Scope of Work – Revised November 10, 2021

Shallotte Middle School

ECM SMS 2 - RTU Replacement:

1. Disconnect supply and return ductwork from seven (7) roof top units and one (1) energy recovery unit. Remove existing bi-polar ionization kits and store for re-use. Demolish seven (7) roof top units and one (1) energy recovery unit.
2. Furnish and install six (6) packaged roof top heat pumps with electric heat, and hot gas reheat. Reconnect existing supply and return ductwork.
3. Furnish and install one (1) inline exhaust fan for service to the Locker Rooms. Re-purpose the return duct associated with the ERV to the new exhaust fan. Install air transfer ducts communicating between the locker rooms and the adjacent gymnasium space.
4. Furnish and install two (2) ductless split system heat pumps and (4) indoor air handlers serving the boys & girls locker rooms and associated coach's office.
5. Perform test and balance on four (4) rooftop units serving the gym and set new minimum ventilation air requirements.
6. Install existing bi-polar ionization kits in new rooftop units.
7. Furnish and install new SE EBO controls for (6) constant volume RTUs.
8. Integrate new RTU controllers and OEM ductless split system controllers into existing BAS
9. Update/create graphics for new equipment
10. Configure setpoints, time schedules and alarms in existing BAS

South Brunswick Middle School

ECM SBMS 1c Classroom Pod HVAC Replacement:

- Classroom Pods 700, and 800 (equipment listed is typical for both pods)
    1. Demolish existing split-system heat pumps and their associated refrigerant piping, indoor units, condensate piping and ductwork.
    2. Disconnect energy recovery unit from existing ductwork and demolish unit.
    3. Furnish and install new VRF condensing unit, branch box, ducted fan coils, ductwork, air devices condensate piping and refrigerant piping.
    4. Furnish and install one (1) new DOAU and energy recovery unit on new concrete pad in mechanical room. Extend supply and return duct to connect with existing ductwork and louvers.
    5. Furnish and install bi-polar ionization kits with self-cleaning functionality in all ducted fan coils.
    6. Integrate OEM VRF controls into existing BAS via BACnet interface
    7. Integrate OEM DOAU controller into existing BAS via BACnet interface
    8. Create new graphics to reflect new VRF system and equipment
    9. Configure setpoints, time schedules and alarms in existing BAS

- Classrooms 119-120 and 200-203
    1. Demolish existing split-system heat pumps and their associated refrigerant piping, indoor units, and condensate piping. All existing ductwork is to remain.
    2. Demolish bathroom exhaust fans and associated duct. Demolish ventilation duct associated with units serving classrooms 119, 120, 200, and 201. Patch roof penetration from all demolished exhaust and ventilation ductwork.
    3. Furnish and install new VRF condensing unit, branch box, and refrigerant piping.
    4. Furnish and install new ducted fan coils, ductwork, air devices condensate piping and refrigerant piping for classrooms 202 and 203.
    5. Furnish and install new ducted fan coils, condensate piping and refrigerant piping for classrooms 119, 120, 200, and 201. Reconnect new fan coils to existing ductwork.

6. Furnish and install one (1) new roof mounted DOAU with energy recovery wheel. Route new ventilation duct to classrooms and new exhaust duct to bathrooms.
7. Furnish and install bi-polar ionization kits with self-cleaning functionality in all ducted fan coils.
8. Integrate OEM VRF controls into existing BAS via BACnet interface
9. Integrate OEM DOAU controller into existing BAS via BACnet interface
10. Create new graphics to reflect new VRF system and equipment
11. Configure setpoints, time schedules and alarms in existing BAS

ECM SBMS 2 – RTU Replacement:

1. Disconnect supply and return ductwork from eight (8) roof top units and one (1) energy recovery unit. Remove existing bi-polar ionization kits and store for re-use. Demolish eight (8) roof top units and one (1) energy recovery unit.
2. Furnish and install two (2) packaged roof top heat pumps with electric heat, hot gas reheat, and variable speed fans. Reconnect existing supply and return ductwork. Demolish existing return air bypass.
3. Furnish and install five (5) packaged roof top heat pumps with electric heat, and hot gas reheat. Reconnect existing supply and return ductwork.
4. Furnish and install one (1) inline exhaust fan for service to the Locker Rooms. Re-purpose the return duct associated with the Locker Room ERV to the new exhaust fan. Install air transfer ducts communicating between the locker rooms and the adjacent gymnasium space.
5. Furnish and install two (2) ductless split system heat pumps and (4) indoor air handlers serving the boys & girls locker rooms and associated coach's office.
6. Perform test and balance on four (4) rooftop units serving the gym and set new minimum ventilation air requirements.
7. Configure controls for demand control ventilation for units serving the gym.
8. Install existing bi-polar ionization kits in new rooftop units.
9. Furnish and install new SE EBO controls for five (5) constant volume RTUs and two (2) variable volume RTUs.
10. Integrate new RTU controllers and OEM ductless split system controllers into existing BAS
11. Update/create graphics for new equipment
12. Configure setpoints, time schedules and alarms in existing BAS

SBMS 2B - BAS Upgrade (existing-to-remain HVAC equipment):

1. Demolish and remove existing Alerton controllers
2. Furnish and install new SE controllers as follows:
    a. (3) constant volume RTU controllers
    b. (2) air handling unit controllers
    c. (12) VVT damper controllers
    d. (1) Building override panel controller
3. Integrate new controllers into existing BAS
4. Bind new points to existing graphics
5. Configure alarms in existing BAS

North Brunswick High School

ECM NHS 1 - Control Valve Replacement (for existing-to-remain HVAC equipment):

1. Disconnect and remove hot water and chilled water control valves from the following equipment:
    a. (28) air handling units
    b. (1) blower coil air handler
    c. (11) unit ventilators
    d. (12) fan coil units

2. Furnish and install new hot water and chilled water control valves for the above listed equipment
3. New valves shall be one-for-one replacement (2-way valves shall be replaced by 2-way valves, 3-way valves to be replaced with 3-way valves).
4. Power and control wiring shall be reused. (new controllers included in ECM NHS 2)
5. Existing unit isolation valves are assumed to be fully functional, meaning work can be performed without draining system.

ECM NHS 2 - BAS Upgrade:

1. Demolish and remove existing Alerton controllers
2. Furnish and install new SE controllers as follows:
    a. Chilled water, hot water and domestic hot water plant/equipment controllers
    b. (28) air handling unit, (1) blower coil air handling unit, (11) unit ventilator, and (12) fan coil unit controllers (controllers for new unit ventilators included in ECM NHS 3a)
    c. (2) Building override panel controllers
3. Integrate new controllers into existing BAS.
4. Bind new points to existing graphics.
5. Configure alarms in existing BAS.

ECM NHS 3a – Section 100 Classroom UV Replacement and New DOAS:

1. Disconnect nineteen (19) unit ventilators from existing hydronic piping, condensate pump and piping, and electrical service. Demolish nineteen (19) unit ventilators. Remove and store existing unit mounted bipolar ionization units for reuse.
2. Disconnect three (3) supply fans from existing ductwork and demolish the three (3) supply fans.
3. Furnish and install three (3) four-pipe outdoor air units with energy recovery wheels, new hydronic piping and valving, electrical service, and condensate piping. Connect to existing ventilation and exhaust ductwork and install new supply and return air ductwork.
4. Furnish and install nineteen (19) unit ventilators with condensate pumps and hose kits. Connect to existing hydronic piping, electrical service, and condensate. New Unit ventilators to be installed in same location as existing units.
5. Furnish and install new hot water and chilled water control valves for unit ventilators.
6. Install transfer grilles with acoustically lined transfer ducts between classrooms.
7. Re-install bi-polar ionization kits in all new unit ventilators.
8. Furnish and install new SE network thermostats for all new unit ventilators
9. Integrate OEM DOAU controllers into existing BAS via BACnet interface
10. Integrate new controllers into existing BAS.
11. Bind new points to existing graphics.
12. Configure alarms in existing BAS.

West Brunswick High School

ECM WHS 1 - Control Valve Replacement (for existing-to-remain HVAC equipment):

1. Disconnect and remove hot water and chilled water control valves from the following equipment:
    a. (35) air handling units
    b. (2) blower coil air handlers
    c. (5) unit ventilators
    d. (18) fan coil units
2. Furnish and install new hot water and chilled water control valves for the above listed equipment
3. New valves shall be one-for-one replacement (2-way valves shall be replaced by 2-way valves, 3-way valves to be replaced with 3-way valves).
4. Power and control wiring shall be reused. (new controllers included in ECM WHS 2)

5. Existing unit isolation valves are assumed to be fully functional, meaning work can be performed without draining system.

ECM WHS 2 - BAS Upgrade:

1. Demolish and remove existing Alerton controllers
2. Furnish and install new SE controllers as follows:
    a. Chilled water, hot water and domestic hot water plant/equipment controllers
    b. (35) air handling unit, (2) blower coil air handling unit, (5) unit ventilator, and (18) fan coil unit controllers (controllers for new unit ventilators included in ECM WHS 3a)
    c. (2) Building override panel controllers
3. Integrate new controllers into existing BAS.
4. Bind new points to existing graphics.
5. Configure alarms in existing BAS.

ECM WHS 3a – Sections 100 & 300 Classroom UV Replacement Upgrade and New DOAS:

1. Disconnect twenty-six (26) unit ventilators from existing hydronic piping, condensate pump and piping, and electrical service. Demolish twenty-six (26) unit ventilators. Remove and store existing unit mounted bipolar ionization units for reuse.
2. Disconnect four (4) supply fans from existing ductwork and demolish the four (4) supply fans.
3. Furnish and install four (4) four-pipe outdoor air units with energy recovery wheels, new hydronic piping and valving, electrical service, and condensate piping. Connect to existing ventilation and exhaust ductwork and install new supply and return air ductwork.
4. Furnish and install twenty-six (26) unit ventilators with condensate pumps and hose kits. Connect to existing hydronic piping, electrical service, and condensate. New Unit ventilators to be installed in same location as existing units.
5. Furnish and install new hot water and chilled water control valves for unit ventilators.
6. Install transfer grilles with acoustically lined transfer ducts between classrooms.
7. Re-install bi-polar ionization kits in all new unit ventilators.
8. Furnish and install new SE network thermostats for all new unit ventilators
9. Integrate OEM DOAU controllers into existing BAS via BACnet interface
10. Integrate new controllers into existing BAS.
11. Bind new points to existing graphics.
12. Configure alarms in existing BAS.

South Brunswick High School

ECM SHS 1 - Control Valve Replacement (for existing-to-remain HVAC equipment):

1. Disconnect and remove hot water and chilled water control valves from the following equipment:
    a. (34) air handling units
    b. (3) blower coil air handlers
    c. (5) unit ventilators
    d. (13) fan coil units
2. Furnish and install new hot water and chilled water control valves for the above listed equipment
3. New valves shall be one-for-one replacement (2-way valves shall be replaced by 2-way valves, 3-way valves to be replaced with 3-way valves).
4. Power and control wiring shall be reused. (new controllers included in ECM SHS 2 below)
5. Existing unit isolation valves are assumed to be fully functional, meaning work can be performed without draining system.

ECM SHS 2 - BAS Upgrade:

1. Demolish and remove existing Alerton controllers
2. Furnish and install new SE controllers as follows:
    a. Chilled water, hot water and domestic hot water plant/equipment controllers
    b. (34) air handling unit, (3) blower coil air handling unit, (5) unit ventilator, and (13) fan coil unit controllers (controller for new unit ventilators included in ECM SHS 3a)
    c. (2) Building override panel controllers
3. Integrate new controllers into existing BAS
4. Bind new points to existing graphics
5. Configure alarms in existing BAS

ECM SHS 3a – Section 100 Classroom UV Replacement and New DOAS:

1. Disconnect twenty-one (21) unit ventilators from existing hydronic piping, condensate pump and piping, and electrical service. Demolish twenty-one (21) unit ventilators. Remove and store existing unit mounted bipolar ionization units for reuse.
2. Disconnect three (3) supply fans from existing ductwork and demolish the three (3) supply fans.
3. Furnish and install three (3) four-pipe DOAUs with energy recovery wheels, new hydronic piping and valving, electrical service, and condensate piping. Connect to existing ventilation and exhaust ductwork and install new supply and return air ductwork.
4. Furnish and install twenty-one (21) four-pipe fan coils with condensate pumps and hose kits. Connect to existing hydronic piping, electrical service, and condensate. New Unit ventilators to be installed in same location as existing units.
5. Furnish and install new hot water and chilled water control valves for unit ventilators.
6. Install transfer grilles with acoustically lined transfer ducts between classrooms.
7. Re-install bi-polar ionization kits in all new unit ventilators
8. Furnish and install new SE network thermostats for all new unit ventilators
9. Integrate OEM DOAU controllers into existing BAS via BACnet interface
10. Integrate new controllers into existing BAS.
11. Bind new points to existing graphics.
12. Configure alarms in existing BAS.