

Norwich Selectboard
Special Meeting – August 16, 2023 – 6:30 p.m.
Participation: Hybrid Physical Location: Tracy Hall meeting room
ZOOM access information: <https://us02web.zoom.us/j/89116638939> Meeting ID: 891 1663 8939
US Toll-free: 888-475-4499 (Press *9 to raise hand; Press *6 to unmute after recognized by Chair)

Welcome

1. Agenda..... Motion required.

2. Minutes – August 2, 2023 meeting minutes..... Motion(s) required.

Public Comments for Items not on the Agenda. *No new information on police* Informational

Items – Important information for which there will be no immediate action.

- None

Action Items for motions – Introduction by the chair on items being decided, any related correspondence, public comment, SB discussion, SB action.

3. Tracy Hall Heating.....Motion(s) possible.

Reports Submitted -- Reports from appointed committees, departments, or other town-related entities submitted without comment or request for agenda time. The chair will identify such reports for the record, and the SB may or may not determine action is necessary.

- None

Discussion Items – Issues being framed for future action.

- None

Future Meeting Dates and Topics

- Aug. 23, and Sept. 6 (2 weeks/special meeting) and/or 13(3 weeks/regular meeting), and September 27, 2023
- **Interim Town Manager’s Office**
 - Personnel Policies – work in progress
 - H.R. structure, ID nature of assistance, scope/purpose – work in process
 - RFPs issued for Compensation Study; Tracy Hall Study; Consulting Engineering Service for Hemlock Rd Slope Failure; Gravel/Ledge Products; Winter Sand; Snow Plowing Assistance
 - Budget preparation for FY 24 – beginning soon

- **Selectboard**
 - Committees: coordination with overall town priorities – beginning soon
 - RFP issued for Town Manager position
 - Norwich/Sharon Town Line – to begin
 - Public Safety – on-going hiring
 - Financial Policies & Procedure – on-going review

Adjournment

**DRAFT Minutes of the Special Selectboard Meeting of
Wednesday, August 2, 2023, at 6:30 pm**

This hybrid meeting was held in the Multipurpose Room in Tracy Hall.

Members present: Marcia Calloway, Chair; Mary Layton, Vice Chair; Roger Arnold (via Zoom); Pamela Smith; Priscilla Vincent

Also participating: Brennan Duffy (via Zoom), Interim Town Manager; Marshall Heinberg; Leslie Wells; Wayne Kniffin; Matthew Swett; Margaret Baghdoyan; Wilfred (Will) Smith

Note that sections are presented here in the order they were addressed at the meeting, which may occasionally differ from their sequential item numbering.

Because not all members were present in person at this meeting, all votes reported below were by roll call.

Welcome. Meeting was called to order by Calloway at 6:38 PM. She reminded anyone wishing to join via Zoom® to present with both first and last names to help prevent unwelcome intrusions, commonly known as “Zoom-bombing.” Given that this special meeting was to be focused almost exclusively on the RFP for the open Town Manager position search, Calloway committed to finishing within two hours.

1. Agenda. Layton moved, seconded by Vincent, to approve the agenda. **Passed Unanimously.**

2. Minutes. – July 26, 2023. Layton moved, seconded by Smith, to approve the minutes of July 26, 2023. Prior to the vote on this motion, Smith reported that a correction had been requested by the Town Clerk regarding Cott systems, and that it should be documented under Item #5 that a motion by Arnold and seconded by Layton to approve the contract with Better Bin passed with four yes votes and one abstention (Vincent). It was also pointed out that the draft minutes said Duffy was to work closely with Duffy on Police Chief succession planning whereas it should have said that was to be with Cochran. With these amendments, the minutes of July 26 were **Approved Unanimously.** Smith will deliver the corrections to Miranda Bergmeier to be posted with the final version.

3. Correspondence. None received.

4. AP Warrant(s). None.

- **Public Comments for Items not on the Agenda.** Wayne Kniffen acknowledged that the Selectboard works hard and has to sort out a lot of complex information. Will Smith, via Zoom, requested adjustments to ensure that all SB members could be heard on Zoom.

- **Update on Police Department.** Duffy reported that thus far there has not been much response to the advertised patrol officer position. However, the Town has managed already to hire an Interim Police Chief, Matthew Romei, who will start August 3. Romei served most recently as Chief of the Vermont Capitol Police and has extensive qualifications as well, for instance as a paramedic and EMT. He has been vetted thoroughly already by Chief Cochran, with only a drug and alcohol screening still pending. Duffy said a “meet-and-greet” was to be scheduled soon for townfolk to welcome him and to convey best wishes to outgoing Police Chief Cochran as well.

[Since this night’s Board meeting, the event has been scheduled for Monday, August 7 from 10:00 to 11:30 AM at the Public Safety Building.]

Marshall Heinberg rose from the audience to ask why the new Chief will be titled as interim and from what distance he will have to commute. Duffy replied that Romei will be driving 35-45 minutes from central Vermont where he lives, which is about as far away as Chief Cochran’s base.

Another Norwich resident, Leslie Wells, wondered what steps might be taken to answer the question, “How can we avoid losing another chief?” Duffy responded that while he can’t be specific in regard to compensation, particularly given the ongoing collective bargaining situation, they are endeavoring to meet the Town’s needs and objectives as best they can.

Will Smith said he thinks a change in the composition of the Selectboard’s negotiating team might be in order to ensure no member is “prejudiced against cops.” Arnold responded that the negotiating team, constituted by Layton and himself, has apprised the Board of its work on “at least three occasions” since it was formed in 2022. Calloway emphasized in addition that no actions can be taken without full approval of the Board.

Margaret Baghdoyan said she was “amazed” to have learned that officers such as the recently resigned Chelsea Maxham earn only \$2.50 per hour for on-call duty.

5. RFP for Town Manager search. Calloway reviewed a town manager’s role as defined under statutes, including its discretion and scope, which generally encompass accounting, buildings supervision, and oversight of fire and police, while the Selectboard retains in its entirety the determination and planning of budgets. In her view, the current contract with the Interim Town Manager (ITM) is rather more in line

with the typical role of a town administrator. She said the Board has become increasingly involved in areas that had been by definition the province of its town managers, largely because of distrust between the two, especially concerning such things as buildings and repairs.

Calloway also wondered aloud whether if the Board is not willing to hire to meet the job description of a full town manager, they ought not to ask the voters to consider formally reducing the role to that of an administrator. Or even revert to having the Selectboard once more run nearly everything, as it did before the vote to adopt the Town Manager system some twenty years ago. Given this context, she asked individual Board members how they wished to proceed. Each commented in turn.

Layton agreed that the Town has not had a full Town Manager for some time. Smith said she wasn't party to the original vote to establish that form of government and she wondered if upcoming hearings on the disposition of surplus ARPA funds might not be an opportune moment to raise the issue again, asking voters if they wished to address a related warrant at Town Meeting. She further suggested it might be best therefore to hold off for now on the RFP in question.

Vincent said the Town voted as it did in recognition that the ever-increasing complexity of Town governance had exceeded the capacity of the Selectboard as a part-time and essentially volunteer entity. She further commented that "technically" the work she's been doing in relation to options for heating Tracy Hall this winter ought instead to have been assigned to the ITM.

Arnold noted he found it "very instructive" that discussion on an agenda item for crafting an RFP had ventured instead into questioning whether the Town should even have any Town Manager. He was particularly concerned about what signal this might send to prospective hires, who are by definition of working age—a cohort showing generally little interest in even becoming involved at all in public service. In his view, too, career public servants want to know that elected decision-makers understand and appreciate their roles. The decision was made, we don't need to frame the discussion. He said the problem with Norwich is "we tend to exhume imagined crises of the past" rather than working for the future. "It's exhausting."

Will Smith commented that he was confident that with his fifteen years of experience in advertising, he could find a competent Town Manager and would do the work for free, asserting that the last one was "a disaster."

Marcia then shared her screen, color-coded to show who had suggested what. Duffy said of the Introduction section that he agreed the number of staff he oversees as ITM is approximately thirty. After some discussion, the Board reached consensus that the deadline for replies from targeted agencies will be September 8, 2023, with no

particular time of day specified.

At Vincent's suggestion, the scope of work description will be moved to the second section. It was also determined that in addition to reviewing details on education, criminal and civil litigation, social media, references, and background checks, in any Town Manager search a credit check should be completed since the position entails considerable attention to financial matters.

It also was decided that the "About the Town of Norwich" section should tout the proximity of the VA hospital and the Montshire Museum. Arnold suggested that since the term "bedroom community" connotes suburb and is often pejorative, a substitute should be found. The Board decided to instead describe the Town as a "neighbor" to Dartmouth and other employers.

Vincent said that although it is a separate municipality, the document should not imply that the Fire District provides sidewalks. "Provides water" they decided said enough.

Arnold requested more gender-neutral language be used instead of "he or she", "he/she", or "s/he". The Board decided that instead simply referencing "the candidate" where necessary would be satisfactory and sufficient.

The text may also reference somewhere the need for a candidate with a good sense of humor.

In the Qualifications section, "financial stability" will be changed to "financial ability" and/or "financial acumen."

The Board decided to state in the RFP that the most important criteria for selecting among search firms will be cost, approach, and timeline. At this point, the Board determined their editing of the RFP was complete and it was decided Calloway would see that the agreed-upon changes were made and return a final draft to each member for a last evaluation.

The Board agreed to accept Layton's suggested list of four search firms to be targeted with the RFP, plus the VLCT. It will be kept open or others as well. Responses will be received in the ITM's office.

Layton moved, seconded by Vincent, to authorize the Interim Town Manager to issue the RFP as amended to: *Municipal resources, Inc.*; *Raftelis*; *Baker Tilly*; *Colin Baenziger & Associates*; and *Vermont League of Cities & Towns*; and to post the RFP to the Town website homepage, the Norwich listserv, and any other reasonable venue for distribution. **Passed Unanimously.**

Adjournment. Layton moved to adjourn, seconded by Vincent. **Passed Unanimously. Meeting Adjourned:** 8:37 PM.

Respectfully submitted (with thanks to Mary Layton for very useful notes),
Ralph C. Hybels
Minutes Taker

Approved by the Selectboard on

Marcia Calloway, Selectboard Chair

PLEASE NOTE: JUNCTION ARTS & MEDIA (formerly CATV) POSTS RECORDINGS OF ALL REGULAR MEETINGS OF THE NORWICH SELECTBOARD.

Tracy Hall Heating Project

Purpose of Inquiry

To secure reliable heat for Tracy Hall, adhering as closely as possible to the town's stated goal of reducing or eliminating our use of fossil fuels as expressed in Article 36 voted in March 2019:

***Article 36.** Shall the voters of Norwich direct all Town officials to take immediate and sustained efforts to gradually and continually reduce the Town's direct use of fossil fuels, beginning at a rate of no less than 5% per year starting in the 2019-20 fiscal year and continuing until they are eliminated entirely, and shall the Town Manager be charged with monitoring such efforts and reporting on them each year in the annual Town Report, and no capital expenditures shall be made that contradict or undermine this direction, absent a majority vote of the Selectboard?*

This inquiry was made urgent by the age of the current system of 2 oil-fired boilers, which are close to the end of their useful lives. One of them is not really functional, and the other is limping along with parts found on e-Bay. In fact, there was concern last winter that the system might fail, potentially resulting in burst pipes and water damage to town archives in the vault; not to mention the discomfort and inconvenience to town employees who were expected to work in Tracy Hall.

Background

It is estimated that town government operations produce approximately 450 tons of CO₂ each year. Most of these emissions come from the town fleet: snow plows, road equipment, fire engines, police cars, lawn mowers, etc. These will be replaced by hybrid or electric vehicles as they are developed as practical alternatives to the current fleet. Town buildings will be examined for their energy use and efficiency. It is important to remember that town government also has a responsibility to expend public funds with care, balancing the desired outcome with consideration of the burden on the taxpayers. Cost and "bang for the buck" are always concerns.

Tracy Hall is thought to generate approximately 45 tons of CO2 per year, or about 10% of the town's operational total. It is our oldest municipal building and has historic value. It is also in need of refurbishment and care. The last major work on the building was done in 1994. In the intervening 29 years, use of the building has increased. There are more town employees working in the building; and public events such as the winter farmers markets, dances, community potlucks, sports programs and town events have grown in number. An RFP has been issued for qualified consultants to provide guidance on potential improvements to the Tracy Hall facility. This should include an examination of the overall needs for the building, based on current and anticipated use.

The heating system is a matter of urgency that must be resolved for the 2023-24 heating season and cannot wait until a grand plan is conceived. It is already mid-August. We are all aware of supply chain issues and labor shortages, not to mention the surge in demand for services after July's devastating floods. The town needs to commit forthwith to a plan to provide reliable heat for the upcoming heating season.

Narrative and Discussion

With what appeared to be the blessing of the Selectboard at its May 31, 2023 meeting, Priscilla Vincent volunteered to look into the Tracy Hall issue, and Pam Smith volunteered to join her in the effort. We have made site visits to the Montshire Museum (pellet boiler system) and the Richmond Middle School (wood chip boiler system) in company with the facilities directors of both institutions. We were not aware of any geothermal installations we could visit. We have consulted with professionals from ARC Mechanical and also Lyme Green Heat - both local companies. They have toured Tracy Hall with us, accompanied by Ben Trussell, Tracy Hall's custodian for over 29 years. Both heating companies have provided current estimates for the cost of installing a system. They have also made suggestions such as replacing or removing our underground oil tank (at least 30 years old and without a fuel gauge) and improving the air conditioning system. Lyme Green Heat has provided research on pellet boiler emissions. We have further consulted with Rachael Mascolino from Efficiency Vermont. We have reviewed the most recent reports and summaries from EEI and Living Buildings, as provided by Jeff Grout of Two Rivers Ottauquechee Regional

Commission (TRORC) . Our interim town manager has joined us on some of the Tracy Hall tours and has issued an RFP for professionals to examine the overall design needs and use of Tracy Hall. The site visit notes, the information on particulate emissions from pellet boilers, the RFP and the proposed contracts have already been submitted to the Selectboard.

Tracy Hall is in need of a major renovation. The proposals from EEI and Living Buildings were plans submitted in 2020 that addressed a number of issues including cooling and ventilation. The proposals from ARC Mechanical and Lyme Green Heat address solely the heating system. It is hoped that the RFP will result in an architect or some other qualified person to assess all the issues, consult with users of the building, and produce a comprehensive plan, with priorities, that can be implemented in phases, as seems reasonable from a budget perspective.

One issue that needed resolution was whether we would be required to bring the ventilation system up to code at the same time that we installed a new heating system. There appear to be differences of opinion on this. Jeff Grout's report states, *"Anything other than a simple replacement of the oil boiler would require that the building meet Vermont Commercial Building Energy Standards, including ventilation and cooling."* Rachael Mascolino of Efficiency Vermont has stated in an email, *"If your priority is to replace your oil boiler with a pellet Advanced Wood Heating (AWH) boiler, there is not a requirement to install a ventilation system that meets minimum requirements at the same time. . . We always encourage buildings that are under ventilated to explore the project of bringing the space into compliance with the current standards, but this is not a requirement to receive support for the pellet boiler."* Our conclusion is that a new ventilation system is desirable, but that addressing that in the future would not impede putting in a pellet boiler system at this time.

The Options

The simplest, though not necessarily the fastest, solution would be to replace the failed oil boiler with a new one. The boilers themselves are available; the bottleneck is the availability of labor to do the installation. However, a new oil-fired boiler could most likely be in place by the end of this calendar year at a cost of approximately \$35,000. [See estimate from ARC Mechanical.] This approach would

not advance our goal of reducing or eliminating fossil fuels. A motion offered at a Special Selectboard meeting on June 28,2023 to purchase an oil-fired boiler failed.

Another option would be to change from fossil fuel to renewable fuel. There are two possibilities for this: a wood-fired system and a geothermal system. We will summarize them briefly.

We examined both wood chip and wood pellet boiler systems. [See site visit reports from the Richmond Middle School and the Montshire Museum of Science.] Of the two, the wood pellet system seems preferable. Wood chips are created by cutting trees down and feeding them into a chipper. Pellets are 80% from waste products in the Maine lumber and forestry industries: sawdust, scrap wood, top branches, etc. They burn cleanly and leave little ash residue. [See attached data on particle emissions.]. Pellet systems are usually accompanied by a small fossil fueled backup boiler in order to provide auxiliary boost to heating on the coldest winter days. This type of system could be installed in Tracy Hall prior to the beginning of the 2023-24 heating season for an all-in cost of \$176,905, after an estimated incentive payment from Efficiency Vermont of \$11,600. [See quote from Lyme Green Heat for \$188,505. This quote does not include the piping for the wall-mounted propane boiler or the propane tanks. Lyme Green Heat recommends Dead River, the oil company we currently use. No estimates have been given for this cost, however, it is believed that this cost will be minimal in comparison to the overall cost]. This would be not a short-term patch but a long-term solution to the heating issue.

The other option is geothermal wells. For this information we draw on work previously done and presented by Jeff Grout of TRORC and Marcus Jones of Living Buildings. Two companies were involved in this work: EEI and Living Buildings. Both provided more comprehensive plans that included not only heating but also cooling, as well as major overhauls of the electrical service, the ventilation system, digital controls, and added insulation in the attic of the building. As well, to quote from Jeff Grout's TRORC report, "*Both proposals would require either a backup battery system or emergency generator to power the systems during power outages, and an electrical upgrade to accommodate larger electrical loads would likely be required*".

The proposal from EEI would include 9 water to air and 6 water to water heat pumps as well as the installation of 4 new outside ventilation units with backup electrical duct mounted heating coils. These pumps would most likely result in a significant increase in electricity usage. It is not clear where the 15 geothermal wells and 4 new ventilation units would be located, since there is very little land surrounding Tracy Hall.

The proposal from Living Buildings is less specific. To quote the TRORC report, *“some of the Living Building energy conservation measures are conceptual and not proven in the New England region. The proposed thermal storage walls would take up valuable space in some of the offices”*. Living Buildings suggests that in the short term, a new oil-fired boiler be installed to provide heat while the new systems are being built. Living Buildings also notes that a skilled and knowledgeable workforce does not currently exist in our region, but offers the hope that the transformation of Tracy Hall would *“offer the opportunity to create a campus of knowledge sharing”*.

A geothermal system was proposed to the town in March 2020. An initial vote narrowly approved bond funding of \$2,055,000 (yes = 849; no = 801). However, a petition was circulated requesting a re-vote. After further information was disseminated, the bond funding proposal was rejected (yes = 608; no = 1,041). In 2020, this approach was estimated to cost \$1.8 million (not including additional work proposed and interest on a \$2,055,000 bond as proposed in Article 8). It is currently estimated that a geothermal system would cost between \$2.5 million to \$3 million and would take two years to install. Interest rates have substantially increased over the past three years, which would add to the cost of a geothermal project. A short-term heating source (most likely a new oil-fired boiler) would be required in the meantime, and an electric boiler would be required as backup to the completed system (rendering the oil-fired boiler unnecessary). It should also be noted that the Selectboard has taken no action in the three years since Article 8 was overturned in August 2020, which has led to the current crisis at Tracy Hall.

Recommendation

We recommend that the town of Norwich install a pellet boiler system. It is the only system that could be in place prior to the beginning of the 2023-2024 heating

season, and would be a long-term solution to heating Tracy Hall. This recommendation is supported by the fact that 75 school systems in Vermont have elected pellet boiler systems, with 15 new systems having been installed since 2017. (See WCAX-TV report.)

No system will entirely eliminate fossil fuel and all emissions. However either the pellet boiler (**which emits 92% less carbon than fuel oil**) or the geothermal system option would substantially reduce both of these things. Replacing the current oil-fired boiler with a new one is therefore not recommended. Given the differential in cost (under \$200,000 vs \$2.5 - \$3 million) and time to completion (prior to the 2023-24 heating season vs. two years going forward), the pellet boiler system is recommended for immediate approval and installation.

Funding

It is important for the Selectboard to be good stewards of the taxpayers' dollars and as stated earlier, cost and "bang for the buck" are always concerns. And, given that there has been no action to resolve this problem over the past three years, the problem has now reached crisis proportions for the 2023-24 heating season. It is hereby our assertion that the heating dilemma at Tracy Hall has reached "emergency" status. Therefore, we propose that the funding for the pellet boiler system be taken from the Emergency and Unanticipated Reserve Fund, which has a balance of \$750,000.

Respectfully submitted by Priscilla Vincent and Pam Smith
August 10, 2023

Attachments:

Thank yous to contributors to this report
Site Visit Notes - RMS & Montshire Museum
Emissions Data
Quotes for Costs
Memo from Rachael Mascolino
Memo on WCAX-TV Report

An Interview with Morton Bailey of Lyme Green Heat



Lyme Green Heat of Lyme, New Hampshire, has been in business since 2008. It provides central heating solutions and wood pellet heating fuel to residential, commercial, municipal, and institutional customers in Vermont (primarily eastern and central Vermont), New Hampshire, and Northern Massachusetts. The company offers sales, service, and bulk pellet deliveries. Morton Bailey is Lyme Green Heat's founder and president.

What got you into the business?

Morton Bailey: I've always been interested in renewable energy. Some years ago, I was working at an organic tomato farm in the Valley and I learned it used \$100,000 a year just for the propane to grow the tomatoes. I thought, "There must be a better way to create heat." I looked into how things could be done differently, including the European method of bulk pellet delivery. Later, I worked for Tarm Biomass on residential pellet

boilers as a technician and started a side business selling bagged pellets. My turning point was when I went to a trade show. Our website uses cookies to improve your experience. To learn more about how we use cookies, please review our privacy policy. [Learn More](#)

show in Germany about bulk delivery—I saw OkoFEN boilers from Austria, and came up with a way that I could put it all together in the U.S. as a viable business.

Is most of Lyme Green Heat’s business residential or commercial?

MB: The majority of our work is for residential households and light commercial (1 million Btu or less). We haven’t moved into the large industrial market. We’re probably at 70/30 residential to commercial, but the commercial side is growing every year. We have two 10-ton trucks for residential deliveries and two 30-ton tractor-trailers for pellet transfer and for commercial deliveries. This means we have the ability to have 120 tons on pellets on the road at any one time.

What misconceptions do people have about pellet heat?

MB: There’s still a major lack of information about it. We provide a lot of education to potential customers. The one thing people do “know” about wood pellets is they come in a 40-pound bag. So we have to counter that. The concept of bulk delivery and bulk storage is still new to them.

How does bulk delivery and storage work?

We typically put an enclosed fabric “bag” (a big filter sac made of a GoreTex-like material) in the customer’s basement that is filled from outside by our delivery drivers. As the pellets are used, the bag changes shape. When it’s getting low, a proximity sensor sends an email to us, and to the customer, noting that it will be time for a refill soon.

How are pellets transferred from a bulk bin to a boiler?

Our website uses cookies to improve your experience. To learn more about how we use cookies, please review our privacy policy. [Learn More »](#)

MB: There are two methods: using a spiral auger to pull the [1/4" by 1"] pellets directly into the boiler, and using a vacuum system to move pellets into a "day hopper" and returning the air back to the bin. It's a closed system. We like to use the vacuum system because it's both more efficient and more flexible—you can have up to 80 feet of vacuum line between the bin and the boiler. For instance, we recently installed a system at the Montshire Museum in Norwich, Vermont. The boilers are in the basement of the building and the pellets are stored in a silo outside. Pellets are a solid fuel you can convey like a liquid.

How do new customers find you?

MB: It's a mix. Grassroots marketing, traditional marketing, word of mouth. It's challenging; any business doing something unique finds generating new leads a challenge. By far, Web searches are our best lead generator. We have always had a comprehensive website (lymegreenheat.com) and kept it up to date, and we tend to come up pretty high on web searches for pellet heat or for bulk delivery systems.

How does Efficiency Vermont, specifically membership in the Efficiency Excellence Network, benefit your business?

MB: Efficiency Vermont has adopted wood pellet heating as part of its overall energy plan for the state. We've relatively recently begun working more closely together. At first Efficiency Vermont just offered rebates directly to customers, so we didn't actually interact much. Now our relationship is growing, and we are working together to help educate customers.

Being in the Efficiency Excellence Network helps us on the commercial side, with engineering systems. Efficiency Vermont offers rebates along with technical assistance, providing

guidance to customers so it's not just us making a sales pitch. It is a trusted resource and has status as an expert in the field. We use cookies, please review our [privacy policy](#). [Learn More »](#)

hope Efficiency Vermont continues to use its status, strength, and competence to promote this technology, showing customers that pellet systems represent a smart energy move for them.

Where do you see your business going in the future?

MB: Our plan is to keep doing what we're doing. Install more boilers, deliver more pellets. We want to get the business to a point of sustainability. We want to get to a point where the technology is well accepted and we're growing the market for the systems and the bulk deliveries. We want to keep customers comfortable and warm. When it comes down to it, we are in the comfort business.

Making Vermont more energy efficient is a collaborative effort, and would not be possible without a strong network of independent contractors. In 2014, Efficiency Vermont created the Efficiency Excellence Network in order to better support and encourage Vermont contractors to provide energy-efficient solutions in the field. There are currently 204 member contractors, including Lyme Green Heat of Lyme, New Hampshire. Interested in becoming a part of Efficiency Vermont's Efficiency Excellence Network? Visit contractors.efficiencyvermont.com/efficiency-excellence-network to learn more about the participation requirements and to register for upcoming contractor trainings.

1 (888) 921-5990

20 Winooski Falls Way, 5th Floor

Winooski, VT 05404

Our website uses cookies to improve your experience. To learn more about how we use cookies, please review our privacy policy. [Learn More »](#)

Monday to Friday
8 AM to 5 PM

Contact Us Today

Our website uses cookies to improve your experience. To learn more about how we use cookies, please review our privacy policy. [Learn More »](#)



229 Depot Street, PO Box 724, Bradford, Vermont 05033

June 21, 2023

Corporate Headquarters
802-222-9255 Bradford
802-222-5481 Fax
www.arcmech.com

Satellite Locations
603-444-3440 Littleton/St. Johnsbury
603-443-6111 Lebanon/White River Jct.
603-256-8533 Keene/Brattleboro

Paul Luciw
Estimator/Project Manager
802-535-7167 Cell
603-298-7902 Office
pluciw@arcmech.com

Town of Norwich
PO Box 376
Norwich, VT 05055

Priscilla Vincent
priscillavincent@gmail.com
802-356-9814 cell

Proposal # 22-956 R1
Replace One Boiler
Tracy Hall
300 Main St., Norwich, VT

Specifications

Priscilla,
Thank you for the opportunity to provide a quote to replace one boiler at Tracy Hall. I am quoting one V9A Burnham boiler to replace your existing Weil Mclain boiler. I am also providing separate pricing for the replacement of 14 thermostats.

- ARC will
- Disconnect and remove one boiler for disposal.
- Install a Burnham oil boiler with Becket burner in the same location as the existing. The boiler is in sections and we will assemble it in place.
- Pressure test to make sure there are no leaks after the boiler has been assembled.
- Start the piping process after the pressure test has been completed.
- Connect to existing supply and return piping.
- Connect to existing boiler fill; the expansion tank does not need to be replaced.
- Connect to new Tekmar boiler control, which will control both boilers.
- Connect the flue to the existing flue piping.
- Connect to the existing oil lines.
- Start system, perform an efficiency test, and check for proper operation after all connections have been completed.

Total Investment

Thirty-Two Thousand, One Hundred Thirty-One Dollars and 00/100 \$ 32,131.00

Note

14 PurePro Digital Programable Thermostats Add \$ 2,465.00

Respectfully Submitted by
ARC Mechanical Contractors, Inc.

Accepted
The specifications, terms and conditions outlined are satisfactory and are hereby accepted.
You are authorized to do the work as specified. Payment will be made as outlined below.

Handwritten signature of Paul Luciw

Paul Luciw, Sales Associate/Project Manager

Signature

Date

Note: This proposal may be withdrawn by us if not accepted within 30 days.

Print Name & Title

Exclusions

- Cutting, patching, core drilling, painting
Temporary heat and plumbing
Line voltage electrical wiring and loose disconnects
Repairs/modifications to systems beyond this scope of work
Permits and permit fees
Premium time labor

Limited Warranty

All products provided and installed by ARC Mechanical Contractors, Inc are warranted to be free from defects in material and workmanship for a period of one year from the original installation unless otherwise noted and unless a product manufacturer's warranty is less than one year in which case the Limited Warranty given herein shall extend only for that period of time covered by the applicable manufacturer's warranty. This Limited Warranty is limited to parts and labor for repair or replacement of defective parts only. This Limited Warranty does not cover consequential damages, including but not limited to loss of income or profits and ARC Mechanical Contractors, Inc shall not be responsible for any such consequential damages. To the extent that a warranty issued by a product manufacturer in some cases may extend beyond the one year period, this Limited Warranty shall extend for the full period of the manufacturer's warranty on the applicable piece of equipment. Except as stated herein, THERE ARE NO OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED.

Payment Terms

- Deposit of 33% required upon acceptance of this agreement; balance upon satisfactory completion.
Due upon receipt - 1% finance charge (allowed by law) on all invoices 30 days past due.
In the event that ARC Mechanical Contractors, Inc. takes any collection action to collect on any balance due which is 30 days or older, the Customer shall pay all costs and attorney fees associated with any such collection effort.
We accept Mastercard, Visa and American Express.

ARC Visit to Tracy Hall
July 25, 2023

Participants: Paul Luciw of ARC; Ben Russell, Tracy Hall Custodian; Doug Wilberding; Priscilla Vincent

Basic Information: Tracy Hall has two cast iron, oil fired boilers, each of which is capable of putting out approximately 643,000 BTUs. They were installed in 1994. One is working, the other is mostly dead. They provide hot water baseboard heat to the building. One such boiler could provide adequate heat for all of Tracy Hall unless we had a period of extremely cold weather - say, 20 below for several days. As Paul said, we haven't had that kind of cold weather in a long time, and it doesn't seem likely that we will see it in the future either. In other words, the second boiler is mostly redundant. Domestic hot water, for the restrooms and the kitchen, is provided by two small electric hot water heaters: one is between the two restrooms in a closet; the other is adjacent to the stairs on the back side of the building. These hot water heaters are old but performing well. They will not be affected by whatever heating system we choose for Tracy Hall.

We have an in ground, 1,000 gallon oil tank located on the north side of Tracy Hall. It does not have a gauge on it to indicate fullness. (Ben noted that there was one winter when Tracy Hall ran out of oil three times, even though we are on an automatic delivery plan.) This tank is about 30 years old and is next to the water line for the building. Replacing the tank now would prevent any potential environmental issues which would be costly to address. A new tank would also have a digital sensor to aid the town in managing its supply of oil. Tank replacement would be a job for Dead River, which is the town's oil company.

Paul Luciw is not the first energy consultant to notice that we have mini-splits for summer air conditioning. Doug proposed that the town contemplate owning two solar panels outright to offset the energy needed for the mini-splits. It is usually sunny when we are hot enough to need AC.

Discussion: Paul does not recommend “high efficiency” boilers, and the estimate he recently provided to replace one of our current boilers is for a standard one. High efficiency boilers work best at water temperatures of 140 degrees or lower and are meant for low heat which is not comfortably warm for most buildings. These boilers cost about one-third more than standard boilers but last only 9 to 10 years. The standard cast iron boilers last around 30 years. Our old ones most recently tested out at 84% efficiency. (This is tested every time the boilers are serviced, which happens once a year.)

Doug asked whether there might be room for one oil boiler and one pellet stove boiler in our available space. Having seen the 2 pellet boilers at the Montshire, I would estimate that this should be possible. I noted that the Montshire has 2 pellet boilers to heat a space three times as large as Tracy Hall. However, this question could only be answered definitively by Thom Burden of Lyme Green Heat. Doug noted that the town of Huntington, VT has gone to a variety of systems to lower its energy costs. They firmly believe oil back up is a good plan. They have pellet burning boilers and solar as well.

Paul briefly discussed geothermal wells. We have very limited space in which to drill them and so far no one has indicated how many wells would be required or where to put them. It is likely that our electricity costs would increase dramatically to power all the well pumps.

Other minor notes: There is a thermostat at the back of the Tracy Hall gym, right near the staircase and right near the rear doors. If this were moved even to the other side of the stage, away from the doors, it would probably save us heat. There are a lot of winter events in Tracy Hall, including farmers markets and dances. People get hot and open the doors to cool down.

Ben says there is some insulation in the attic above the gym, but it is old and probably needs to be replaced or refurbished. This should be a relatively inexpensive fix to reduce heat loss.

It was depressing to notice the water stains, cracked and missing plaster, peeling paint, and other signs of general neglect in Tracy Hall. Some have noted

the frustration of electrical outlets that are poorly located, not working, or generally too few in this era of plug in phones and lap tops. At some point, the town should consider an overall plan to give this building the loving care it deserves. Ben does heroic work to keep everything clean and looking the best it can, inside and out.

Timing: Paul says he has oil boilers in stock, so no supply chain issues getting the equipment. The bottleneck would be available work force. If we gave him the go ahead today, he figures he could probably have a replacement boiler installed by the end of the year. But we would have to check with the schedulers.

Notes taken by Priscilla Vincent



Pam Smith <pamsmith.sb@gmail.com>

Tracy Hall Heating & Ventilation

7 messages

Pam Smith <pamsmith.sb@gmail.com> Fri, Aug 4, 2023 at 3:13 PM
To: Marcia Calloway <msbcalloway@gmail.com>, Mary Layton <marydlayton@gmail.com>, Roger Arnold <rogerarnoldvt@gmail.com>, Priscilla Vincent <priscillavincentsb@gmail.com>
Cc: Brennan Duffy <bduffy@norwich.vt.us>, Miranda Bergmeier <Mbergmeier@norwich.vt.us>

Good afternoon,

Please consider this an addition to the information already contained in the packet for the SB meeting on August 9, 2023.

Rachael Mascolino is a consulting engineer at Efficiency Vermont who was referred to Priscilla and me by Mort Bailey of Lyme Green Heat. Rachael is qualified to help spec out the pellet boiler system as well as inform the SB of any incentives that would be available to the Town should the SB vote to go with this type of system. All of this is done as part of getting information on the various systems for the SB's comparison and deliberation.

Many of us have been very concerned about the assumption that replacing the oil-fired boilers at Tracy Hall with anything other than oil-fired boilers would trigger a building code requirement to also install a ventilation system. Given Rachael's qualifications, I asked her if this was a requirement that needed to be taken into consideration when deciding the replacement of the boilers in Tracy Hall. Below is her response.

Please let me know if you would like Rachael to be available at the August 9 SB meeting (or a future meeting) to answer any questions.

Thanks.....Pam

----- Forwarded message -----

From: **Rachael Mascolino** <rmascolino@veic.org>
Date: Fri, Aug 4, 2023 at 11:42 AM
Subject: RE: Tracy Hall Heating & Ventilation
To: Pam Smith <pamsmith.sb@gmail.com>
Cc: Priscilla Vincent <priscillavincentsb@gmail.com>

Hi Pam,

Based on our phone conversation I am assuming that there is currently no mechanical ventilation in Tracy Hall.

If your priority is to replace your oil boiler with a pellet Advanced Wood Heating (AWH) boiler, there is not a requirement to install a ventilation system that meets minimum requirements at the same time.

Based on your description of the previous engagement with EEI, my assumption is that their engineers had designed a complete HVAC system to serve the building. A licensed professional engineer would have proposed mechanical ventilation as part of this, that was compliant with the ASHRAE design standards. We always encourage buildings that are under ventilated to explore the project of bringing the space into compliance with the current standards, but this is not a requirement to receive support for the pellet boiler.

If you would like me to speak further about this to the Selectboard at your next meeting, I can be available.

Rachael

Priscilla Vincent <priscillavincentsb@gmail.com>
To: Pam Smith <pamsmith.sb@gmail.com>

Sun, Aug 6, 2023 at 2:07 PM

Good work Pam! Thank you.

(The other) P
[Quoted text hidden]

Miranda Bergmeier <MBergmeier@norwich.vt.us>
To: Pam Smith <pamsmith.sb@gmail.com>

Tue, Aug 8, 2023 at 9:37 AM

Hi, Pam,

Thanks for your email. Would you like this to be added to the 8/23 packet as FYI/correspondence?

Best regards,

Miranda

Miranda H. Bergmeier
Assistant Town Manager
Town of Norwich
P.O. Box 376
Norwich, VT 05055
802-649-1419 x101

Please note that any response or reply to this electronic message may be subject to disclosure as a public record under the Vermont Public Records Act.

[Quoted text hidden]

Pam Smith <pamsmith.sb@gmail.com>
To: Miranda Bergmeier <MBergmeier@norwich.vt.us>
Cc: Marcia Calloway <msbcalloway@gmail.com>, Brennan Duffy <bduffy@norwich.vt.us>

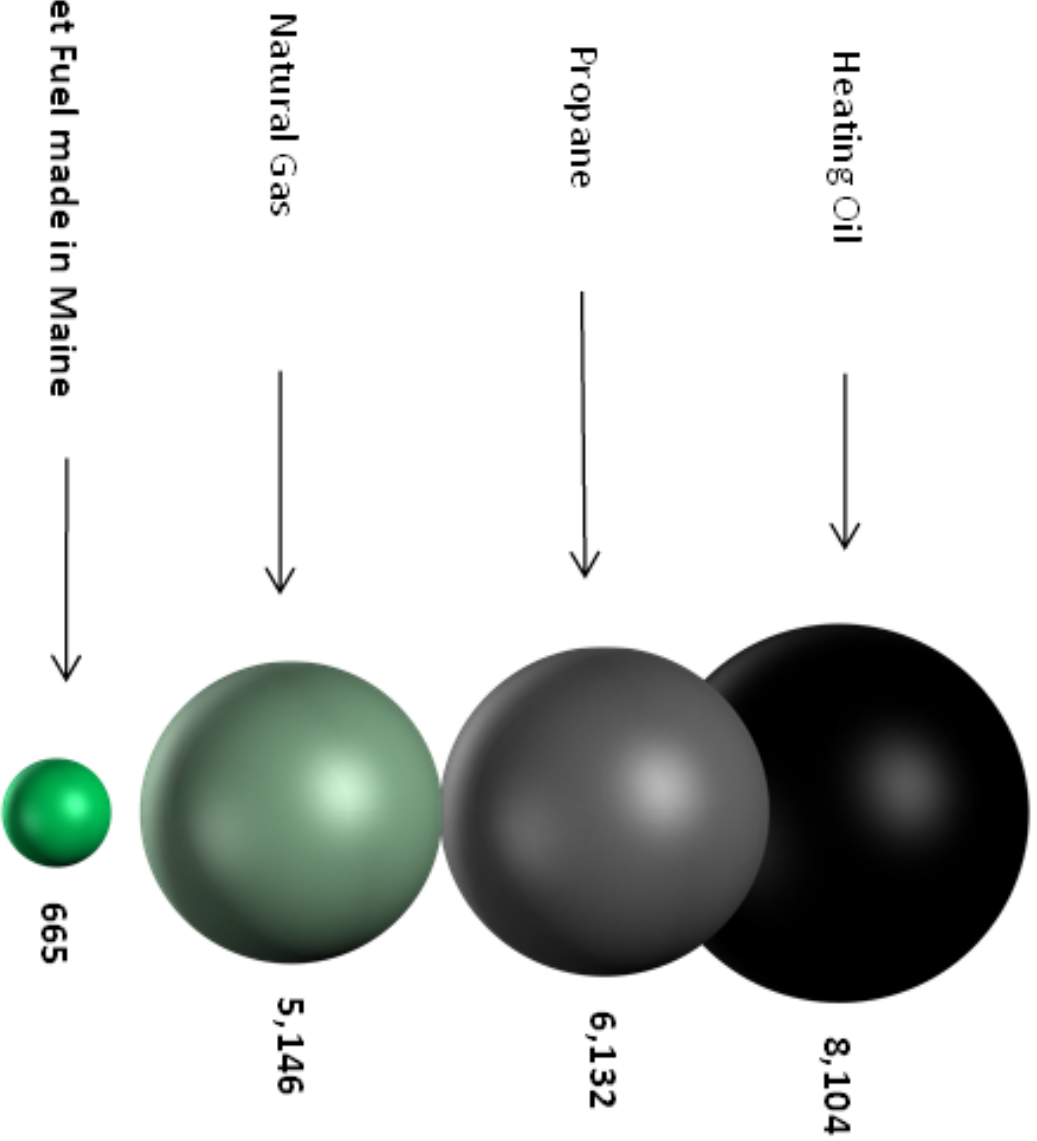
Tue, Aug 8, 2023 at 9:39 AM

I would prefer that it be part of the packet for Wednesday night. Is it possible to issue a revised packet to include my email and the quote submitted by Priscilla?

Thanks...Pam
[Quoted text hidden]

Total Pounds of CO₂ per Year

normalized to the equivalent of the BTU from 900 gallons of heating oil per year



Life Cycle Assessment of Pellet Burning Technologies, Thomas Willem de Haan, Univ. of Amsterdam, June 2010. - Wood pellets are not entirely carbon neutral because some fossil fuel is required for the harvesting and transport of feedstock, production, and shipment. Extraction, refining, and transport emissions are included for each of the four fuel sources. Analysis by FutureMetrics

LGH Meeting at Tracy Hall
July 25, 2023

Mort Bailey, CEO of Lyme Green Heat; Thom Burden, LGH; Ben Trussell, Custodian of Tracy Hall; Priscilla Vincent

The conversation between Mort Bailey, Thom Burden and Ben Trussell was fairly technical, and a bit dizzying to the English major in attendance. Without trying to make a narrative, here are points that emerged from the discussion.

Someone needs to do an energy audit on Tracy Hall, with a blower and infrared cameras and the whole deal. We were astonished to learn that the decorative cupola on the roof of the building is open to the sky and air. You can stand in the attic and see out. This is a huge opening for heat loss. (Upon reflection, it occurs to me that this cupola may be the only means of venting the roof. All roofs need some sort of venting! This needs further investigation.) Basic information about the R values of the windows, doors and walls would be useful. Of course, blowing cellulose into the attic is probably a simple and good first step. However, if the building does not customarily have a very cold roof, it is possible that more snow could accumulate before it shears off and smashes into the ground (and perhaps car windshields) below. The increased snow load could be a problem for the structure of the roof. The slate shingles are already heavy. So maybe we take a step back before we insulate the attic further.

It is not possible to use the same chimney to vent both an oil boiler (or a propane boiler) and a pellet wood boiler. If we had a fossil fuel heater as backup, it could be vented through the side of the building to avoid this problem. It is not known whether the chimney is lined; chances are, it is not. It would be a really good idea to put in a liner.

It would be possible to install a gas, wall hung booster, vented to the outside and avoiding the chimney. It could be used as a "peaking boiler" for when temperatures are really cold. It would put out 200,000 BTUs which would keep the building warm enough to work in - though maybe not comfortable

without warm clothes - to insure that no pipes burst. A gas tank could be installed outside on the north side of the building.

I was mixed up on the locations of the underground fuel tanks. The 1,000 gallon oil tank , which has no fuel gauge, is in Tracy Hall's front yard. It should probably be removed, due to its age. There is a 500 gallon diesel tank, also mostly underground, near the emergency generators. The generators run on diesel.

Until an energy audit is done, it is difficult to be precise about what size system is needed. As Mort Bailey commented, they say they are in the heating business but really they are in the comfort business. It might be possible to have 2 pellet boilers and a gas, wall hung boiler. Two pellet boilers would have the same output as one of our current oil boilers. (As noted in a previous visit report, we rarely need both oil burners; the current system is essentially redundant.). It might be possible to install a third pellet boiler in the space. The fairly cramped boiler room could be made slightly roomier if the stairs were adjusted.

While we were in the boiler room, there was discussion about the circulator pumps and the expansion tank. All are working but old. There are possible rebates for new circulator pumps as well as for the boilers themselves.

A silo would be needed to store the pellets. Silos come in a variety of shapes - low and fat or tall and slender. One possible location would be where the 1,000 gallon oil tank currently lies in the front yard, and to put screening plantings around it. Another would be to build a shed-like structure between the windows of the town manager's office and the first tall window of the gym. It could contain a 9 ton manufactured bin. It could be made to look like the garage across the driveway at Cheryl Hermann's place of business. To do this would entail moving some of the many mini-splits for air conditioning that line up along the north side of Tracy Hall, between the building and the parking lot. Looked at with fresh eyes, that side of the building is an a-historic mess; it could be cleaned up and consolidated. ARC might be a good company to ask to look at the air conditioning project. Our current AC system (like everything else) is not new.

It was recommended that I undertake several more inquiries:

1. Call Dead River and find out what Tracy Hall's oil consumption has been over the last several years. We would have to go back in time a little, because during Covid the building was closed to the public. We would be looking at gallons, not dollars.
2. Call Brent Mullen of Building Energy for an energy audit. Building Energy has an office in White River Junction. The company does mostly residential audits, but this is at least a place to start.
3. Call Efficiency Vermont and just talk to them - not only about energy audits but also about rebates and financial incentives.
4. Priscilla needs to know the threshold amount that can be spent without a Town meeting and vote. This will have a major impact on scheduling work.

Lyme Green Heat will prepare a detailed estimate of the work for us, so that we can examine the options. It sounds as though they could get going on the project as soon as we give them a go-ahead, and have it completed in a few weeks. But maybe I'm dreaming.

Notes by a very tired Priscilla Vincent

Montshire Museum Site Visit
June 20, 2023

Pam Smith and Priscilla Vincent went to the Montshire Museum on June 20, 2023 to have a tour of the pellet boiler heating system. Hosting us was Gary Collins, the facilities director for the museum. Also present were Jonathan Vincent, a retired LEED certified architect (there as a member of the public) and Thom Burden of Lyme Green Heat. Lyme Green Heat had installed the system in 2017.

The Montshire Museum is a 39,000 square foot building (in comparison with Tracy Hall at 12,300 sf. So it's more than 3 times the volume of Tracy Hall). The total cost of the system in 2017 was approximately \$100,000. However, because Vermont has a robust program to incentivize relinquishing fossil fuels, there were grants and rebates. The museum received additional grants from the Northern Forest Center and Efficiency Vermont. All in all, the total cost of \$100,000 became closer to \$35,000 out of pocket for the museum.

The Montshire Museum has a 20 ton capacity silo for pellets. Trucks come and deliver them on a regular basis, in the same way that oil companies make automatic fuel deliveries. Lyme Green Heat supplies the pellets; and because the Montshire is so conveniently located, LGH trucks will stop to deliver partial loads in order to empty them on the way home. The pellets are sucked up into the silo with a vacuum system; there is also an automatic vacuum system to send the pellets from the silo to the boilers. The distance from silo to boilers is approximately 100 feet; it isn't necessary for them to be adjacent. There are 2 boilers in the Montshire's basement, and they are about the same size as the 2 oil boilers in Tracy Hall. No one is hefting sacks of pellets, as one might do in a residential setting. There is a very small residue of ash from the pellets. During the coldest weeks in winter, the Montshire might have 3 buckets (like those white buckets beloved of contractors and painters) to empty within one week. And apparently the steam is very clean - not actually full of particulates. Thom Burden of LGH has studies and statistics on all of this.

Pam asked about pellet storage. We may or may not be constrained by the historic status of Tracy Hall. The silos come in different shapes: from tall and skinny to round and fat, with others in between. It might also be possible to build a 10x10x8 foot bin inside Tracy Hall, perhaps in the back left/north corner of the stage. This is just an idea that was floated, without Thom Burden having visited Tracy Hall and without any input from an architect or engineer. The distance between the storage and the boilers would not be a problem.

A note about wood pellets. They are not the same as wood chips, and they do not burn the same way. To make wood chips, trees are cut down and put into a chipper. For pellets, about 80% of the material comes from scrap and small branches and other leftovers from forest products. And this is probably one reason the Northern Forest Center has supported the Montshire's pellet burning system.

The Montshire does have an oil furnace for back up and for use during the "shoulder seasons" - the mildness of spring and fall. A newer system now might not need that. The Rutland School District has recently installed a pellet burning system. It was designed so that NO oil back up was needed. Because fossil fuel was entirely taken out of the equation, the school district received about \$100,000 in rebates, I think mostly from the state. If the system had had oil back up, the rebate would have been about a third as much - on the order of \$35,000. This indicates how urgently the state would like us to get rid of fossil fuels.

Gary Collins, the Montshire facilities director, loves his system. Before it was installed, the museum used between 8,000 and 10,000 gallons of oil a year; now it is down to 800 gallons. The new boilers consume approximately 60,000 tons of pellets a year. Everything is tied into a control system which Gary can manage with his phone from home, if necessary.

The payback period was 4 years on the new system. It tied into existing duct work at the museum. The museum has forced hot air, but the radiators at Tracy Hall would work fine too. Gary said they spend between \$22,000 - \$23,000/year on pellets. The price depends on the distance from the source and also on the volume. Gary also estimates that in 2017 when the new system

was installed, the museum put \$45,000 back into the local economy. Now it's more like \$20,000/year back into the local economy.

We would like to make a few more points. Thom Burden said on June 20 that as of that date, it would be possible to install a full pellet heating system at Tracy Hall in time for this year's heating season. And it could be without any oil burners for back up. Obviously time has slid away since then, so this goal would be harder to achieve at this point; and the wheels of government, even town of Norwich government, do not turn rapidly.

Three years ago the town was presented with the EEI proposal for a geothermal system at a cost of \$1.8 million. At the same time, Lyme Green Heat had submitted a bid for a pellet boiler system for Tracy Hall at a cost of \$95,500. The cost difference is staggering. Of course prices would be different today.

Notes taken by Priscilla Vincent

Summary of test results (Hangtag information)

Table 1 shows a summary of the test results and a hangtag information for the hydronic heater Pellematic 56. For complete results see appendix 2.

Table 1. Additional (Hangtag) information.

MANUFACTURER:	Maine Energy Systems 8 Airport Road P.O. Box 547 BETHEL, MAINE 04217 04217 USA		
MODEL NUMBER:	Pellematic 56		
8-HOUR OUTPUT RATING	$Q_{out-8hr}$	N.A	Btu/hr
8-HOUR AVERAGE EFFICENCY	$\eta_{avg-8hr}$	N.A	(Using higher heating value)
		N.A	(Using lower heating value)
MAXIMUM OUTPUT RATING	Q_{max}	191,000	BTU/HR
ANNUAL EFFICIENCY RATING:	η_{avg}	86.3	(Using higher heating value)
		92.8	(Using lower heating value)
PARTICLE EMISSIONS:	E_{avg}	0.904	Grams/hr (Average)
		0.045	lbs/mmBtu Output
CO EMISSIONS	CO_{avg}	0.027	Grams/minute

N.A = Not Applicable because the hydronic heater is an automatic pellet fuelled appliance.

Comments and observations

The wood pellet hydronic heater Pellematic 56 manufactured by Maine Energy Systems, USA meets the step 2 requirement 2020 for PM emissions in EPA 40 CFR Part 60 of 0.10 lb/mmBtu heat output (average) and at each individual test rate.

A fault occurred with the boiler when performing test run 1 in category IV (test date 19/12/10). The boiler was restarted and then operated until the end of the test (see figure 2a in appendix 2). Because of the fault the test was repeated and a second test run was performed in category IV, dated 21/01/2020. The failed test in category IV is documented in table 4 appendix 2 and it has not been used in the calculated results in table 5 to 9. The failed test has also been communicated to EPA .



9/14/2012

To Whom It May Concern,

OMNI-Test Laboratories, Inc. was retained by OkoFEN Eco Engineering GmbH to determine the thermal efficiencies and particulate emission levels of the model PES 12-20 biomass pellet-burning hydronic heaters in accordance with EPA Method 28 WHH. Testing was conducted between April 24th and May 1st, 2012.

The PES 12-20 hydronic heater meets the weighted average particulate emission rate limit in pounds per million BTUs of heat output as well as the individual particulate emission rate cap in grams per hour set forth by the EPA Hydronic Heater Phase II Program. Please see the attached pages for documentation.

Regards,

A handwritten signature in blue ink, appearing to read "Jeremy Clark".

Jeremy Clark
Emissions Testing Manager

A handwritten signature in blue ink, appearing to read "James T. Weston".
James T. Weston
President

OMNI-Test Laboratories, Inc.
Product Testing & Certification

Mailing: Post Office Box 301367 • 97294
Street: 13327 Northeast Airport Way
Portland, Oregon • 97230 • USA



Phone: (503) 643-3788
Fax: (503) 643-3799
Email: info@omni-test.com

QUOTE #471

SENT ON:

Aug 04, 2023

RECIPIENT:

Norwich, Town of

P.O. Box 376
Norwich, VT 05055

302 Orford Road
PO Box 152
Lyme, New Hampshire 03768

Phone: 603-359-8837

Email: lghboilers@gmail.com

Website: www.lymegreenheat.com

SERVICE ADDRESS:

300 Main Street
Norwich, VT 05055

PRODUCT / SERVICE	DESCRIPTION	QTY.	UNIT PRICE	TOTAL
PES56EU Assembly	56Kw Vacuum Boiler 191000 BTU NON ASME Including vacuum metering units	2	\$28,000.00	\$56,000.00
BOM 36/56	parts required for the installation of a 36/56 boiler	2	\$2,100.00	\$4,200.00
Boiler controlled Pump BOM		2	\$925.00	\$1,850.00
Outdoor galvanized silo	60 degree bottom. Includes concrete pad and fill level windows. Pneumatic fill pipe and 2 boiler Okofen receiver for vacuum.	1	\$22,000.00	\$22,000.00
Vacuum tube, heavy duty on pellet side.	Blue/red HD hose for pellet delivery side	2	\$950.00	\$1,900.00
3" PVC for vacuum hose conduit	3" PVC conduit for vacuum lines.	1	\$1,000.00	\$1,000.00
Piping	Piping of pellet boiler 2" supply header to 3"x2" closely spaced copper tees. Piping of back up liquid fuel boiler to 3"x2" closely spaced tees	1	\$10,500.00	\$10,500.00
Installation Labor	Delivery and placement of equipment, installation labor, removal of old system/tank, Internet connection to new boiler and commissioning of new systems.	1	\$30,000.00	\$30,000.00*
Pipe insulation	Insulation of new boiler room piping	1	\$3,500.00	\$3,500.00
Combustion Air	Provide directly piped combustion air from outside intake hood to each pellet boiler, including CAS1 combustion air damper	1	\$800.00	\$800.00
Licensed Electrician	Licensed Electrician to connect all power for the installation, include permitting by electrician	1	\$6,500.00	\$6,500.00



PELLET HEAT MADE SIMPLE.

QUOTE #471

SENT ON:

Aug 04, 2023

PRODUCT / SERVICE	DESCRIPTION	QTY.	UNIT PRICE	TOTAL
LOCHINVAR WHB285N 285MBH Wall Hung boiler	Supply, installation, piping and venting of 285,000btu/hr LP gas boiler. *Gas piping and LP tank not included	1	\$17,500.00	\$17,500.00
Oil tank removal	Removal and disposal of the 3000 gallon underground oil tank. Including back fill, hay and seed	1	\$12,000.00	\$12,000.00
Grundfos 65/150F High Efficiency Pumps	New Building distribution pumps	2	\$6,500.00	\$13,000.00
Eff VT Pump Rebate		2	-\$600.00	-\$1,200.00
3" Spirovent air and dirt separator		1	\$4,500.00	\$4,500.00
ASME rated expansion tank		1	\$3,375.00	\$3,375.00
Permits	Provide all state permits including mechanical, electrical and construction	1	\$1,080.00	\$1,080.00
Training	LGH will provide operational training Training will cover: Start up and Shutdown of the boilers Ash removal Control Screen Navigation Remote error notifications Control sequence Silo Levels and Pellet Ordering Provide 2 paper copies of installation and service manuals Provide digital copies of installation and service manuals Provide "as built" piping and controls diagrams	1	\$0.00	\$0.00
Warranty work	12 month Warranty for all new parts and mechanical/electrical installation	1	\$0.00	\$0.00

Total

\$188,505.00

* Non-taxable

This quote is valid for the next 30 days, after which values may be subject to change.

RMS Site Visit
June 29, 2023

Pam Smith and Priscilla Vincent met with Tony Daigle, the head of facilities for all of the Dresden School District, at the Richmond Middle School to tour the wood chip heating system. This was installed in 2005, when the new RMS was built. (There is also a wood chip boiler system at the Hanover High School.). Tony said that when these systems were installed, he recollects it was estimated that they would save the school district about \$180,000/year versus the oil furnaces they had had. At the time, wood chips were state of the art.

RMS is about 105,000 square feet; Hanover High is about 200,000 square feet. (For comparison, Tracy Hall is about 12,300 square feet.) At RMS, tractor trailers pull up with between 20 and 30 tons of wood chips at a time. These are dumped into a huge storage bin. An auger feeds the chips into the boilers. There are two wood chip furnaces and also a back-up oil system. The big system (wood chips) operates about six months of the year, usually from mid-October through mid-April. The rest of the time, the oil furnaces handle what is needed. Tony had mentioned to me, in my initial phone call, that he didn't think you could get a wood chip system small enough for Tracy Hall.

Tony did not have any financial numbers about payback period, cost of the system (as opposed to the whole building project), actual savings, maintenance or annual operating costs. He said wood chips are about \$55/ton right now, and the RMS uses about 300 tons/year. The ash residue is emptied approximately 3 times/week during heating system. The firebox was repaired in 2017.

In New Hampshire, there are a lot of emission requirements that have to be recorded and sent to the EPA and the state. Also, the EPA wants a maintenance report every two years on the system. Depending on BTUs and pounds of emissions generated, there is a fee that the Dresden School District has to pay. It is on the order of \$500 - \$1,000 per year for the entire school system, RMS and HHS. There is a storage drum at RMS for the heavy particulates; it did not look all that large. Tony said it is emptied twice a year. After 40 minutes or so in the huge and high ceilinged furnace room, Priscilla had trouble breathing because of the dust in the air; and of course the wood chip boilers were not operating and the auger was not transporting chips.

Tony noted that the Lyme School and the Lebanon Middle School have pellet boiler systems. He said the maintenance group finds them “finicky”. We have not talked to those schools to get their feedback.

Notes taken by Priscilla Vincent

Thank You and Acknowledgments

We would like to thank the following people for being so generous and patient with their time and expertise:

Ben Trussell, Custodian of Tracy Hall

Gary Collins, Facility Director of the Montshire Museum of Science

Tony Daigle, Facilities Manager of the Dresden School District

Thom Burden, Lyme Green Heat

Mort Bailey, Lyme Green Heat

Paul Luciw, ARC Mechanical

Rachael Mascolino, Efficiency Vermont

Jeff Grout, Two Rivers Ottauquechee Regional Commission

Memorandum

To: Norwich Selectboard

From: Lily Trajman, Town Clerk

Date: August 11, 2023

Re: Vault Fire Suppression System

Having spoken with Alex and reviewed a 2017 inspection report from Firetech Sprinkler Corp. (the most recent one on file with the company), I wish to offer some clarification regarding the fire suppression system in Tracy Hall. The building uses an individually triggered "dry" fire suppression system. Despite its name, **this type of system still uses water as its suppression mechanism.** The difference between this and a "wet" system is that the piping in the "dry" system is filled with compressed air or nitrogen which holds the water back behind a valve until the sprinkler head is triggered. Once triggered, the air/nitrogen will be released from the sprinkler head, decreasing the pressure in the pipe and allowing the valve to open and release the water behind it. The main advantage of such a system seems to be the fact that pipes filled with air do not freeze and burst; "dry" systems are the preferred suppression system in unheated spaces.

Thus, while my concern about triggering the sprinklers in the vault remains, I do not believe freezing and bursting pipes IN THE FIRE SUPPRESSION SYSTEM should be a problem given the information I have received. I have no information on whether catastrophic failure due to freezing could occur in other piping systems in Tracy Hall.

Neil Fulton weighed in with the following information (via email, forwarded to me by Matt Swett):

"The vault has special sprinklers that activate at about 165 deg F and shut off at about 100 deg F and then reopen if the temperature rises. Accidental discharge is extremely unlikely. Wet records are recoverable but burnt records are not. Bonnie had an emergency plan to contact a record recovery company if the records got wet that use a freeze-dry or similar recovery system. The first 48 hours are critical.

Fire sprinklers are an accepted method of record protection and are used by the Library of Congress. Dry chemical is messy. Inert gas systems require a closed compartment and a way for people to exit.

Mist systems that use less water than a traditional sprinkler system are also used. They use smaller droplets and use less water but require higher water pressure and are more expensive."

Please find an explanation of a “dry” suppression system from an engineering website below.

From ny-engineers.com:

“In their most basic configuration, dry pipe sprinkler systems respond just like their wet pipe counterparts: sprinkler heads are activated individually by heat. However, the piping is filled with compressed air or nitrogen instead of water, and a valve controls the entrance of water into the system. When a sprinkler head activates, the compressed air is released and the pressure relief opens the valve, allowing water into the system. However, dry pipe systems have a slower response than wet pipe systems because water must travel from the source to the activated sprinkler head. As the distance between both points increases, so does the response time.

This system configuration is recommended when a wet pipe system would be prone to freezing. Otherwise, the lower cost, simpler maintenance and faster response of a wet pipe sprinkler system are preferred. Dry pipe systems are also more difficult to reestablish after they activate, since the piping must be drained of all water and then refilled with compressed air or nitrogen.”



Pam Smith <pamsmith.sb@gmail.com>

Wood Pellet Use in Vermont Schools

2 messages

Pam Smith <pamsmith.sb@gmail.com> Tue, Aug 1, 2023 at 4:52 PM
To: Marcia Calloway <msbcalloway@gmail.com>, Mary Layton <marydlayton@gmail.com>, Roger Arnold <rogerarnoldvt@gmail.com>, Priscilla Vincent <priscillavincentsb@gmail.com>
Cc: Brennan Duffy <bduffy@norwich.vt.us>, Miranda Bergmeier <Mbergmeier@norwich.vt.us>

Hello all,

As part of the research Priscilla and I are doing on the heating system for Tracy Hall, I wanted to share with you a story on WCAX-TV which a Norwich resident was kind enough to send along to me.

<https://www.wcax.com/2023/08/01/wood-pellet-use-is-rise-vt-schools/>

Please include this information in the packet for the August 9, 2023 meeting along with the other information previously submitted.

Thank you.

Pam

Pam Smith, Selectboard

Please note that any reply or response to this email is subject to the disclosure provisions under the Vermont Open Meeting Law and Public Records Act..

Miranda Bergmeier <MBergmeier@norwich.vt.us> Wed, Aug 2, 2023 at 9:35 AM
To: Pam Smith <pamsmith.sb@gmail.com>

Good morning, Pam,

Thank you for your email, which will be included as correspondence in the next regular SB meeting packet.

Best regards,

Miranda

Miranda H. Bergmeier
Assistant Town Manager
Town of Norwich
P.O. Box 376
Norwich, VT 05055
802-649-1419 x101

8/10/23, 5:02 PM

Gmail - Wood Pellet Use in Vermont Schools

Please note that any response or reply to this electronic message may be subject to disclosure as a public record under the Vermont Public Records Act.

[Quoted text hidden]