HINESBURG COMMUNITY SCHOOL  
KITCHEN VENTILATION UPGRADE  
SCOPE OF WORK  
MARCH 9, 2020

The following describes the scope for work and installation details for the replacement of the existing KITCHEN VENTILATION UNIT with a NEW VENTILATION UNIT and CONTROLS.

PROJECT OBJECTIVE SUMMARY & INFORMATION:

The HINESBURG COMMUNITY SCHOOL, needing to replace aging unit and comply with code required kitchen hood make-up air requirements, desires to upgrade the existing ventilation system and controls. This scope of work addresses specific system upgrades to resolve these issues. The existing kitchen ventilation unit [aka “HV-5”] is original 1969 construction. All original controls are non-functional. The original circulation pump for HV-5 heating coil has been removed. The unit still operates to bring in untampered air by manually switching it on and off.

The owner desires to replace this interior unit with another similar type unit in the same location tying into existing ductwork. Included in this scope will be upgrading all controls from pneumatic to DDC and adding this new unit and all associated components onto the school’s FMCS.

SCOPE OF WORK SUMMARY:

- Remove and dispose of the 1 existing 1969 AAF air handler identified as “HV-5”.
- Remove ALL pneumatic controls for the removed unit and the original pump used for the heating coil in the removed unit and any other controls that were used to support this unit’s operation.
- Cut back existing ductwork on supply and outside air side and reconfigure for new unit connections.
- Furnish & install new KITCHEN VENTILATION UNIT, rehang in same location as unit removed and reconnect ductwork to the outside air and supply air ductwork.
✓ Furnish & install new circulation pump for new unit’s heating coil, connecting to original pipe feeds for original pump that was previously removed.
✓ Reconnect power to new ventilation unit and new pump reusing the circuits that served the original units. Upgrade wiring feeds from power distribution panels to meet current electric codes with proper grounding.
✓ Furnish and install all new controls for the new ventilation unit and pump to meet detailed sequences of operation. Upgrade the buildings FMCS graphics screens to include this unit, the pump and all required I/O per sequence of operation. Upgrade building FMCS WebCTRL from version v6.5 to version v7.0
✓ Replace duct insulation removed, re-insulate outside air duct to unit and HWS/HWR piping to unit from existing in boiler room (back to main).
✓ Start-up units and complete startup documentation.
✓ TAB
✓ Provide Commissioning support with Engineer verifying installation and operation to these contract documents.
✓ Scope of work shall include removal and replacement of the ceiling [and all ceiling connected services such as lights, and other devices] where the unit is located and potential relocation of the dryer vent to suit unit accessibility for maintenance.
✓ Training & Documentation. Provide training on maintenance of new air handler and pump. Provide O&M Manuals for air handler, pump and controls. Documentation to include AS-BUILT CONTROL Drawings and SEQUENCES OF OPERATION for all equipment installed.
✓ Warrantee the installation for 1 year from date of Cx Verification the UPGRADED system is fully functional and approved for owner turnover (ALL ISSUES LOG ITEMS CLEARED!)

Above ceiling photo showing existing ‘HV-5’:
DETAILED SCOPE OF WORK:

1 – BUILDING USE & SCHEDULE

This work needs to be completed by August 19, 2020. Space is available for demolition on June 22, 2020. Work will be contained to the kitchen and boiler room areas. There will not be any student activity in these areas during this period. Building access will be controlled by the school’s facility personnel. All work activities on site must be coordinated and approved by the school.

2 - EXISTING KITCHEN VENTILATION SYSTEM DEMOLITION:

The existing KITCHEN VENTILATION unit, HV-5, is located above ceiling in room adjacent to the kitchen with access doors on both ends of the space.

The door to the space may need to be removed to get unit through and into the room. The contractor shall determine best means and methods to get the unit into the space and lifted into place, either as single unit or assembled from sections in the room. The proposed, scheduled unit has a side dimension to allow it thru the door opening with the hung door removed, but with only 1” of clearance. This would also require the unit to be on its side.

The boiler room has existing pipe feeds cut back from original coil pump feeds:
All old piping shall be removed back to the branch shutoff valves and replaced with new piping to the new unit and new pump. Existing isolation valves are assumed to be operable. **HOWEVER, CARRY A LINE ITEM “ADD ALTERNATE #1” IN THE BID TO REPLACE THE 2 ISOLATION VALVES.**

The existing ceiling will have to come down to remove and replace the old unit. Existing grid & tile may be reused if not damaged during removal. The ceiling is to be replaced in equal or better condition than it was before removal. Contractor shall photograph the ceiling conditions before removal to be used as documentation to compare re-installation to. Replace any broken ceiling tiles or ceiling grid.

Lighting, fire alarm and any other ceiling mounted items shall be temporarily disconnected or moved out of the way to allow installation of the new unit, then returned to same location.

The existing dryer vent pipe may need to be relocated to provide acceptable maintenance clearances. **CARRY A LINE ITEM “ADD ALTERNATE #2” IN THE BID TO RELOCATE THE VENT IN 2 DIRECTIONS BY 3’ MAXIMUM.** It is the contractor’s responsibility to fully review the site conditions before submitting this alternate.

Existing Electrical wiring from existing panels to the old equipment shall be removed and replaced with code compliant wiring. Reuse conduit where possible. Site verify BEFORE submitting bid.

A 20 AMP breaker, 120 volt, single phase in power panel “PP” to be reused for replaced pump P3.

The HV-5 unit is a 208 volt, 3-phase 20-AMP breaker feed. Original design:
Old pump wiring can be seen with wire caps (2 wires, no ground) in boiler room photo above. Starter and conduit for pump is seen on wall.... Replace and provide disconnects for each new unit at same location as existing starters. Starter for HV unit is located on wall above ceiling beside the HV unit.

Reuse existing structural steel supporting the existing unit. New unit is lighter than existing unit.

3 – NEW “HV-5” VENTILATION UNIT INSTALLATION:

Furnish & Install ONE (1) new DAIKIN Model # CAH008GHAC AIR HANDLING UNIT. Duct & Pipe as described herein and as shown on the following sketches.

SK 3.1: NEW “HV-5” IN SAME LOCATION AS EXISTING:
- Reconnect to existing ductwork. Flex-connection to unit. Seal new duct joints.
- Re-insulate outside air duct where existing insulation was removed for new unit connections.
- Reuse existing steel structure to support unit.
- Replace vibration isolators.
- Verify clear maintenance access. Relocate dryer vent [Add Alt #2] if required for this access.

- Replace ceiling grid & tiles to original condition.
□ Replace lights and other services removed/relocated/disconnected, ... to original conditions.
□ Rewire unit power, provide new disconnect. Label circuit breaker # & panel ID on disconnect.

FURNISH AND INSTALL [PER MANUFACTURER’S IOM] NEW AHU, MARK “HV-5”:

<table>
<thead>
<tr>
<th>Unit Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Number</td>
</tr>
<tr>
<td>Air Volume</td>
</tr>
<tr>
<td>Static Pressure</td>
</tr>
<tr>
<td>CAH008GHAM</td>
</tr>
<tr>
<td>*Not including base rails, coil connectors, drain connectors and control boxes.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Number: CAH008GHAM</td>
</tr>
<tr>
<td>Approval: ETL Listed / ETL Listed to Canadian Safety Standards (ETL Label / ETlc Label)</td>
</tr>
<tr>
<td>Outer Panel: 24 gauge G90 Galvanized Steel (unpainted)</td>
</tr>
<tr>
<td>Liner: 24 gauge Galvanized Steel (unless noted per section)</td>
</tr>
<tr>
<td>Insulation: R-13 Injected Foam</td>
</tr>
<tr>
<td>Unit Configuration: Inline horizontal</td>
</tr>
<tr>
<td>Drive (Handling) Location: Right</td>
</tr>
<tr>
<td>Base: 4” formed channel</td>
</tr>
<tr>
<td>Wall Thickness: 2 in</td>
</tr>
<tr>
<td>Altitude: 0 ft</td>
</tr>
<tr>
<td>Parts Warranty: Standard One Year</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel Filter</th>
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</thead>
<tbody>
<tr>
<td>Component: 1</td>
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<tr>
<td>Length: 30 in</td>
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<tr>
<td>Shipping Section: 1</td>
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</table>

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<thead>
<tr>
<th>Type</th>
<th>Efficiency</th>
<th>Face Velocity</th>
<th>Face Area</th>
<th>Air Volume</th>
<th>Filter Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pleated</td>
<td>MERV 8</td>
<td>198 ft/min</td>
<td>15.2 ft²</td>
<td>3000 cfm</td>
<td>Side</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air Pressure Drop</th>
<th>Number of Filters</th>
<th>Height</th>
<th>Width</th>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Air</td>
<td>0.07 inWc</td>
<td>Mean Air</td>
<td>0.53 inWc</td>
<td>Dirty Air</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Door</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
</tr>
<tr>
<td>Width</td>
</tr>
<tr>
<td>Opening</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter Gauge</td>
</tr>
<tr>
<td>Minihelic II 0-2&quot;</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Special Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extra filters 1 set(s)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Internal Face and Bypass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Component: 2</td>
</tr>
<tr>
<td>Length: 12 in</td>
</tr>
<tr>
<td>Shipping Section: 2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Face Air Pressure Drop</th>
<th>Bypass Air Pressure Drop</th>
<th>Opening Location</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.04 inWc</td>
<td>0.47 inWc</td>
<td>Internal</td>
<td>Opposed blade - low leak</td>
</tr>
</tbody>
</table>

Note: Cabinet height for bypass extended 0.00 inches above “External cabinet height” referenced above.
### Hot Water Coil

<table>
<thead>
<tr>
<th>Component: 3</th>
<th>Length: 12 in</th>
<th>Shipping Section: 2</th>
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</thead>
<tbody>
<tr>
<td><strong>Coil Model</strong></td>
<td><strong>Total Capacity</strong></td>
<td><strong>Number of Coils</strong></td>
</tr>
<tr>
<td>5WH0902B</td>
<td>232177 Btu/hr</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Air Volume</strong></th>
<th><strong>Air Temperature</strong></th>
<th><strong>Coil Air Pressure Drop</strong></th>
<th><strong>Finned Height</strong></th>
<th><strong>Finned Length</strong></th>
<th><strong>Face Area</strong></th>
<th><strong>Face Velocity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3000 cfm</td>
<td>0.0 °F</td>
<td>70.8 °F</td>
<td>0.22 inWc</td>
<td>21 in</td>
<td>36 in</td>
<td>5.25 ft²</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Fluid</strong></th>
<th><strong>Flow Rate</strong></th>
<th><strong>Pressure Drop</strong></th>
<th><strong>Velocity</strong></th>
<th><strong>Volume</strong></th>
<th><strong>Weight</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Entering</td>
<td>Leaving</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>180.0 °F</td>
<td>159.8 °F</td>
<td>24.40 gpm</td>
<td>4.10 ftHd</td>
<td>3.70 ft/s</td>
<td>2.0 gal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Glycol Type</strong></th>
<th><strong>Min. Fin Surface Temp.</strong></th>
<th><strong>Min. Tube Wall Surface Temp.</strong></th>
<th>** Fouling Factor**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propylene (35%)</td>
<td>159.8 °F</td>
<td>159.8 °F</td>
<td>0.00</td>
</tr>
</tbody>
</table>

#### Material

- **Fin Material**: Aluminum .0075 in
- **Tube Material**: Copper .020 in
- **Header Material**: Copper
- **Case Material**: Galv. steel

### AHRI 410 Certification

- Coil is NOT certified by AHRI

### Supply Fan

<table>
<thead>
<tr>
<th>Component: 4</th>
<th>Length: 36 in</th>
<th>Shipping Section: 3</th>
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</thead>
<tbody>
<tr>
<td><strong>Fan Type</strong></td>
<td><strong>Blade Type / Class</strong></td>
<td><strong>Quantity of Fans</strong></td>
</tr>
<tr>
<td>Centrifugal DWI</td>
<td>Forward Curved / 2</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Motor Data</strong></th>
<th><strong>Power</strong></th>
<th><strong>Electrical Supply</strong></th>
<th><strong>Speed</strong></th>
<th><strong>Efficiency</strong></th>
<th><strong>Enclosure</strong></th>
<th><strong>Frame Size</strong></th>
<th><strong>Supplier</strong></th>
<th><strong>Number of Poles</strong></th>
<th><strong>Lock Rotor Current</strong></th>
<th><strong>Full Load Current</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 HP</td>
<td>200/60/3 V/Hz/Phase</td>
<td>1750 rpm</td>
<td>Premium</td>
<td>ODP</td>
<td>145 T frame</td>
<td>Generic</td>
<td>4</td>
<td>43.30 A</td>
<td>6.50 A</td>
<td></td>
</tr>
</tbody>
</table>

#### Fan Options

- **Shaft Grounding Kit**: Provided
- **Isolator Type**: Spring

#### Drive Package Data*

- **Fan Sheave**: AK46H
- **Motor Sheave**: AK34H
- **Belt**: A27
- **Number of Belts**: 1
- **Actual Drive S.F.**: 1.11
- **Bearing Type**: Standard - L50 (200K)

*Daikin Applied reserves the right to provide a different but equivalent drive package

### VFD/Start/Disconnect Data

<table>
<thead>
<tr>
<th><strong>Vendor</strong></th>
<th><strong>VFD</strong></th>
<th><strong>Voltage</strong>: 200 v</th>
<th><strong>Height x Width x Depth</strong>: 11.73 in x 5.26 in x 7.80 in</th>
</tr>
</thead>
</table>

### Unit Sound Power (dB)

<table>
<thead>
<tr>
<th><strong>Type</strong></th>
<th><strong>63 Hz</strong></th>
<th><strong>125 Hz</strong></th>
<th><strong>250 Hz</strong></th>
<th><strong>500 Hz</strong></th>
<th><strong>1000 Hz</strong></th>
<th><strong>2000 Hz</strong></th>
<th><strong>4000 Hz</strong></th>
<th><strong>8000 Hz</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiated</td>
<td>75</td>
<td>78</td>
<td>65</td>
<td>61</td>
<td>62</td>
<td>52</td>
<td>46</td>
<td>51</td>
</tr>
<tr>
<td>Unit Discharge</td>
<td>85</td>
<td>88</td>
<td>83</td>
<td>82</td>
<td>84</td>
<td>80</td>
<td>79</td>
<td>76</td>
</tr>
<tr>
<td>Unit Return</td>
<td>80</td>
<td>83</td>
<td>78</td>
<td>77</td>
<td>79</td>
<td>75</td>
<td>74</td>
<td>71</td>
</tr>
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USGBC LEED Accredited & ASHRAE High-Performance Building Design Certified Professional
<table>
<thead>
<tr>
<th>Shipping Section Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Entire Unit</td>
</tr>
</tbody>
</table>

NOTE: Special components aren’t included in the corner weights and center of gravity data.

UNIT TO BE PROVIDED WITH NO CONTROLS. ALL CONTROLS SHALL BE BY TCV, SEE CONTROL SECTION 5 BELOW.

4– NEW PUMP & PIPING – HWS/HWR for HV-5 HEATING COIL

Furnish & Install NEW PUMP “P3” as specified herein. Locate and pipe per the information contained herein and as required by the manufacturer’s installation requirements, meeting all local and state code requirements. TACO pump Model 0012 IFC 3-Speed [or equal] for 23 gpm @ 8’ wpd:
### Submittal Data Information

**3-Speed Circulators (0012-0013)**

#### Features
- 3-Speed Switch
- Fine tune to system requirements
- Highest performance & starting torque in class
- Heavy-duty construction for longer life
- Removable high flow Integral Flow Check (IFC)*
  - Prevents gravity flow
  - Reduces installation costs
  - Improves pump performance
- Replaceable cartridge design
- Quiet, efficient operation
- Self lubricating, no mechanical seal
- Wide range of applications
- Cast Iron or St. Steel, flanged construction

#### Pump Dimensions & Weights

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0012-MSF-1PC</td>
<td>CI</td>
<td>S</td>
<td>8-1/8</td>
<td>206</td>
<td>5-7/8</td>
<td>150</td>
<td>4-1/4</td>
<td>107</td>
<td>123</td>
</tr>
<tr>
<td>0012-MSF-2PC</td>
<td>SS</td>
<td>S</td>
<td>8-1/8</td>
<td>206</td>
<td>5-7/8</td>
<td>150</td>
<td>4-1/4</td>
<td>107</td>
<td>123</td>
</tr>
<tr>
<td>0013-MSF-3PC</td>
<td>CI</td>
<td>R</td>
<td>7-1/4</td>
<td>183</td>
<td>5-3/4</td>
<td>147</td>
<td>3-1/2</td>
<td>89</td>
<td>123</td>
</tr>
<tr>
<td>0013-MSF-4PC</td>
<td>SS</td>
<td>R</td>
<td>7-1/4</td>
<td>183</td>
<td>5-3/4</td>
<td>147</td>
<td>3-1/2</td>
<td>89</td>
<td>123</td>
</tr>
</tbody>
</table>

#### Materials of Construction
- Casing: Cast Iron or St. Steel
- Integral Flow Check (IFC):
  - Body, Plunger: Acetal
  - O-ring Seal: EPDM
  - Spring: Stainless Steel
- Stator Housing: Aluminum
- Cartridge: Stainless Steel
- Impeller: Non-Metallic
- Shaft: Ceramic
- Bearings: Ceramic
- O-Ring & Gaskets: EPDM

#### Model Nomenclature
- F – Cast Iron, Flanged
- SS – Stainless Steel, Flanged
- MS – Multi-Speed
- IFC – Integral Flow Check

#### Performance Data

**0012**
- Max. Flow (GPM): 45
- Max. Head (FT): 15
- Min. Fluid Temperature: 40°F (4°C)
- Max. Fluid Temperature: 210°F (98°C)
- Max. Working Pressure: 125 psi
- Flanged Connection Sizes: 3/4", 1", 1-1/4", 1-1/2"

**0013**
- Max. Flow (GPM): 30
- Max. Head (FT): 30
- Min. Fluid Temperature: 40°F (4°C)
- Max. Fluid Temperature: 210°F (98°C)
- Max. Working Pressure: 125 psi
- Flanged Connection Sizes: 3/4", 1", 1-1/4", 1-1/2"

#### Electrical Data

<table>
<thead>
<tr>
<th>Model</th>
<th>Volts</th>
<th>Hz</th>
<th>Ph</th>
<th>Amps</th>
<th>Speed 1</th>
<th>Speed 2</th>
<th>Speed 3</th>
<th>RPM (Speed 3)</th>
<th>HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>0012</td>
<td>115</td>
<td>60</td>
<td>1</td>
<td>1.60</td>
<td>150</td>
<td>170</td>
<td>200</td>
<td>3250</td>
<td>1/8</td>
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<tr>
<td>0013</td>
<td>115</td>
<td>60</td>
<td>1</td>
<td>2.15</td>
<td>195</td>
<td>220</td>
<td>260</td>
<td>3250</td>
<td>1/8</td>
</tr>
</tbody>
</table>

Motor Type: Permanent Split Capacitor Thermally Protected
5 – NEW CONTROLS:

Note: Existing building FMCS is an Automated Logic system provided by TCV. Only TCV is approved to bid on this project, no alternates allowed. Only TCV shall furnish and install all new hardware and software.

Upgrade entire building Web CTRL FMCS software from v6.5 to v7.0.

Furnish and install all control hardware and software for FMCS operation, trending, and alarming of the new HV-5 ventilation unit and & P3 circulation pump.

HV-5:

FURNISH AND INSTALL the following HARDWARE:

- OA MOD actuator – upgrade existing. Provide end switch to confirm position of MOD.
  - Note: Review existing MOD condition and verify full stroking open and closed. VERIFY MOD closes TIGHT. Bid shall carry a line item, ADD ALT #3, for the cost to REPLACE MOD.

- F&B MOD actuator for face & bypass operation

- FREEZESTAT, with AUTO RESET feature

- CT for fan motor status

- RIB for fan Motor Start/Stop

- ADD ALT #4: ADD 2-POSITION, 2-WAY VALVE TO ISOLATE COIL FROM MAIN PUMPING LOOP
FURNISH AND INSTALL the following SENSORS:
- Supply air Discharge temperature.
- Kitchen space temperature sensor
- KITCHEN CO SENSOR

P-3:

FURNISH AND INSTALL the following HARDWARE:
- CT for Pump Motor Status
- RIB for Pump Motor Start/Stop

HV-5 & P3 SEQUENCE OF OPERATION:

SCHEDULED OPERATION:
- HV-5 shall have scheduled operation from FMCS GUI graphics screen.
- When in ‘OCCUPIED” mode HV-5 SYSTEM shall be enabled ON
- When in “UNOCCUPIED” mode, HV-5 SYSTEM shall be disabled, OFF.

OCCUPIED MODE:
- HV-5 shall be commanded ON
- When CMD ON signal issued, HV5 OA MOD shall open, status reported to GUI
- When OA MOD has proven OPEN, HV5 FAN SHALL START and operate at constant speed; FAN status reported to GUI
- IF OAT < 60°F [ADJ], AND BUILDING HEATING SYSTEM IS ENABLED, PUMP P3 shall be enabled ON, status reported to GUI. [IF 2-POSITION VALVE ADD ALT #4 ACCEPTED, VALVE SHALL OPEN WHEN PUMP IS COMMANDED ON]
- HV5 F&B damper shall modulate to maintain DAT setpoint of 65°F [ADJ]

UNOCCUPIED MODE:
- HV-5 SHALL BE COMMANDED OFF
- OA MOD SHALL BE CLOSED
- IF OAT< 30°F [ADJ], PUMP P3 shall be enabled ON. [IF 2-POSITION VALVE ADD ALT #4 ACCEPTED, VALVE SHALL OPEN WHEN PUMP IS COMMANDED ON]

SAFETIES & ALARMS:
- If the FREEZE STAT trips:
  - FAN MOTOR SHALL BE COMMANDED OFF
  - OA MOD SHALL CLOSE,
  - P3 SHALL BE ENABLED ON
  - F&B SHALL POSITION TO FULL BYPASS
ALARM SHALL BE ISSUED TO GUI GRAPHICS SCREEN AND ANNUNCIATION TO OWNER

AFTER A PROGRAMMED TIME PERIOD OF 10 MINUTES [ADJ] SYSTEM SHALL RESTART AND RETURN TO PROGRAMMED MODE.

FREE STAT TRIP OUTS SHALL BE MONITORED AND COUNTED [REPORTED ON GUI]. IF FREEZE STAT TRIPS FOR 3 [ADJ] CONSECUTIVE OCCURRENCES, THE SYSTEM SHALL BE LOCKED OUT IN OFF (UNOCC) MODE AND REQUIRE OPERATOR RESET AT GUI.

ALARM ON HIGH CO LEVEL IN SPACE.

TRENDING POINTS SET UP FOR COLLECTION AND TRENDS FOR 1 YEAR ON:

- SCHEDULED MODE
- HV-5 FAN CMD & STATUS
- P3 MOTOR CMD & STATUS
- OAT
- DAT
- F&B CMD & POSITION STATUS
- OA MOD Cmd & POSITION STATUS
- FREEZE STAT STATUS & TRIP COUNT

6 – NEW ELECTRICAL:

FURNISH & INSTALL THE FOLLOWING:

- Wiring, disconnect for HV-5, reuse existing conduit, breaker, panel
- Wiring, disconnect for P3, reuse existing conduit, breaker, panel
- Mark all disconnects with circuit breaker and panel ID
- Verify breakers meet unit nameplate ratings, replace as add alternate if required.
- Power to FMCS controllers as required by TCV for new control system

7 – STARTUP & COMMISSIONING:

GWR Engineering proposes to oversee the implementation of this work and commission the system to verify their operation to the intent of this scope of work. Prepare the unit for startup and perform and document the startup following the installation manual and noted as follows:

- PREFUNCTIONAL checks - Installation verification: When the unit installation is completed and the contractor is ready to perform startup, contact the owner & engineer for verification of installation. DO NOT PERFORM STARTUP without this verification.
- Once installation review has been made, any non-conformances or deficiencies identified shall be corrected. Notify the engineer and owner of their corrections for final verification of installation and authorization to perform startup.
Once authorization for startup has been given, startup systems and controls (may be separate times) in coordination with engineer & owner on site following the installation/startup manual procedures.

The contractor shall complete (and provide the owner with a copy) a startup report that shall document the systems checks and functional operation verifications.

The contractor shall review with the owner all specific startup procedures and operations that involve the installed systems that may be of importance in operation or maintenance.

The owner shall sign off on an acceptance of installation form provide by the contractor indicating the date this review was performed and who the attending parties were on site for this procedure.

8 – CLOSEOUT & OWNER TURNOVER REQUIREMENTS:

Contractor to provide the following:

- Documentation on the startup and owner acceptance of an operational demonstration.
- Provide a complete set of Operations & Maintenance Manuals for all installed systems.
- Contractor shall review the maintenance procedures on all equipment, devices and systems installed.
- The contractor shall warrantee the work for a period of 1 year from the date of the acceptance document noted above. The contractor shall provide the owner with this warrantee document.
- CONTROL SYSTEM shall have a complete review and verification of the required sequences of operation by GWR Engineering. Any deficiencies or issues identified shall be corrected to the satisfaction of GWR Engineering before final payment on this project is made.

9 – BIDDING:

The school will be providing a bid document that WILL IDENTIFY THE REQUIREMENTS FOR INSURANCE AND SITE WORKING CONDITIONS.

BIDS WILL BE DUE ON APRIL 1 @ 2 PM (SEE SCHOOL DISTRICT BIDDING REQUIREMENT DOCUMENTS ASSOCIATED WITH THIS SCOPE OF WORK).

THE BOARD WILL AWARD CONTRACT ON APRIL 28, 2020.

Provide a base bid that includes all work as identified above.

Provide a line item price for individual component replacement found in the field to be defective and in need of replacement that is not identified herein.

IF the contractor wishes to provide additional work outside this scope all of these items must be listed separately for independent evaluation by the engineer and school.

10 – QUESTIONS:

Bill Root, PE at GWR can be contacted if there are technical questions, need for clarifications or explanation of anything in this scope of work.
11 – SITE VISIT: REQUIRED

A SITE VISIT IS SCHEDULED FOR WEDNESDAY, MARCH 18 AT 3:30 PM.

Respectfully submitted,

Bill
Gordon (Bill) W. Root, Jr., P.E., HBDP, LEED AP, President

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