

**Office of the Selectmen
Town of Nelson
7 Nelson Common Road
Nelson, NH 03457**

April 13, 2022

To Members of the Building Committee

Although attaining totally green energy is a laudable goal the reality is that achieving this is not totally possible. All forms of energy have their negative impacts on the ecology of our planet. Solar and wind power are good ways of producing some of our energy needs but are not in and of themselves totally green. There are serious issues with the use of batteries and the lithium they contain. Child labor is often employed in the mining of lithium. Batteries are composed of toxic materials and the disposal of batteries is not environmentally friendly. Electric cars have to be charged, often employing the use of fossil fuels in the process. Wind mills are noisy, destructive to bird life, and aesthetically unappealing, although they are more friendly to the environment than other sources of green energy. Each is dependent on sufficient weather conditions to be effective and so are not 100 percent effective during the entire year. The construction of electric cars, batteries, and windmills, deemed to be more environmentally friendly, all employ the use of fossil fuels and have issues with disposal. Some combination of energy sources will likely always be our reality.

The SB is charged with maintaining town buildings, not with providing total green energy in the process. We have to consider the buildings we are given. We are not looking at new construction that can be tailored to efficient use. These buildings are old, historic, and comprised of many small rooms that make heating difficult. They are not well insulated so any heating system we employ is going to be compromised in its ability to be totally efficient. Any heating system we choose will not be able to heat at total efficiency given the reality of the areas we need to heat and cool and the reality of the construction of the buildings.

When we met with the Lisa Sieverts and Kim Rich a few weeks ago we got a better understanding of the issues of concern with the Zajac proposal. We do question the data provided as to the mini splits being 100 percent efficient. Everyone we have talked to has said that nothing is 100 percent efficient and would certainly not be given our situation with older, not well insulated buildings. We have to choose what we feel is the best system that we can get for the situation we are presented with.

Although the use of mini splits may be more efficient in some areas, the efficiency is undermined when considering the additional small spaces that need to be heated that are not connected with the larger open areas. To deal with the smaller areas, the bathrooms for example, would require many installations and many outside units to service them. This does not seem sensible or practical for the reality of our buildings.

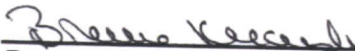
The Select Board has chosen to proceed with the Zajac proposal as it provides us with all new heating units to all three buildings. All current units need to be replaced, one having already failed, and the other two in jeopardy of failing. We will definitely need some form of backup for electricity and propane is a relatively clean choice. The use of the current duct work to access all the rooms we need to heat and cool also seems to be the best choice. It will provide all buildings with both heating and cooling. It should only require propane use on occasions when the temperatures fall below minus 4


degrees for extended periods. This will provide much better service than the buildings receive currently. It will for the most part rely on electricity which is the goal. This system does not prohibit the use of mini splits going forward if some better technology comes about. It is also important to note that this proposal came in at a considerably lower price than the proposal from Gary Jackson which only addressed some of the buildings and did not include new heating systems throughout.

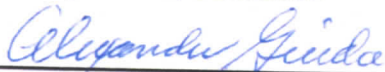
We received very glowing references from many current customers of Zajac HVAC. They all commented on the promptness of service, the competency of their employees, the high quality and performance of the Bosch products, cleanliness of service when installation was being performed and staying within their budget. Some were homeowners, others were owners of businesses in the area. They all highly recommended their work and service. We have attached the most detailed recommendation we received.

Although we understand that the Building Committee is committed to what you perceive as totally green energy for the Town of Nelson the current Select Board is committed to maintaining the buildings to the best of our ability, taking into account cost and effectiveness, while at the same time being mindful of the environmental impact. It is not our goal to only employ systems that are deemed totally green to some as this is always a debatable question. It is up to each and every one of us to determine how we can best help to decrease our impact on global warming. In reality our little town will have practically no effect on the greater global issue. We need to consider the costs for our residents in all we propose and balance that with our desire to have as little impact as possible on our environment. We feel the Zajac proposal is the best choice for our town.

Sincerely,
The Nelson Select Board


Brenna Kucinski, Chair


Maury Collins, Selectman


Alexander Guida, Selectman

Micah and Jennifer Harvey

94 Breakneck Road

Newport, NH 03773

256-653-41238

Re: Work done by Zajac HVAC in late September 2021

My family moved to Newport NH in late 2020, and during summer 2021 we began researching local HVAC contractors to install air conditioning systems in our house. Our house is 2 stories with a basement, and each level is approximately 950 square feet. At the time, there was no heat or air conditioning in the top floor, and there was a gas furnace located in the basement that serviced the main floor.

We talked with a few companies about options for adding air conditioning to the house. Several companies would only install mini splits, but we wanted central air in the top floor. We decided to move forward with the proposal from Zajac. The proposed work included:

- Installation of a new propane furnace (Bosch BCHBGH96M100C5A) with coil pack (Bosch BCHBMAC3036CNTD) in the basement to replace the existing unit.
- Installation of a Bosch BCH BOVA-36HDN1-M20G heat pump that interfaces with the coil pack in the basement. The heat pump is a 3 ton unit with 20 SEER efficiency and inverter control.
- Installation of a new air handler in the attic (Bosch BCH BVA-36WN1-M20) that includes coils for integration with a heat pump.
- Installation of new ductwork in the attic to serve the top floor.
- Installation of a Bosch BCH BOVA-36HDN1-M20G heat pump that interfaces with the new air handler in the attic. This is the same model of heat pump as the main floor.
- Installation of Bosch BCC100 programmable thermostats for the main floor and upper floor systems.
- Work also included outdoor site prep, risers for the heat pumps, line sets and control wiring to the heat pumps, line hiders for the outside of the house.

We ended up choosing these systems for the following reasons:

- Bosch brand has a reputation for high quality, high performance products.
- The heat pumps are very high capacity, but the inverter technology lets them operate at lower capacity if necessary to reduce cycle time and increase part life.
- The 20 SEER components are very high efficiency especially compared to competing products.
- Bosch heat pumps claim to operate in heat mode down to -4°F.
- Bosch thermostats have better control over their systems and ensure the systems operate in their most efficient manner.

Zajac HVAC recommended an electrician to prepare the sites for the installation. He coordinated with the electrician to make sure the sites were prepped prior to installation and that hooking up the systems happened on time.

Zajac HVAC took about 3.5 days to complete the installations including outdoor site prep, installation of all interior units, installation of heat pumps, running coolant lines, installation of new ductwork, integration into existing ductwork, installation of thermostats, and system setup. We were very impressed and pleased with the work that was done by Zajac HVAC; below are some things that stood out during the installation:

- There was a lot of consideration into the installation sites. Zajac included compatible risers for the heat pumps, matching colored rock for the heat pump sites, line hide conduit that matched our house, condensate neutralizing system for the furnace, elevated installation bracket for the attic air handler, properly sized drip pan for the attic air handler, and electronic water sensing shutoffs.
- There was good consideration for requests made as the job was being done including sites for the thermostats and air return, system placement, coolant line routing locations, drip pan drain locations, and other cosmetic concerns that we had.
- The team did an excellent job of ensuring that the job was done in a high quality manner. For example, they inspected the entire gas line run in our basement to ensure it was up to code, and they repaired a hole in the concrete adjacent to the old furnace in the basement prior to installation to ensure they had a good working surface.
- Routing of signal wires and coolant lines was done in an organized fashion using high quality insulated line sets.
- After the installation was complete, Zajac was available to help with questions on thermostat settings and any other questions we had in regards to the installation.

We have been using the system now for a month or so in AC mode during the end of the summer last year and to provide heat this winter. Our impressions of the system are below:

- The air conditioning capacity is very good; the heat pumps were able to run at low power to provide the required cooling for the end of summer/early fall.
- The heat pump units are very quiet, especially when running at lower capacities.
- The heat pumps seem to do a good job of self-defrosting and keeping snow and ice buildup in check.
- The air handler and furnace are very quiet.
- The heat pumps seem to put out sufficiently warm air until the outdoor temperature is about 0-5°F. We will be adding an electric stage to our attic to provide auxiliary heat for the coldest nights.
- The thermostats have a programmable threshold point to switch from electric heat pump to gas use. That allows more overall efficiency based on fuel cost and unit efficiency vs ambient temperature.
- The thermostats have a lot of control over the systems. We have been able to find a good balance between system cycle time, indoor temperature swing, and fuel efficiency by setting reasonable schedules and setting delays and other parameters in the settings.

We have looked into the overall efficiency of the system, but we don't have a large frame of reference because we've lived at the house for only 1.5 years. We checked overall energy costs this winter versus last winter and have made some observations.

- This winter has been slightly colder than last winter.
- We have made improvements this year that have contributed to higher electricity use (significant lighting additions, running a dehumidifier in the garage, heating in the second floor vs no heating last year).
- We have also added a house backup generator this year which we did not have last season. It uses propane in its weekly self check runs.
- Overall, our propane use has decreased this winter by approximately 40-50%. This makes sense as we are running mainly in heat pump mode when possible to avoid high propane prices. For reference, the water heater, cooking range, furnace, and backup generator are the propane appliances in the house.
- Our electricity use has risen by about 30% versus last winter.
- Overall, with the additional improvements to the house that are consuming power as well as the new heating system in the second floor, our energy costs are approximately 10% lower than last year based on current energy costs.

In summary, we chose to work with Zajac HVAC to add two Bosch heating and cooling systems in the house. We chose the systems due to their high capacity, high efficiency rating, and inverting control capability. Zajac HVAC did a superior job throughout the installation process, and we were very pleased with the result of the work. We have had the systems installed for about 6 months now, and we've been pleased with the capabilities and performance of the new Bosch systems. Further, we've seen a fuel cost savings of about 10% versus last year despite having added an additional heat pump and other significant energy consuming devices since last winter. We are quite happy with the installation and will be working with Zajac HVAC for maintenance and any future work.