

Northfield Energy Committee Meeting Minutes
August 22,, 2023. 6:00pm
Town Hall

Present: Judy Wagner, Co-chair
Jim VanNatta, Co-chair
Andrew Vernon
Spirit Joseph, acting secretary

Presenting/Discussion with:

- Christopher Mason - Department of Energy Resources, Green Communities Coordinator
- Ben Weil - University of Massachusetts, Extension Assistant Professor, Building and Construction Technology

Report on Technical Findings for NES by Ben Weil

1. Some Specific Notes:

- 1.1. The goal is to make every unit ventilator self controllable - set it and forget it, or the teacher can adjust to their own preference. Meanwhile, we will centrally control the water temperature. Water temperature is controlled by an outdoor reset.
- 1.2. Northfield Custodial team would have to do a 2x/year switchover from winter to summer mode.
- 1.3. Additionally the new ERV's (Energy Recovery Ventilators) will come with their own controls - and most can connect to a WIFI so they can be centrally monitored, but teachers and staff will mostly control themselves.
 - 1.3.1. This should eliminate the too hot complaints.
 - 1.3.2. With the HRV's (Heat Recovery Ventilators) that we already installed, some have been found to be too loud. Reducing the pressure drop should help reduce noise. Additionally, endcaps and air scoops will be modified, so there is less resistance to airflow which should also reduce noise.
 - 1.3.3. This work will also reduce uncontrolled ventilation. Once we have provided supply and exhaust vent air, we can reduce our uncontrolled ventilation. Ben hasn't yet calculated what that savings will be.
 - 1.3.4. In the North Section, we can use an old existing fan to provide ventilation to the band room, until the newer ERV's are installed.
- 1.4. Projects (In no particular sequence):
 - 1.4.1. Office, Lounges, Kitchen: \$28,400. Need to investigate Kitchen further. This project can be delayed. Office in the North building doesn't have any ventilation now. Suggestion is to take a unit ventilator and put it right in

the window (kind of like an air conditioner). It's only 6" high. Need to see what the historical commission would say.

- 1.4.2. North Exhaust Fans: \$4,320
- 1.4.3. Center 2nd Floor Classrooms and Cafeteria: \$54,240 (Equipment and Estimate of Labor)
- 1.4.4. Rooms 16, 17, & 18: Use existing ductwork to install an ERV
- 1.4.5. Cafeteria: Use existing ductwork to install an ERV in the attic
- 1.4.6. Gym Air Handler: Two Options:
 - 1.4.6.1. Heat Pump with backup hydronic coil: \$129,000 equipment + \$20,000? Installation. Still would have a connection to backup heating. Would have cooling as soon as you install it. Go with this option if you want to keep the VRF (Variable Refrigerant Flow) option open.
 - 1.4.6.2. Dual Temp Coil: Commits to the existing water distribution systems: \$72,000 equipment + \$15,000? Installation. This allows us to use chilled water and low temp water.
 - 1.4.6.3. Could work with a controls company to see what it would take to control the existing Gym AHU (Air Handling Units) with electronic controls.
- 1.4.7. South Building: \$75,840. This is where most complaints come from (primarily the 1st floor).
 - 1.4.7.1. Can use existing gravity ducts as both supply and return to a single ERV in the attic.
 - 1.4.7.2. Size fan coil units only for cooling. Let the fin tubes do most of the work of heating.
 - 1.4.7.3. Either need to cut an access around the round window on the gable end. Remove the window and the siding, cut access, bring materials in, put things back nicely. Probably a day of carpenters to open it up and a day to close it up. Or remove the cupola, and come in from the top. Need a crane.
- 1.4.8. Music, Band, and Kindergarten: \$97,920. Add Ventacity Units and add fin tube.
- 1.4.9. Vapor Seal and Insulate Piping:
- 1.4.10. Integrate Heat Pump for Heating and Cooling:
 - 1.4.10.1. Air to Water Heat Pump: SCOP 2.0 to 3.8. SpacePack - Easthampton Distributor. Probably 3 to 4 units. Makes sense to switch over to the legacy (existing) oil boiler below 10 degrees or so. So, don't need to size heat pump to extreme temp. No on site refrigerant work. It's all interior to the unit, and factory installed.
 - 1.4.10.2. Ground Source Heat Pump: SCOP 3.0 to 5.0. New geothermal drilling is using diagonal drilling. Celsius is the only company doing it. They also have some sort of financing deal. Check with them about financing and estimates.

2. Budgets and Quotes for the Purpose of the Grant
 - 2.1. Cost estimating is tough - Need to use prevailing wage.
 - 2.2. Could we get enough of a plan together to get a cost estimate from a professional cost estimator?
 - 2.3. We (the town) are the ones at risk if the costs go over.
 - 2.4. Equipment quotes are available and those are reliable, the unknown is the installation cost and related.
 - 2.5. A Design Firm might be good to involve - they would help with cost estimating and subsequent project management.
 - 2.6. Could look at Coldham and Hartman overheads.
 - 2.7. Could ask Northampton about who they use as cost estimators.
3. Insulating and Vapor Sealing water distribution:
 - 3.1. The majority of the lines are already insulated and vapor sealed.
 - 3.1.1. In a few places, will need to cut into ceilings and/or drywall.
 - 3.1.2. In some classrooms, need to disassemble part of the unit ventilator and shelf.
4. Incentives:
 - 4.1. Eversource is running projects of "Deep Energy Retrofit".
 - 4.1.1. B2Q is a company that the National Grid is working with, not sure who Eversource is using.
 - 4.1.2. Will do a scoping study to see if it is a good fit. If it is a viable building then go to technical analysis for more heavy duty engineering.
 - 4.1.3. At worst it would cost us up to 50% of the cost of the whole study. Then they will try to pull in every resource and incentive available.
 - 4.2. Even if we don't do the above, we will need to talk to Eversource about what sort of incentives they will give us for this project.
 - 4.2.1. Usually the project engineer would do calculations, fill out a form, and provide that to Eversource in order to determine any incentives.
 - 4.2.2. We can look at the Masssave program (for heat pumps or energy retrofits, etc.) on the commercial side and do that ourselves if the vendor's won't be doing that.

Solar Planning and Project Updates - Delayed to a future meeting

Minutes approved November 14, 2023