, provide new wire pull.
 - Mount and wire new exhaust fan current transducer, provide new wire pull.
- MISC13A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend new 24v power.
 - Mount and wire new space sensor, reuse wire.
 - Wire (1) existing exhaust fan status inputs, reuse wiring.
 - Wire (1) existing unit heater fan status inputs, reuse wiring.
 - Wire (1) existing exhaust fan enable relay, reuse wiring.
 - Wire (1) existing unit heater relay, reuse wiring.
 - Wire (2) existing exhaust fan enables, reuse wiring.
 - Wire output for steam valve, reuse wire disconnect/reconnect.
- MISC13B:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend new 24v power.
 - Mount and wire new space sensor, reuse wire.
 - Wire (1) existing unit heater fan status inputs, reuse wiring.
 - Wire (1) existing unit heater relay, reuse wiring.
 - Wire output for steam valve, reuse wire disconnect/reconnect.
- MISC14:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend new 24v power.
 - Mount and wire (2) new space sensors, provide new wire pull.
 - Mount and wire (2) current transducers for exhaust fan status, provide new wire pull.
 - Mount and wire (2) relays for exhaust fan start/stop, provide new wire pull.
 - Interlock (2) damper actuators with exhaust fans, provide new wire pull.
 - Wire output for (2) steam valves, provide new wire pull.

- MISC14A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24V power.
 - Mount and wire exhaust fan start/stop relay, provide new wire pull.
 - Mount and wire exhaust fan current transducer, provide new wire pull.
- MISC14B:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and provide new 120v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Wire new output for steam coil valve, provide new wire pull.
- FTR-A 222:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor with slider, (4) conductor wire, provide new wire pull.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.
- FTR-A 220A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.
- FTR-A 220 (263):
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor with slider, (4) conductor wire, provide new wire pull.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.
- FTR-A 220B (263):
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor with slider, (4) conductor wire, provide new wire pull.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.
- FTR-A 267:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Mount and wire new space sensor with slider, (4) conductor wire, provide new wire pull.
 - Mount and wire new current transducer for exhaust fan, provide new wire pull.
 - Mount and wire start/stop relay, provide new wire pull.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.

- FTR-A 233A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Mount and wire new current transducer for exhaust fan, provide new wire pull.
 - Mount and wire exhaust fan start/stop relay, reuse wiring.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.
- FTR-A 231:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new space sensor, provide new wire pull.
 - Mount and wire new space sensor (4 conductor required), provide new wire pull.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.
- MISC15:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire new current transducer for exhaust fan, provide new wire pull.
 - Mount and wire start/stop relay, provide new wire pull.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.
- MISC15A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire space sensor, provide new wire.
 - Wire new output for steam coil valve, reuse wiring, disconnect/reconnect.
- MISC15B:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire exhaust fan start/stop relay.
 - Mount and wire current transducer.
- MISC15C:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire exhaust fan start/stop relay.
 - Mount and wire current transducer.
- MISC15D:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Wire (2) existing exhaust fan start/stop relays, reuse wire.

- Wire (2) existing current transducers, reuse wiring.
- MISC15E:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Wire (2) existing exhaust fan start/stop relays, reuse wire.
 - Wire (2) existing current transducers, reuse wiring.
- MISC16:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire space temp sensor, provide new wire.
 - Wire output for steam valve, reuse wiring, disconnect/reconnect.
- MISC16A:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire space temp sensor, provide new wire.
 - Wire output for steam valve, reuse wiring, disconnect/reconnect.
 - Wire start/stop relay, reuse wiring.
- MISC16B:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire space temp sensor, provide new wire.
 - Wire output for steam valve, reuse wiring, disconnect/reconnect.
- MISC16C:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire space temp sensor, provide new wire.
 - Wire output for steam valve, reuse wiring, disconnect/reconnect.
- MISC16D:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire space temp sensor, provide new wire.
 - Mount and wire space temp sensor with slider (4 conductor required), provide new wire.
 - Wire output for steam valve, reuse wiring, disconnect/reconnect.
- MUSIC MISCA:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire (2) space temp sensors, provide new wire.
 - Mount and (2) wire space temp sensor with slider (4 conductor required), provide new wire.

- Wire output for (2) steam valves, provide new wire.
- MUSIC MISCB:
 - Disconnect wiring and remove existing controllers. Remove all existing temp sensors and replace with new.
 - Mount and wire new control panel, wire communication cable to panel, wire existing control points to new panel and extend 24v power.
 - Mount and wire space temp sensor, provide new wire.
 - Mount and wire current transducer for CUH status, provide new wire.
 - Mount and wire start/stop relay for CUH, provide new wire.
 - Wire output for new steam coil valve, provide new wire.
- ANNEX:
 - MAIN BUILDING CONTROLLER:
 - Mount and wire main building controller panel, provide connection to owners network and provide 110v power.
 - FURNACE PANEL:
 - Mount and wire control panel, provide 120v power and extend communication cable to panel.
 - Mount and wire new space temp sensor with slider (4 conductor required), provide new wire.
 - Mount and wire new supply air sensor, reuse existing wiring.
 - Mount and wire new mixed air temp sensor, reuse existing wiring.
 - Wire input for furnace status, reuse existing wiring.
 - Wire input for RAF status, reuse existing wiring.
 - Wire input for filter status, reuse existing wiring.
 - Wire furnace start/stop relay, reuse existing wiring.
 - Wire RAF start/stop relay, reuse existing wiring.
 - Wire return air damper, reuse existing wiring.
 - Wire OAD, reuse existing wiring.
 - Wire output for RAF speed, reuse existing wiring.
 - SHOP PANEL:
 - Mount and wire control panel, provide 120v power and extend communication cable to panel.
 - Mount and wire new space temp sensor with slider (4 conductor required), provide new wire.
 - Mount and wire new supply air sensor, reuse existing wiring.
 - Mount and wire new space temp sensor, provide new wire.
 - Wire input for furnace status, reuse existing wiring.
 - Wire input for furnace status, reuse existing wiring.
 - Mount and wire new current transducer for exhaust fan PRE-28.
 - Wire furnace start/stop relay, reuse existing wiring.
 - Mount and wire start/stop relay for PRE-28, provide new wiring.
 - Mount and wire electric heat start/stop relay, provide new wiring.
 - MUA-1:
 - Reuse existing panel, mount new back plate in existing panel and reconnect to 120v power.
 - Mount and wire new space sensor, reuse existing wiring.
 - Mount and wire space temp sensor with slider (4 conductor required), provide new wire.
 - Mount and wire new supply air sensor, reuse existing wiring.
 - Mount and wire new mixed air temp sensor, reuse existing wiring.
 - Mount and wire new OA sensor, reuse existing wiring.
 - Wire input for supply fan status, reuse existing wiring.
 - Wire input for filter status, reuse existing wiring.
 - Wire (5) inputs for exhaust fan status, reuse existing wiring.

- Wire input for space humidity, reuse existing wiring.
- Wire input for outside air humidity, reuse existing wiring.
- Wire input for space humidity, reuse existing wiring.
- Wire output for supply fan start/stop, reuse existing wiring.
- Wire output for gas valve enable, reuse existing wiring.
- Wire (5) outputs for exhaust fan start/stop, reuse existing wiring.
- Wire output for mixed air damper actuator, reuse existing wiring.
- Wire output for exhaust fan PRE-2 exhaust fan speed.
- MUA-2:
 - Reuse existing panel, mount new back plate in existing panel and reconnect to 120v power.
 - Mount and wire new space sensor, reuse existing wiring.
 - Mount and wire space temp sensor with slider (4 conductor required), provide new wire.
 - Mount and wire new supply air sensor, reuse existing wiring.
 - Mount and wire new mixed air temp sensor, reuse existing wiring.
 - Mount and wire new OA sensor, reuse existing wiring.
 - Wire input for supply fan VFD alarm, reuse existing wiring.
 - Wire input for supply fan status, reuse existing wiring.
 - Wire input for Dust Collector status, reuse existing wiring.
 - Wire input for exhaust fan status, reuse existing wiring.
 - Wire input for filter status, reuse existing wiring.
 - Wire input for space humidity, reuse existing wiring.
 - Wire input for space DPT, reuse existing wiring.
 - Wire output for supply fan start/stop, reuse existing wiring.
 - Wire output for gas valve enable, reuse existing wiring.
 - Wire output for Dust Collector start/stop, reuse existing wiring.
 - Wire output for exhaust fan start/stop, reuse existing wiring.
 - Wire output for exterior lights, reuse existing wiring.
 - Wire output for exhaust fan exhaust fan speed, reuse existing wiring.
 - Wire output for supply fan speed, reuse existing wiring.
- MISC. PANEL 1, FINISHING ROOM:
 - Mount and wire new control panel, provide 110v power and wire communication cable to panel.
 - Mount and wire new space temp sensor with slider (4 conductor required, provide new wire.
 - Wire existing exhaust fan status, reuse existing wiring.
 - Wire output for electric heat, reuse existing wiring.
- MISC. PANEL 2, FINISHING ROOM:
 - Mount and wire new control panel, provide 110v power and wire communication cable to panel.
 - Mount and wire new space temp sensor, reuse existing wiring.
 - Wire existing electric wall heater status, reuse existing wiring.
 - Wire output for electric wall heater, reuse existing wiring.
- MISC. PANEL 3, FINISHING ROOM:
 - Mount and wire new control panel, provide 110v power and wire communication cable to panel.
 - Mount and wire new space temp sensor, reuse existing wiring.
 - Wire existing electric wall heater status, reuse existing wiring.
 - Wire output for electric wall heater, reuse existing wiring.
- MISC. PANEL 4, FINISHING ROOM:
 - Mount and wire new control panel, provide 110v power and wire communication cable to panel.
 - Mount and wire new space temp sensor, reuse existing wiring.
 - Wire existing gas unit heater status, reuse existing wiring.

- Wire output for gas unit heater start/stop, reuse existing wiring.
- Wire output for gas unit heater gas valve, reuse existing wiring.
- BUS GARAGE:
 - MAIN BUILDING CONTROLLER:
 - Mount and wire main building controller panel, provide connection to owners network and provide 110v power.
 - Mount and wire new outside air temp sensor, provide new wire.
 - Mount and wire new outside air sensor, reuse existing wiring.
 - Mount and wire new outside air humidity sensor, provide new wire.
 - Wire (2) well sensors for Boiler HWS & R, reuse existing wiring.
 - Wire input for Boiler status, reuse existing wiring.
 - Wire (2) inputs for Boiler pumps status, reuse existing wiring.
 - Mount and wire new space temp sensor in Boiler Room, provide new wire.
 - Wire (2) HWS & R well sensors for Zone 9, reuse existing wiring.
 - Wire input for Zone 9 pump status, reuse existing wiring.
 - Wire input for (2) exhaust fan status, reuse existing wiring.
 - Wire new system Fill Pressure status, provide new wiring.
 - Wire output for Boiler enable/disable, reuse existing wiring.
 - Wire (2) outputs for Boiler pump start/stop. Reuse existing wiring.
 - Wire output for HW Pump Zone 9 start/stop, reuse existing wiring.
 - Wire (2) outputs for exhaust fan start/stop, reuse existing wiring.
 - Wire output for Zone 9 valve, reuse existing wiring.
 - ZONES 1&6:
 - Mount and wire (2) new space sensors for Z1 & Z6, provide new wiring.
 - Wire (4) new well sensors for HWS&R for Z1 & Z6, reuse existing wiring.
 - Wire (2) pump status for Z1 & Z6, reuse existing wiring.
 - Wire (2) outputs for Z1 & Z6 pump start/stop, reuse existing wiring.
 - Wire (2) outputs for HW valves for Z1 & Z6, reuse existing wiring.
 - ZONES 7A&7B:
 - Mount and wire space sensor for Z7A, reuse existing wiring.
 - Mount and wire new space sensor for Z7B, provide new wiring.
 - Wire (4) new well sensors for HWS&R for Z7A & Z7B, reuse existing wiring.
 - Wire (2) pump status for Z7A & Z7B, move point from existing panel.
 - Wire (2) outputs for Z7A & Z7B pump start/stop, move point from existing panel.
 - Wire (2) outputs for HW valves for Z7A & Z7B, move point from existing panel.
 - ZONES 7C:
 - Mount and wire space sensor for Z7C, reuse existing wiring.
 - Wire (2) new well sensors for HWS&R for Z7C, reuse existing wiring.
 - Wire pump status for Z7C, reuse existing wiring.
 - Wire output for Z7C pump start/stop, reuse existing wiring.
 - Wire output for HW valve for Z7C, reuse existing wiring.
 - ZONES 5&8:
 - Mount and wire (2) space sensors for Z5 & Z8, reuse existing wiring.
 - Wire (4) new well sensors for HWS&R for Z5 & Z8, reuse existing wiring. For Z5 move point from existing panel.
 - Wire (2) pump status for Z5 & Z8, reuse existing wiring. For Z5 move point from existing panel.
 - Wire (2) outputs for Z5 & Z8 pump start/stop, reuse existing wiring. For Z5 move point from existing panel.
 - Wire (2) outputs for HW valves for Z5 & Z8, reuse existing wiring.

- ZONES 2A, B, C & D:
 - Mount and wire space temp sensor Z2A, reuse existing wiring.
 - Mount and wire (3) space temp sensors for Z2B, Z2C & Z2D, provide new wire.
 - Wire (8) new well sensor for HWS&R for Z2A, B, C & D, reuse existing wiring.
 - Wire (4) pump status for Z2A, B, C & D, reuse existing wiring.
 - Wire (4) outputs for HW pump start/stop for Z2A, B, C & D, reuse existing wire.
 - Wire (4) outputs for HW valve for Z2A, B, C & D, reuse existing wiring.

- NEW HOT WATER BOILER PLANT:
 - New Condensing Boilers (2 TOTAL):
 - Mount and wire start/stop relay for Boiler Plant Enable.
 - Wire output for Boiler temp reset.
 - Wire input for Boiler alarm.
 - Mount and wire outside air sensor for Boiler Plant controller.
 - Wire (3) well temp sensors for BMS.
 - Wire (2) well temp sensors for Boiler Plant Controller.
 - Wire interconnecting Boiler communication wiring between (2) Boilers.
 - Wire BACnet communication cable to both Boiler controllers.
 - Mount and wire boiler flue isolation damper actuator.
 - Mount and wire new system pressure differential pressure sensor.
 - Wire Boiler Room emergency shut down switches to new Boilers.

 - New Domestic Water Heating:
 - Mount and wire relay enable for heat exchanger pump VFD.
 - Mount and wire current transducer for heat exchanger pump VFD.
 - Wire signal output for heat exchanger pump VFD.
 - Wire alarm input for heat exchanger pump VFD.
 - Wire (4) well temp sensors for domestic water heat exchanger.
 - Wire (1) well temp sensor for domestic water storage tank.
 - Wire output for heat exchanger control valve.

- ADD CO2 SENSORS:
 - Mount and wire (4) CO2 sensors for AHU-1 & AHU-2.
 - Mount and wire (8) CO2 sensors for AHU-3 & AHU-4.
 - Mount and wire (4) CO2 sensors for VHR-4.
 - Mount and wire (1) CO2 sensor for VHR1.
 - Mount and wire (1) CO2 sensor for VHR2.

- REPLACE BACKDRAFT DAMPERS for EXHAUST FANS (32) LOCATIONS:
 - Mount and wire damper actuator.

2.012 Actuator Replacement

School Building

The school building has 35 exhaust fans that have failed operators on backdraft dampers. The failed backdraft damper allows outside air infiltration when the exhaust fan is shut off. This outside air is unconditioned and reduces the building temperature during unoccupied hours and requires more energy from the heating system to maintain temperature setpoint.

Day Automation will install DDC operators on 35 backdraft dampers. This includes installation of the DDC operator, wiring, connection to a controller and programming in the EcoStruxure system. Locations will be shown on project drawings.

2.02 - Demand Controlled Ventilation (DCV)

School Building

Scope of work:

The air handling units listed below will be controlled with a demand-controlled ventilation sequence:

BUILDING: Main Building			All ventilation values based on NYCMC 2020 Table 403.3.1.1					
Building	AHU #	Service Area	Area of Space	Total CFM	Existing Average OA CFM	Vbz (Design OA Airflow) = (Rp * Pz) + (Ra * Az)	New Coil Pump	Number of
			(SQFT)	(CFM)	(CFM)	(CFM)	(#)	CO2 sensors
Main Building	AHU-3	Rm 2 (Gymnasium)	4,986	4,500	4,500	4,320	0	4
Main Building	AHU-1	Rm 102 (Instrumental Music)	1,869	3,600	720	1,279	0	3
Main Building	AHU-1	Rm 109 (Auditorium/Stage)	3,097	6,250	1,661	3,098	1	2
Main Building	AHU-2	Rm 109 (Auditorium/Stage)	3,097	6,250	1,661	3,098	1	2
Main Building	RTU-1	Rm 134 (Library) & Rm 134A (Work Room)	2,686	2,393	525	1,160	1	3
Main Building	VHR-1	Rm 138 (HS Gym - West Section)	5,719	6,540	6,040	6,081	0	2
Main Building	VHR-2	Rm 138 (HS Gym - East Section)	5,719	6,340	5,740	6,081	0	2
Main Building	FCU-1	Rm 123 (Board Room)	531	800	210	363	0	2

Day Automation will perform the following for the installation of demand-controlled ventilation:

- Install Day Automation equipment controllers as necessary for HVAC units.
- Install CO2 Sensors in the spaces listed in the Demand Controlled Ventilation Table.
 - Locations will be marked on EPC drawings, in general they will be located near the existing thermostats.
 - Multiple CO2 sensors will be placed to ensure complete coverage of the breathing zone for the space(s)
 - Multiple sensors in spaces will be sequenced such that the highest CO2 level is used to control the OA damper position.
- Programming in the control system to enable demand-controlled ventilation.
 - Sequences shall be as follows:
 - During morning warm-up or cool-down modes, the outside air damper shall be fully closed. The dampers shall only modulate prior to occupancy to satisfy the 30-minute (adj.) pre-occupancy purge cycle.
 - Whenever the space temperature is greater than set point and outside air can be utilized, the unit shall be on economizer to utilize free cooling subject to a mixed air low limit of 50°F.
 - In the occupied mode the mixing dampers shall modulate in sequence to maintain the greater of the minimum outside air flow and outside air required for cooling. Minimum outside air flow shall be increased from 100ppm above the outside air CO2 level, to full open as the average space CO2 increases to 530ppm above the outside air CO2 level.

Chateaugay Central School District
Exhibit B – Scope of Services

- If the mixed air low limit drops below set point, the outside air dampers shall modulate closed and the fan shall shut down.
- During unoccupied mode, the unit shall be on 100% return air unless economizer is on and night cooling is required. If economizer is being utilized the mixed air shall be subject to a low limit of 50°F.
- Heating/cooling valve and fan control shall follow standard Day Automation control sequences
- Damper position will be monitored, and trends recorded for building personnel review and for measurement and verification purposes.

**2.04 - Optimum Start Sequence
School Building**

Scope of work:

The following controlled areas shall have the start/stop programming modified to enable optimum start, please note the new occupied times for the programming:

Building: Main Building		Existing		Proposed	
Fan ID	Serving	Start Time	Stop Time	Start Time	Stop Time
CUV-5	Rm 22 (Grade 5)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-6	Rm 20 (Grade 4)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-7	Rm 18 (Grade 5)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-8	Rm 14 (Grade 4)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-9	Rm 12 (Grade 3)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-10	Rm 10 (Grade 2)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-11	Rm 8 (Grade 3)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-12	Rm 6 (Head Start)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
AHU-4	Rm 1 (Pre-K), Rm 2B (Coaches Office)	6:45 AM	4:30 PM	6:30 AM	4:30 PM
AHU-3	Rm 2 (Gymnasium)	6:30 AM	6:30 PM	6:30 AM	4:00 PM
CUV-17	Rm 9 (Kindergarten)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-16	Rm 11 (Grade 2)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-15	Rm 15 (Grade 2)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-14	Rm 17 (Spec Ed)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
RTU-2/RHC-4	Rm 19 (Elem Admin), Rm19A (Principal)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-13	Rm 21 (Elem Computer Lab)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
UV-3	Rm 23 (Elem School Library)	6:00 AM	5:30 PM	6:30 AM	3:30 PM
VHR-	Rm 25 (Cafeteria), Rm 27 (Kitchen), Rm	6:30 AM	4:30 PM	6:30 AM	3:30 PM

Chateaugay Central School District
Exhibit B – Scope of Services

4/RHC-5	27A (Office), Rm27B (Lockers)				
UV-1	Rm 31 (Kindergarten)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
UV-1	Rm 33 (Grade 1)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
UV-1	Rm 38 (Grade 1)	6:00 AM	4:30 PM	6:30 AM	4:30 PM
UV-1	Rm 36 (Grade 1)	6:00 AM	4:30 PM	6:30 AM	4:30 PM
CUV-2	Rm 35 (Pre-K)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-3	Rm 37 (Spec Ed)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-4	Rm 39 (Grade 6)	6:00 AM	4:30 PM	6:30 AM	4:30 PM
CUV-5	Rm 44 (Grade 6)	6:00 AM	4:30 PM	6:30 AM	4:30 PM
CUV-6	Rm 42 (Spec Ed)	6:00 AM	4:30 PM	6:30 AM	4:30 PM
CUV-7	Rm 40 (Pre-K)	6:00 AM	4:30 PM	6:30 AM	4:30 PM
FCU-9	Rm 49A (B&G Office)	5:00 AM	7:30 PM	5:00 AM	3:30 PM
AHU-1	Rm 102 (Instrumental Music)	6:15 AM	4:30 PM	6:30 AM	4:30 PM
CUV-9	Rm 107 (Comp Classroom)	6:15 AM	4:30 PM	6:30 AM	4:30 PM
CUV-10	Rm 105 (Vocal Music)	6:15 AM	4:30 PM	6:30 AM	4:30 PM
CUV-11	Rm 103 (BOCES)	6:15 AM	4:30 PM	6:30 AM	3:30 PM
CUV-12	Rm 101 (BOCES)	6:15 AM	4:30 PM	6:30 AM	3:30 PM
VUV-16	Rm 104 (Business/School Store)	6:15 AM	4:30 PM	6:30 AM	3:30 PM
AHU-1	Rm 109 (Auditorium)	6:00 AM	4:00 PM	6:30 AM	3:30 PM
AHU-2	Rm 109 (Auditorium)	6:00 AM	4:00 PM	6:30 AM	3:30 PM
RTU-1/RHC-3	Rm 134 (Library), Rm 134A (work Room)	6:30 AM	3:30 PM	6:30 AM	3:30 PM
UV-L	Rm 134B (Library Classroom)	6:30 AM	3:30 PM	6:30 AM	3:30 PM
CUV-1	Rm 125 (English)	7:00 AM	4:30 PM	6:30 AM	4:30 PM
CUV-2	Rm 124 (Social Studies)	7:00 AM	4:30 PM	6:30 AM	4:30 PM
VUV-1	Rm 168 (Spec Ed)	6:30 AM	3:30 PM	6:30 AM	4:30 PM
VUV-2	Rm 169 (English)	6:30 AM	3:30 PM	6:30 AM	4:30 PM
VUV-3	Rm 170 (Special Ed)	6:30 AM	3:30 PM	6:30 AM	4:30 PM
CUV-1	Rm 110 (Office)	6:30 AM	3:30 PM	6:30 AM	4:30 PM
VUV-4	Rm 108 (Teachers Lounge)	6:30 AM	3:30 PM	6:30 AM	4:30 PM
CUV-18	Rm 54 (K-12 Art)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
UV-2	Rm 52 (Student Services)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
UV-5	Rm 50 (Faculty)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
FCU-1	Rm 123 (Board Room)	6:00 AM	8:00 PM	6:15 AM	6:00 PM
FCU-2	Rm 121 (Waiting), Rm 121B (District Clerk)	6:00 AM	8:00 PM	6:15 AM	6:00 PM
FCU-3	Rm 121A (SUPT)	6:00 AM	8:00 PM	6:15 AM	6:00 PM
FCU-4	Rm 119C (Treasurer)	6:00 AM	8:00 PM	6:15 AM	6:00 PM
FCU-5	Rm 156A (Passage), Rm 119B (Break Room)	6:00 AM	8:00 PM	6:30 AM	4:30 PM
FCU-6	Rm 119A (Payroll Office), Rm 119 (Tax Collector)	6:00 AM	8:00 PM	6:30 AM	4:30 PM
FCU-7	Rm 117 (High School Principal)	6:00 AM	8:00 PM	6:30 AM	4:30 PM
FCU-8	Rm 115 (High School Office), Rm 115A (Testing/Conference)	6:00 AM	8:00 PM	6:30 AM	4:30 PM
VHR-3/RHC-2	Rm 136 (Strength & Conditioning), Rm V119A (Vestibule), Rm 136R/136S (Toilets), Rm 138A (Storage)	7:00 AM	3:00 PM	6:30 AM	3:00 PM
VHR-1	Rm 138 (High School Gymnasium), Rm	6:00 AM	6:30 PM	6:30 AM	4:00 PM

Chateaugay Central School District
Exhibit B – Scope of Services

	138E (Storage), Rm 138D (REF)				
VHR-2	Rm 138 (High School Gymnasium), Rm 138B (Storage)	6:00 AM	6:30 PM	6:30 AM	4:00 PM
CUV-3	Rm 212 (Math)	7:00 AM	4:30 PM	6:30 AM	4:30 PM
CUV-4	Rm 221 (Keyboarding)	7:00 AM	4:30 PM	6:30 AM	4:30 PM
VUV-5	Rm 210 (Math)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-6	Rm 219 (Language 9/10)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-7	Rm 208 (Language)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-8	Rm 217 (Social Studies)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-9	Rm 206 (English)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-10	Rm 215 (Special Ed)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-11	Rm 204 (Home Ec)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-12	Rm 207 (Social Studies)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-13	Rm 205 (Math)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-14	Rm 203 (Language)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VUV-15	Rm 201 (Work Room)	6:00 AM	4:00 PM	6:30 AM	4:30 PM
VHR-5	Rm 220 (Physics), Rm 220A (Prep), Rm 222 (Earth Science), Rm 267 (Chemistry), Rm 231 (Biology), Rm S111 (Stairs), Rm 274 (Corridor), Rm 229R (Girls), Rm 227R (Boys), Rm 225R (HC Toilet), Rm 223S (Jan)	6:00 AM	4:30 PM	6:30 AM	4:30 PM
UV-A	Rm 26 (Book Storage)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
AHU-2/SC-10	Rm 197 (OPT Student Services), Rm 46 (Speech)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
UV-Nurse	Rm 48 (Nurse)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
CUV-8	Rm 41 (Kitchen Stor/Recv'g)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
FCU-10	Rm 45 (Classroom)	6:00 AM	5:30 PM	6:30 AM	4:30 PM
HVU-1/RHC-1	Rm 135 (Team Locker), Rm 105A (Vest), Rm 133 (Boys Locker), Rm 133A (Passage), Rm 137 (Office), Rm 137A (Toilet)	6:00 AM	4:30 PM	6:30 AM	4:00 PM
HVU-2	Rm 131 (Girls Locker), Rm 131A (Passage), Rm 129 (Office), Rm 129A (Toilet)	6:00 AM	4:30 PM	6:30 AM	4:00 PM
HVU-3/RHC-6	Rm C113 (Lobby)	6:00 AM	4:30 PM	6:30 AM	4:00 PM
VHR-6/RHC-7	Rm 231B (Prep)	6:00 AM	4:30 PM	6:30 AM	4:30 PM

2.05/2.06 - Temperature Setback – Occupied/Unoccupied School Building

Day Automation will replace controllers and valve/damper operators the district buildings, the new controllers will maintain tighter temperature control of these classroom spaces resulting in a lower average occupied temperature, 73 degF and an unoccupied temperature of 65 degF.

2.08 - Exhaust Fan Scheduling School Building

Day Automation will add the uncontrolled exhaust fans to the EcoStruxure system including fan on/off and will add exhaust damper actuators where needed for control. Fans will be scheduled via EcoStuxure system to coincide with other HVAC equipment ventilating schedules to assure coordination of proper building ventilation. Schedules will be programmed in EcoStruxure to ensure proper operation in line with building occupancy hours of operation as detailed in Exhibit E - Guaranty. Exhaust fans run hours will be reduced as well as the number of days, holidays and other scheduled unoccupied times do not require the fans to run.

2.16 – Parallel Pumping School Building

The boiler rooms have pumps for primary and secondary HHW loops. The secondary loop pumps serving the heating loops have variable speed drives installed.

PARALLEL PUMPING CONTROL ONLY									
Building:									
PUMP ID#	Pump Location	System Served	Rated Flow Rate	Rated Pressure	Horsepower (per pump)	RPM	VOLTS	PHASE	VFD MIN SPEED
			(GPM)	WPD (ft-hd)	(HP)				%
P-1&2	Boiler room	HHW	127	40	2	1800	208	3	25%

Day Automation will program the pumps shown in the table above for parallel operation. By operating in parallel the pumps can run at ½ the speed required of one pump and because of the pump laws will use approximately 1/8 the electrical energy.

Scope of work:

- Reprogram pump control:
 - The pump pairs will be sequenced to operate in parallel (when possible). This allows the pump pair to deliver the same gpm and ft-hd at a lower combined kW.
 - Pump pairs will operate in parallel to a minimum of 25% (P-1&2) speed, if pump speed in parallel is required to drop below this number then the pumps will switch back to single operation.
 - There shall be a 5% speed deadband to switch between parallel and single operation.

3.01 – Boiler Replacement School Building

Day Automation will install 2 Patterson Kelly condensing boilers to supply heating hot water to the HHW sections of the building. These boilers will have much higher efficiency than the existing steam boilers/heat exchanger system. Scope of work:

- CIP will demolish and remove:
 - 3 Cleaver Brooks steam boilers

- Power and controls wiring
- Boiler stack per drawings for connection to new steam boilers (in CIP)
- Natural gas supply piping per drawings for connection to new steam boilers (in CIP)
- Steam headers and piping per drawings for connection to new steam boilers (in CIP)
- Steam to hot water heat exchanger
 - Remove hot water piping per drawings for connection to new condensing boilers (in EPC)
- 1/3-2/3 steam valves supply to heat exchanger
- Miscellaneous steam boiler accessories
- Day Automation will install:
 - Install two (2) new Patterson Kelly condensing boilers
 - New boiler must have a modulating burner with a minimum of 5:1 turndown ratio
 - New boiler must have a minimum of 86% combustion efficiency to meet EPC savings and NYSED requirements
 - Vent stack to be installed per manufacturers specifications
 - Fresh air intake to be installed per manufacturers specifications
 - Each boiler shall have a circulation pump sized per manufacturers recommendations and engineer design
 - Install new boiler piping
 - All new supply and return hot water piping to be insulated per ASHRAE 90.1-2010
 - Install new surge tanks and air-trol
 - Connect natural gas to new boilers
 - Run new gas vent lines as necessary
 - Connect boiler electrical and controls
 - Insulate all boiler room hot water piping per ASHRAE 90.1-2010
 - Insulate pump bodies, TDVs and valve bodies with flexible blanket material
 - System start up:
 - Fill boiler HHW system
 - Purge excess air from system
 - Ensure manufacturer recommended water chemistry requirements are met, boiler rep. to verify
 - Test boiler firing sequencing and pump operation
 - Boiler manufacturer's representative will conduct startup testing and training
 - Conduct system commissioning concurrent with this step

3.07 - Steam Trap Replacement School Building

Scope of Work

- Mechanical steam traps will be retrofit with a new insert and gasket; the existing cover will be reused (in some instances a new cover will be provided).
- Thermostatic steam traps will be rebuilt with a new insert, gasket, and cap (thermostatic traps 1" and above will reuse the existing cap). In the event the existing trap will not accept a retrofit kit and new cap, the trap will be replaced with a new steam trap.

Chateaugay Central School District
Exhibit B – Scope of Services

Energy Savings Calculations and Assumptions:

Steam trap losses depend on the steam pressure and temperature, the type of trap, orifice size, and the level of leakage through the failed trap. Steam losses are calculated based on the amount of steam lost through the trap. Failed closed or “plugged” traps are unique in that there is no steam lost through the trap itself. Steam traps are important in the steam system to remove the condensate from the system. If the condensate is not removed from the steam system, the system loses efficiency. In some cases, a steam trap that is failed closed will cause an excessive buildup of condensate and could cause a blockage of steam flow.

Building Name	Floor	Room Name	Count	Pipe Size	Type	Mfg	Model	Psig	Application	Hours of Operation	VLV size	Orifice Size	Qty	Size	Type	Model
Chateaugay CS	1	Hall at door 19	1	1/2	T-A	HO	Xc	5	F/T	1000			1	1/2	T-A	3507
Chateaugay CS	1	Hall at door 23	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	Hall at door A 1	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	Hall at library	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	IT 45 office	1	1/2	T-A			5	F/T	1000	0.50		1	1/2	T-A	3507
Chateaugay CS	1	Kitchen ceiling	3	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	3	3/4	FT	FT015H-3
Chateaugay CS	1	Kitchen ceiling	1	3/4	FT	HO	Ft015h	5	RHC	2200		0.253	1	3/4	FT	FT015H-3
Chateaugay CS	1	Maintenance 49						5	UV	1200	0.75		0	0	0	
Chateaugay CS	1	Nurse 48	1	1/2	T-A			5	F/T	1000	0.50		1	1/2	T-A	3507
Chateaugay CS	1	Office 9 ES	1	3/4	T-A			5	F/T	1000	0.75		1	3/4	T-A	2835
Chateaugay CS	1	Stage	2	1/2	T-A	HO	8c	5	F/T	1000	0.75		2	1/2	T-A	3507
Chateaugay CS	1	Vestibule at door A	1	1/2	T-A	SO	TB125	5	F/T	1000	0.75		1	1/2	T-A	5000
Chateaugay CS	0	23m	1	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	1	3/4	FT	FT015H-3
Chateaugay CS	0	BR	1	1 1/4	FT	HO	Ft015h	5	DRIP	4380		0.312	1	1 1/4	FT	FT015H-5
Chateaugay CS	0	BR	1	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	1	3/4	FT	FT015H-3
Chateaugay CS	0	BR	1	1 1/2	FT	HO	Ft015h	5	HWT	4380		0.5	1	1 1/2	FT	FT015H-6
Chateaugay CS	0	53b	1	1 1/4	FT	HO	Ft015h	5	HUH	2200		0.312	1	1 1/4	FT	FT015H-5
Chateaugay CS	0	BR	2	1	FT	HO	Ft015h	5	HEX	4380		0.253	2	1	FT	FT015H-4
Chateaugay CS	1	Visitor locker	1	3/4	FT	HO	Ft015h	5	UV	1200		0.253	1	3/4	FT	FT015H-3
Chateaugay CS													0	0	0	
Chateaugay CS	0	CRAWL SPACE ES WING ST LEG 1	4	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	4	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE ES WING ST LEG 2	4	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	4	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE ES WING ST LEG 3	4	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	4	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE ES WING ST LEG 1	2	1	FT	HO	Ft015h	5	DRIP	4380		0.253	2	1	FT	FT015H-4
Chateaugay CS	0	CRAWL SPACE ES WING ST LEG 2	2	1	FT	HO	Ft015h	5	DRIP	4380		0.253	2	1	FT	FT015H-4
Chateaugay CS	0	CRAWL SPACE ES WING ST LEG 3	2	1	FT	HO	Ft015h	5	DRIP	4380		0.253	2	1	FT	FT015H-4
Chateaugay CS	0	CRAWL SPACE ES WING RADS			T-A	HO	8C	5	F/T	1000			0	0	T-A	
Chateaugay CS													0	0	0	
Chateaugay CS	0	CRAWL SPACE 6TH GRADE WING ST LEG 1	2	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	2	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE 6TH GRADE WING ST LEG 2	2	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	2	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE 6TH GRADE WING ST LEG 2	2	1	FT	HO	Ft015h	5	DRIP	4380		0.253	2	1	FT	FT015H-4
Chateaugay CS	0	CRAWL SPACE 6TH GRADE WING ST UVS	10	3/4	FT	HO	Ft015h	5	UV	1200		0.253	10	3/4	FT	FT015H-3
Chateaugay CS													0	0	0	
Chateaugay CS	0	CRAWL SPACE JR. HIGH WING	4	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	4	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE JR. HIGH WING UVS	4	3/4	FT	HO	Ft015h	5	UV	1200		0.253	4	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE JR. HIGH WING F/T	1	3/4	T-A	HO	8C	5	F/T	1000			1	3/4	T-A	2835
Chateaugay CS													0	0	0	
Chateaugay CS	0	CRAWL SPACE UNDER AUD HVU3	1	3/4	FT	HO	Ft015h	5	AHU	2200	0.75	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE UNDER AUD	12	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	12	3/4	FT	FT015H-3
Chateaugay CS	0	CRAWL SPACE UNDER AUD	2	1	FT	HO	Ft015h	5	DRIP	4380		0.253	2	1	FT	FT015H-4
Chateaugay CS	0	CRAWL SPACE UNDER AUD	1	3/4	T-A	HO	8C	5	F/T	1000			1	3/4	T-A	2835
Chateaugay CS													0	0	0	
Chateaugay CS	0	CRAWL SPACE UNDER KITCHEN	4	3/4	FT	HO	Ft015h	5	DRIP	4380		0.253	4	3/4	FT	FT015H-3

Chateaugay Central School District
Exhibit B – Scope of Services

Chateaugay Central School Steam Trap Application Schedule													Recommended Replacement	Steam Trap		
Building Name	Floor	Room Name	Count	Pipe Size	Type	Mfg	Model	Psig	Application	Hours of Operation	VLV size	Orifice Size	Qty	Size	Type	Model
Chateaugay CS	2	200m	2	3/4	FT	HO	Ft015h	5	UV	1200		0.253	2	3/4	FT	FT015H-3
Chateaugay CS	2	200m	1	3/4	FT	HO	Ft015h	5	HUH	2200		0.253	1	3/4	FT	FT015H-3
Chateaugay CS	2	200m	1	2	FT	HO	Ft015h	5	AHU	2200	4.00	0.687	1	2	FT	FT015H-8
Chateaugay CS	2	200m	1	3/4	FT	HO	Ft015h	5	AHU	2200	4.00	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	2	216m	1	1 1/2	FT	HO	Ft015h	5	AHU	2200	5.00	0.5	1	1 1/2	FT	FT015H-6
Chateaugay CS	2	216m	1	1 1/2	FT	HO	Ft015h	5	AHU	2200	5.00	0.5	1	1 1/2	FT	FT015H-6
Chateaugay CS	2	220 cr	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	220a cr	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	221 cr	1	3/4	FT	HO	Unknown	5	UV	1200		0.253	1	3/4	FT	FT015H-3
Chateaugay CS	2	222 cr	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	224m	1	2	FT	HO	Ft015h	5	AHU	2200	4.00	0.687	1	2	FT	FT015H-8
Chateaugay CS	2	224m	1	2	FT	HO	Ft015h	5	AHU	2200	4.00	0.687	1	2	FT	FT015H-8
Chateaugay CS	2	224m	1	3/4	FT	HO	Ft015h	5	AHU	2200	3.00	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	2	224m	1	1 1/2	FT	HO	Ft015h	5	AHU	2200	3.00	0.5	1	1 1/2	FT	FT015H-6
Chateaugay CS	2	224m	2	1/2	T-A	HO	8c	5	F/T	1000	0.50		2	1/2	T-A	3507
Chateaugay CS	2	224m	1	3/4	FT	HO	Ft015h	5	AHU	2200	3.00	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	2	225r rg	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	227r Girls	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	229r boys	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	231cr	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	233 cr	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	233a cr	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	Hall at 209r girls	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	124 cr	1	3/4	FT	HO	Unknown	5	UV	1200		0.253	1	3/4	FT	FT015H-3
Chateaugay CS	1	125 cr	1	3/4	FT	HO	Unknown	5	UV	1200		0.253	1	3/4	FT	FT015H-3
Chateaugay CS	2	Hall at 26th st	1	3/4	FT	BJ	2015-3	5	AHU	2200	3.00	0.218	1	3/4	FT	FT015H-3
Chateaugay CS	2	Hall at 26th street	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	2	Hall at stair A	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	6th Grade Hall	1	3/4	FT	HO	Ft015h	5	UV	1200	0.75	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	1	Auditorium hallway	1	1/2	T-A	HO	8c	5	F/T	1000			1	1/2	T-A	3507
Chateaugay CS	1	Boces 104	1	3/4	FT	SO	Ft15	5	UV	1200	0.75	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	1	Cafeteria ceiling HVU4	1	1 1/2	FT	HO	Ft015h	5	AHU	2200	0.75	0.5	1	1 1/2	FT	FT015H-6
Chateaugay CS	1	CR 18	1	3/4	FT	HO	Ft015h	5	UV	1200	0.75	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	1	CR 23 22, 20, 21, 14, 17, 12, 15, 10, 11, 8, 9, 6	13	3/4	FT	HO	Ft015h	5	UV	1200	0.75	0.253	13	3/4	FT	FT015H-3
Chateaugay CS	1	CR 35, 37, 39, 40, 42, 44	6	3/4	FT	OTHER	XXX	5	UV	1200	0.75	0.253	6	3/4	FT	FT015H-3
Chateaugay CS	1	CR 36, 31, 38, 33	4	3/4	FT	OTHER	XXX	5	UV	1200	1.25	0.253	4	3/4	FT	FT015H-3
Chateaugay CS	1	CR 50	1	3/4	FT	HO	Ft015h	5	UV	1200	0.75	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	1	CR 52	1	3/4	FT	HO	Ft015h	5	UV	1200	0.75	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	1	CR 54	1	3/4	FT	HO	Ft015h	5	UV	1200	0.75	0.253	1	3/4	FT	FT015H-3
Chateaugay CS	1	Exit 15 2000 wing	1	3/4	T-A	HO	9c	5	F/T	1000	0.75		1	3/4	T-A	2835
Chateaugay CS	1	Exit 16 2000 wing	1	3/4	T-A	HO	9c	5	F/T	1000	0.75		1	3/4	T-A	2835
Chateaugay CS	1	Exit 23	2	3/4	T-A			5	F/T	1000	1.25		2	3/4	T-A	2835
Chateaugay CS	1	Exit door 22	1	1/2	T-A	HO	8c	5	F/T	1000			1	1/2	T-A	3507
Chateaugay CS	1	Hall at CR 15	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	Hall at CR 21	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	Hall at CR 29	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	Hall at CR 46	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507
Chateaugay CS	1	Hall at CR 9	1	1/2	T-A	HO	8c	5	F/T	1000	0.75		1	1/2	T-A	3507

Chateaugay Central School District
 Exhibit B – Scope of Services

3.08 – Thermal Insulation (duct or pipe)

School Building

Day Automation will install new insulation on areas shown in the chart below. Insulation will meet mechanical code requirements.

Room	Qty	ELE	INS Type (RIC or Conventional)	Heating Medium (HW, Condensate, PSI)	Linear feet of Pipe (or Equivalent)	Number of Fittings/Bends	Pipe Size	Operation Hours per Year	Fixture Notes
BR	3	15	RIC	5			12.0	4380	STEAM HEADER
BR	1	12	RIC	5			12.0	4380	RATING 125
BR	5	12	RIC	5			5.0	4380	AT STEAM HEADER
BR	2	12	RIC	5			5.0	4380	AT STEAM HEADER
BR		12	Conventional	5		4	5.0	4380	AT STEAM HEADER
BR	1	12	RIC	5			3.0	4380	AT DHWT
BR	1	12	RIC	5			5.0	4380	AT DHWT
BR	1	15	RIC	5			5.0	4380	STEAM HEADER
BR		15	Conventional	5	4	8	5.0	4380	STEAM ABOVE/TO HWT
BR	1	20	RIC	5			3.0	4380	Above HWT
BR	1	8	RIC	5			2.0	4380	STEAM TO HEX
BR		8	Conventional	5	4	8	2.0	4380	STEAM TO HEX
BR	1	7	RIC	5			4.0	4380	STEAM TO 6RM ADMIN
BR	1	7	RIC	5			6.0	4380	STEAM TO 6
BR	2	7	RIC	5			4.0	4380	ABOVE MAIN CRT TO ?
BR	1	7	RIC	5			6.0	4380	ABOVE MAIN CRT TO ?
BR	1	4	RIC	Condensate			3.0	4380	COND TO MAIN CRT
BR		4	Conventional	Condensate	4	10	3.0	4380	COND TO MAIN CRT
BR	2	7	RIC	5			6.0	4380	STEAM TO ES WING
BR	2	7	RIC	5			6.0	4380	BUTTERFLY CV9 & CV10
BR	1	7	RIC	5			3.0	4380	STEAM TO MUSIC WING
BR	1	7	RIC	5			3.0	4380	BUTTERFLY CV1 TO MUSIC
BR	1	10	RIC	Condensate			5.0	4380	BASKET STRAINER TO BFWT
BR	2	10	RIC	Condensate			5.0	4380	FLANGE TO BFWT

Pipe Insulation Reference Table:							Recommended Replacement					
Room	Qty	ELE	INS Type (RIC or Conventional)	Heating Medium (HW, Condensate, PSI)	Operation Hours per Year	Fixture Notes	Qty	Size	Uninsulated Losses (BTU/YR)	Insulated Losses (BTU/YR)	Differential Losses (BTU/YR)	Annual Energy Losses (MBTU/Year)
BOILER ROOM	3	15	RIC	5	4380	STEAM HEADER	3	12	1,755	134	1,621	7,101
BOILER ROOM	1	12	RIC	5	4380	RATING 125	1	12	5,318	405	4,913	21,517
BOILER ROOM	5	12	RIC	5	4380	AT STEAM HEADER	5	5	2,121	187	1,934	8,470
BOILER ROOM	2	12	RIC	5	4380	AT STEAM HEADER	2	5	1,591	141	1,450	6,352
BOILER ROOM		12	Conventional	5	4380	AT STEAM HEADER	0	5	725	64	661	2,895
BOILER ROOM	1	12	RIC	5	4380	AT DHWT	1	3	889	83	806	3,530
BOILER ROOM	1	12	RIC	5	4380	AT DHWT	1	5	1,591	141	1,450	6,352
BOILER ROOM	1	15	RIC	5	4380	STEAM HEADER	1	5	2,121	187	1,934	8,470
BOILER ROOM		15	Conventional	5	4380	STEAM ABOVE/TO HWT	0	5	3,442	304	3,138	13,743
BOILER ROOM	1	20	RIC	5	4380	Above HWT	1	3	1,185	110	1,074	4,706
BOILER ROOM	1	8	RIC	5	4380	STEAM TO HEX	1	2	597	61	536	2,348
BOILER ROOM		8	Conventional	5	4380	STEAM TO HEX	0	2	1,174	121	1,054	4,616
BOILER ROOM	1	7	RIC	5	4380	STEAM TO 6RM ADMIN	1	4	1,618	143	1,475	6,459
BOILER ROOM	1	7	RIC	5	4380	STEAM TO 6	1	6	2,385	207	2,178	9,538
BOILER ROOM	2	7	RIC	5	4380	ABOVE MAIN CRT TO ?	2	4	1,618	143	1,475	6,459
BOILER ROOM	1	7	RIC	5	4380	ABOVE MAIN CRT TO ?	1	6	2,385	207	2,178	9,538
BOILER ROOM	1	4	RIC	Condensate	4380	COND TO MAIN CRT	1	3	927	88	839	3,675
BOILER ROOM		4	Conventional	Condensate	4380	COND TO MAIN CRT	0	3	1,585	151	1,434	6,281
BOILER ROOM	2	7	RIC	5	4380	STEAM TO ES WING	2	6	2,385	207	2,178	9,538
BOILER ROOM	2	7	RIC	5	4380	BUTTERFLY CV9 & CV10	2	6	1,788	155	1,633	7,154
BOILER ROOM	1	7	RIC	5	4380	STEAM TO MUSIC WING	1	3	1,185	110	1,074	4,706
BOILER ROOM	1	7	RIC	5	4380	BUTTERFLY CV1 TO MUSIC	1	3	889	83	806	3,530
BOILER ROOM	1	10	RIC	Condensate	4380	BASKET STRAINER TO BFWT	1	5	1,243	112	1,131	4,953
BOILER ROOM	2	10	RIC	Condensate	4380	FLANGE TO BFWT	2	5	414	37	377	1,651

3.15 – Domestic Hot Water Boiler Replacement School Building

Day Automation will install a plate and frame heat exchanger which will use the new condensing hot water system as the heat source. Due to the high efficiency of the new hot water boilers, the new domestic hot water will be produced at a much higher efficiency than currently exists.

Scope of work:

- Day Automation will demolish and remove:
 - Existing DHW storage tank in its entirety
 - Steam piping will be cut back and capped
- Day Automation will install:
 - Install a new plate and frame heat exchanger for DHW supply
 - Connect supply side piping to HHW system per manufacturers recommendations
 - Connect DHW side to existing DHW system
 - All new supply and return hot water piping to be insulated per ASHRAE 90.1-2010
 - Install circulation pumps
 - HHW side
 - DHW side
 - Connect controls/power wiring
 - Insulate all boiler room DHW piping
 - System start up:
 - Fill HHW/DHW systems
 - Purge excess air from system
 - Ensure manufacturer recommended water chemistry requirements for HHW are met, boiler rep. to verify
 - Test plate and frame heat exchanger operation
 - Conduct system commissioning concurrent with this step

4.01 – Weatherization

School Building

Summary of areas to be sealed:

Exterior Doors	Units	Total Lf.	Crack Size
Single Doors	24	480'	1/16"
Double Doors	21	840'	1/16"
Overhead Garage Doors			
Seal perimeter of door opening with high grade aluminum weather-stripping	1	20'	3/16"
Roof/Wall Connection			
Seal roof/wall intersection with 2 component foam		1,105'	1/8"
Soffit/Cantilever			
Seal soffit connection with 1/2" DOW Thermax Fiberboard and 2 part foam	1	140'	1/4"
Window Caulking			
Seal perimeter of snap trim to window frame/opening with clear acrylic caulk	102	2,189	1/16"
Roof Ventilator Units			
Seal perimeter of damper to plenum and associated air leaks; lubricate damper	91	568'	1/16"

Chateaugay Bus Garage Scope of Work

Exterior Doors	Units	Total Lf.	Crack Size
Single Doors	5	100'	1/16"
Overhead Garage Doors			
Seal perimeter of door opening with high grade aluminum weather-stripping	7	312'	3/16"
Roof Ventilator Units			
Seal perimeter of damper to plenum and associated air leaks; lubricate damper	5	34'	1/16"

- 1.2 **Codes:** All applicable state and local building codes.
- 1.3 **Drawings / Specifications:** Design drawings and specifications will be provided for the Energy Conservation Measures shown on project drawings in NYSED projects as listed in Exhibit C.
- 1.4 **As-built Documents:** As-built documents will be provided for all work included in this agreement
- 1.5 In both hard copy and electronic format of Customer's choosing.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hands and seals the day and year first above written.

CHATEAUGAY CENTRAL
SCHOOL DISTRICT

DAY AUTOMATION
SYSTEMS, INC.

By: _____
Name: Loretta Fowler
Title: District Superintendent

By: _____
Name: Steve Heaslip
Title: Energy Services Manager