



Energy Efficient Investments ENE Energy Advisors

Audit Results Addison Northwest Supervisory Union



The EEI & ENE Energy Advisor

A proven process ...



ENE System, Inc. is the largest independently owned controls contractor in New England (Since 1987)

EEI Systems was founded by ENE to service Northern New England clients (Since 2007)

Local ownership and management



Proposed Project Goals

- Improve Buildings
- Reduce Energy Cost
- Increase renewable Power
- Improve Building Security and Safety
- Replace Failed Piping and Equipment
- Energy Savings will be guaranteed



Critical findings

1. Massive Problem in Steam Overheating at High School. Failing corroded pipes causing weekly leaks at High School
2. Outdated controls systems at High School and VES
3. Cracked Steam coils and Under ventilating at High School
4. Unsafe and not code Compliant kitchen hoods at VES and FES
5. Steam Heating system was recommended for change out in 2001. Many Failures in an inefficient steam system
6. Security Problems (Insecure access and lack of cameras in many locations)
7. Steam Roof top units at High School
8. Failed AC Units at High School
9. Lack of fire suppression system at VES

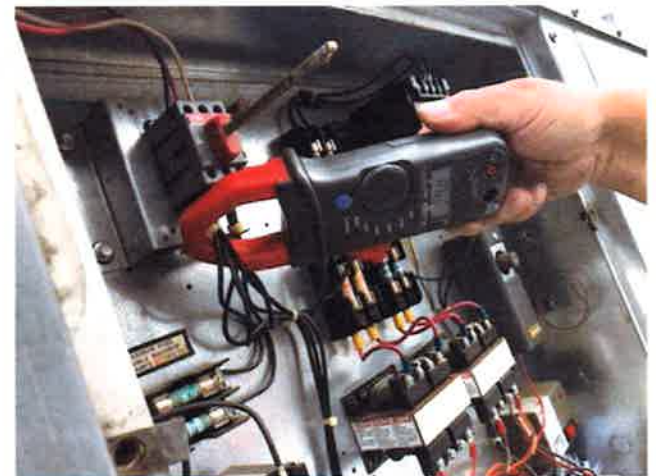


Security Findings

- High School has limited Cameras and no access control
- Very few cameras with recording software throughout district and varying level of access control at Elementary Schools
- Security proposal would add card access to all entrances and provide security camera's at exterior drive locations, main hallways and other critical areas. Each exterior door at all Schools would receive an alarm if held open for more than 2 minutes.

Major Audit Finds

Controls systems at High School and VES have been “rigged” to work “always on” because of equipment failure. Ventilation to large portion of VES and High School is shut off all year because off equipment failures leading spaces with unregulated heat and no ventilation.



D Wing Setback

Navigation

- B0030 Trends
- B0032 Trends
- B0033 Trends
- B0036 Trends
- B1044 Trends
- B1039 Trends
- B1020 Trends
- ▼ Wing C
 - Wing_C
 - C1060 Trends
 - C1061 Trends
- ▼ Wing D
 - Wing_D
 - D1115 Trends
 - D1120 Trends
- ▶ Wing E

Points of Interest

OA Temp 62.6 °F

System Time 25-Oct-17 7:40 PM EDT

Graphic

Show Legend

Show Sequence of Ops

D-Wing Radiation Zones

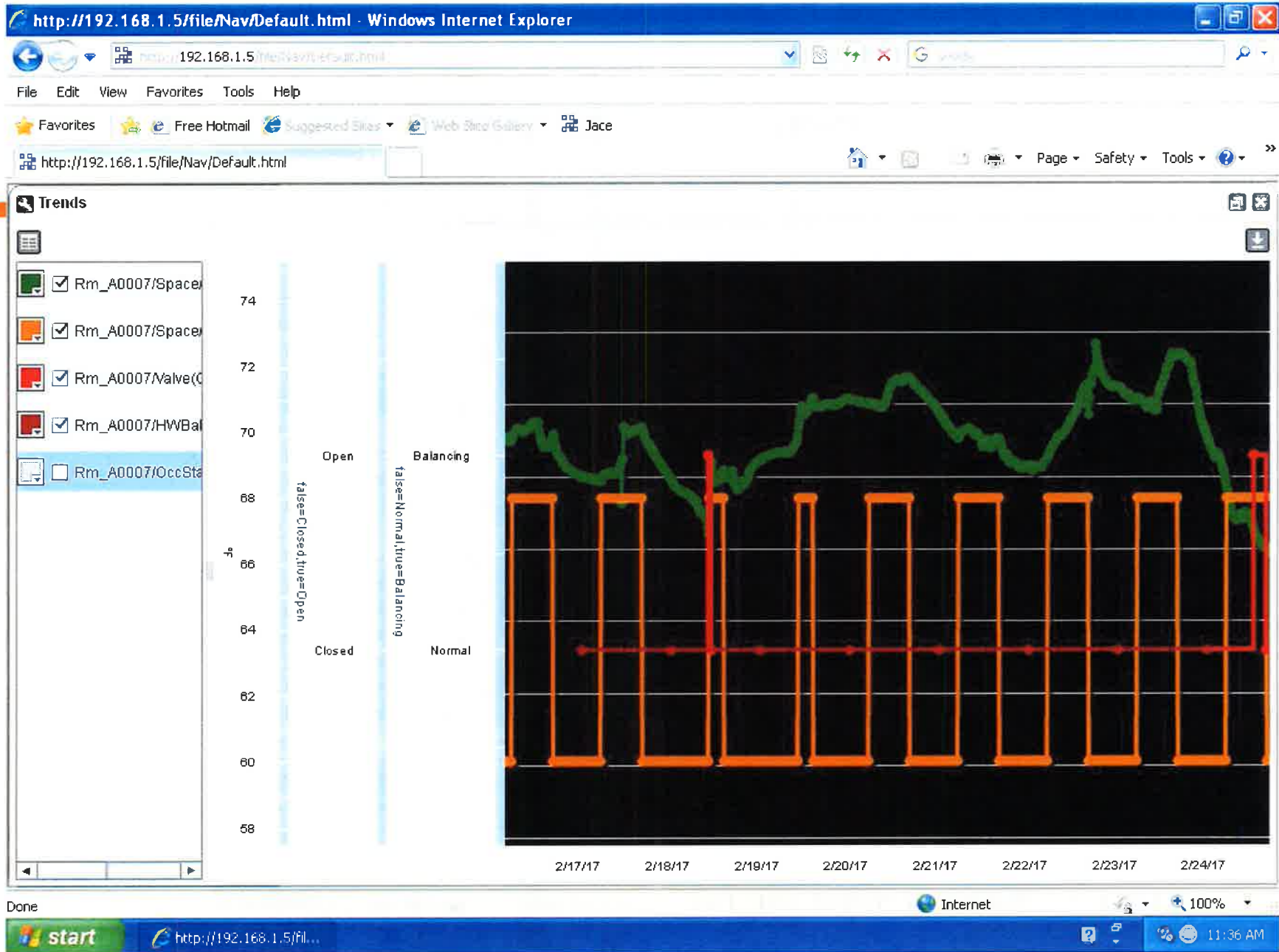
Area Served	Space Temp	Room Set Point	Active Set Point	Occ Mode	Valve Command
Kitchen (D1115)	nan °F	68 °F	60 °F	Unoccupied	Open
Maint. Office (D1120)	620.6 °F	621 °F	613 °F	Unoccupied	Closed

%err:gx:Brush.displayName% = black

Internet 100%

start trends https://192.168.1.5/...

7:26 PM





Question & Answers

***Follow-up questions can be emailed to Mike Davey at
MDavey@EEIServices.com***



Proposed 2018 Warrant Options

1. LED Lighting,
2. HVAC code required improvements and removal of failed heating pies at High School
3. High Efficiency Boilers at High School and VES,
4. New Controls at High School and VES,
5. New EVS and Heat Pumps at High School,
6. Removal of 1970's Unit vents at VES,
7. Insulation Improvements
8. Transformer upgrades
9. Required Fire Alarm and Sprinkler Improvements
10. Solar PV at High School

Overheating Zone Live

The screenshot displays a web browser window showing a 3D floor plan of a building. The interface is divided into several sections:

- Navigation:** A tree view on the left side of the browser window. The 'Section D' folder is selected and highlighted in blue. Other folders include 'Default', 'Basement', 'First Floor', 'Second Floor', 'HotWaterSystem', 'AHUs', 'ERUs', and 'Radiation'.
- Graphic:** A 3D perspective view of the building's interior. A large area on the right side of the floor plan is highlighted in red, indicating an overheating zone. A tooltip box is overlaid on this red area, displaying the following data:

AHU-07: Cafeteria	
Space Temp:	73.2 °F
Heating SP:	65 °F
Supply Temp:	77.9 °F
- Points of Interest:** A section below the navigation tree showing system status:

OA Temp	63.7 °F
System Time	25-Oct-17 11:34 AM EDT
- System Information:** At the bottom of the browser window, a status bar shows the link to the station: `slot:/Drivers/NiagaraNetwork/Vergennes_Jace/points/AHUs/AHU_07`, the Internet connection status, and the system time: 11:19 AM.

"Value" Engineering Problems

According to Prints in 2001 Original Design was to remove steam from all areas and add AC to 8 areas.

What was done is no A/C and 3 units had condensers retrofit in after, which have all now failed. Steam was left in building and system is now in failure.



Measure	Description	Cost	Savings	Rebate	Payback
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Vergennes Elementary

ECM 1	Controls Upgrade	\$197,752.50	\$1,800.00		
ECM 2	Add Cooling Front Office and 50 Week Classrooms	\$100,596.60	\$0.00		
ECM 3	New Erv Gym	\$243,750.00	\$3,500.00		
ECM 4	New Boiler, and HWH and Modify Piping	\$371,070.00	\$21,746.56		
ECM 5	Kitchen Exhaust and Make up air	\$157,070.00	-\$1,800.00		
ECM 6	Walk In cooler Controls	\$13,300.00	\$1,300.00		
ECM 7	Remove 1970 Unit Vents and install ERU	\$239,775.00	\$4,000.00		
ECM 8	LED Lighting	\$86,000.00	\$9,000.00		
ECM 9	Security	\$63,940.00	\$0.00		
ECM 10	Fire Suppression System and FA upgrades (Allowance)	\$200,000.00			
ECM 11	Siding and Roof Project (Allowance)	\$500,000.00			
ECM 12	Electrical Upgrade (Allowance)	\$150,000.00			
ECM 13	Oil Tank Removal	\$15,000.00			
Total VES		\$2,338,254.10	\$39,546.56	\$0.00	

Vergennes Union High School

ECM 1	Controls Upgrade	\$343,687.50	\$7,000.00		
ECM 2	Steam Conversion, 2 new boilers, convert back up boiler, New ERVs and Heat pumps in AC Areas	\$2,095,286.00	\$85,000.00		
ECM 2A	replace 8 rtu with heat pump RTU Units	\$450,870.00			
ECM 3	New Roof and Solar	\$880,000.00	\$27,840.00		
ECM 4	Transformers	\$47,880.00	\$3,360.00		
ECM 5	Walk In cooler Controls	\$13,300.00	\$1,300.00		
ECM 6	LED Lighting	\$255,000.00	\$21,000.00		
ECM 7	Security	\$104,000.00	\$0.00		
ECM 8	Dishwasher Booster	\$35,000.00			
ECM 9	Removal of Oil Tank	\$50,000.00			
ECM 10	Window Repair Project	\$75,000.00			
ECM 11	RETRO Commission	\$66,500.00			
ECM 12	Building Insulation	\$100,000.00			
ECM 13	Oil Tank Removal	\$50,000.00			
VUHS		\$4,566,523.50	\$145,500.00	\$0.00	\$0.00

Addison Central School

ECM 1	Controls Upgrade	\$5,000.00	\$500.00		
ECM 2	LED Lighting	\$45,000.00	\$2,889.00		
ECM 3	Security	\$35,000.00	\$0.00		
ECM 4	AC Heat Pump for front office	\$54,530.00	\$1,000.00		
ACS Total		\$139,530.00	\$4,389.00	\$0.00	

Ferrisburgh Elementary

ECM 1	Controls Upgrade	\$5,000.00	\$500.00		
ECM 2	Gym ERV	\$226,100.00	\$1,000.00		
ECM 3	LED Lighting	\$45,000.00	\$5,183.00		
ECM 4	Walk In cooler Controls	\$13,300.00	\$1,300.00		
ECM 5	Kitchen Hood & Make up air	\$82,460.00	-\$1,200.00		
ECM 6	Security	\$52,000.00	\$0.00		
ECM 7	AC Heat pump for front office	\$38,570.00	\$12,000.00		

FES	\$462,430.00	\$18,783.00	\$0.00	
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District Total	\$7,506,737.60	\$208,218.56	\$100,000.00	
Payment and Performance Bond	\$75,067.38			
Contingency	\$150,134.75			

Total Addison Northwest	\$7,731,939.73	\$208,218.56	\$100,000.00	36.65
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Total Infrastructure projects (Solar, Siding, Roofing, Security, Electrical upgrades, ect)	\$2,059,940.00
Total cost of Energy Projects Less Infrastructure projects	\$5,671,999.73
Heat Pump Projects	\$644,566.60
Total Project less heat pumos and infrastructure	\$5,027,433.13