Upstate Energy Solutions, LLC
4316 State Route 414
Burdett, NY 14818
(607)229-4176
www.UpstateEnergySolutions.com

September 4, 2016

Inspection and Evaluation for Town of Ulysses Heating/Cooling System

The system is a gas fired heater and split system air conditioner (cooling). The mechanical portion of the system is in decent shape, but several improvements could be made to improve delivery of conditioned air to the occupied spaces.

The equipment is located in a second floor mechanical room. The metal supply plenum from the equipment extends into the adjacent unconditioned attic. Insulated flex duct is then used to deliver heated/cooled air to different sections of the building. The flex connections at the metal plenum are poorly detailed and leaky. This could be improved by securing the transition from metal to flex, and also sealing gaps and connections with tape and mastic Many of the flex duct runs could be improved by shortening them- this makes the path more direct and reduces restriction to air flow.

There is a fresh air intake grille that allows for outside air to be drawn into the duct system whenever it is operating. Introduction of outside air is necessary but adds to the total heating or cooling load of the building. Having a motorized damper with a timer control and/or manual override control would allow for fresh air intake control. When the building is unoccupied, there is no need for the outside air. Heat Recovery Ventilators are also an energy efficient way to introduce fresh air to the building.

There is a second opening for outside air delivery to the building which is currently unused and should be sealed closed.

Exhaust ventilation system: In the unconditioned attic is a blower that is designed to exhaust stale air from 4 spaces in the building. The stale air is ducted to a roof vent. The exhaust system has intakes in the kitchen, copy room, hall bathroom and the women's room. There are relay controls in the second floor mechanical room for control of the fan – only one seems to be connected. The women's room light switch activates the exhaust fan. It is unknown where the wiring from the other control relays goes. They may have had independent switches at one time, or been tied in with lighting in those spaces.

Summary:

Seal off unused fresh air intake vent
Tighten flex runs, seal connections at plenum to improve air flow and reduce loss to unconditioned attic **Estimated Cost $900**

Control outside air with mechanical damper/timer or upgrade to Heat Recovery Ventilator
Estimated Cost $760 - $4200

Honeywell Y8150A1009 Fresh Air Ventilation System. The Y8150 Fresh Air Ventilation System provides fresh air to a home. The control operates a fresh air intake damper and, when necessary, activates the main HVAC blower to efficiently meet ASHRAE ventilation rates.

Lifebreath 350 DCS High Efficiency Dual core Heat Recovery Ventilator

Determine wiring/control strategy for exhaust system **Estimated Cost $300**

Upgrade Cooling only unit to Heat Pump : this is not discussed in the evaluation. A Heat pump replacement of the cooling only outdoor unit would allow for reduction of natural gas use. Heat pumps can be very effective down to single digit temperatures. Heat Pumps run at very high efficiencies at moderate outdoor temperatures.
Estimated Cost $7400

Bryant 286BNA 2 stage Heat Pump, matching indoor coil, lineset
17 SEER 9.5 HSPF

Paul Myers
Upstate Energy Solutions, LLC
607-229-4176