



NY - G E O 2 0 2 6

March 24-25, 2026 | Brooklyn, NY



2026 GeoStar Top Job Presentations

Introduction: Ryan Johnson / *WaterFurnace*

Moderator: Tony Amis / *Endurant Energy*

Award Categories:

1. Commercial New Construction
2. Commercial Retrofit
3. Campuses / TENs
4. Residential



2026 TOP JOBS GEOSTAR

AFFORDABLE RENEWABLE CLEAN

Top Job 2026 Winners

CATEGORY	PRESENTER NAME	PROJECT NAME
COMMERCIAL / INDUSTRIAL New Construction	Justin Jobe <i>Director of Operations, Enertech</i>	Creek View Apartments Phase 2 Canandaigua, NY
COMMERCIAL / INDUSTRIAL Retrofit	Marc Preston <i>Project Manager, Adam's European Contracting</i>	NYCHA (New York City Housing Authority) Eastchester & Jackson Houses Bronx, NY
CAMPUSES / TEN	Matthew Desmarais <i>Founder, Energy Catalyst</i>	Hawthorne Valley School Ghent, NY
Residential	Geoff Hoffer <i>VP, Aztech Geothermal</i>	Bonnie View Bolton Landing, NY

A big thank you to our judges!!

2024 Top Job Award Commercial Building Winner Energy Foundations – 555 Greenwich New York



Energy Foundation solutions delivered with..

- No schedule impact
- No excavated material removed
- No modification to foundation design
- No additional reinforcement
- Minimal additional cost compared to other geo solutions

System delivering 50% of the buildings heating and cooling requirements possibly much more!



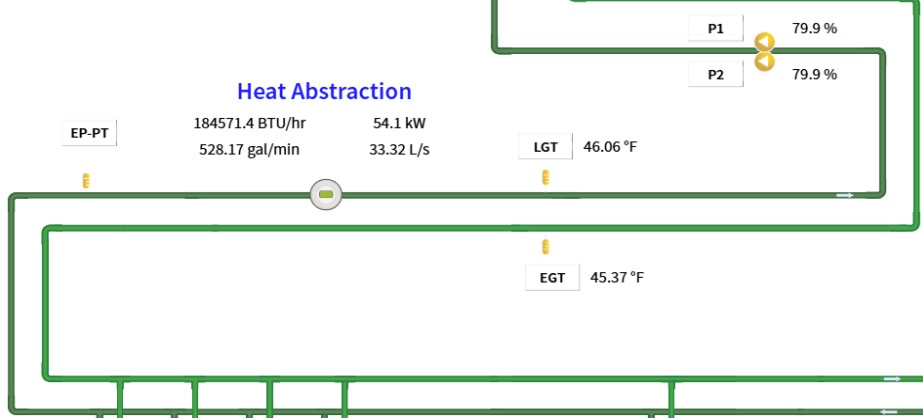
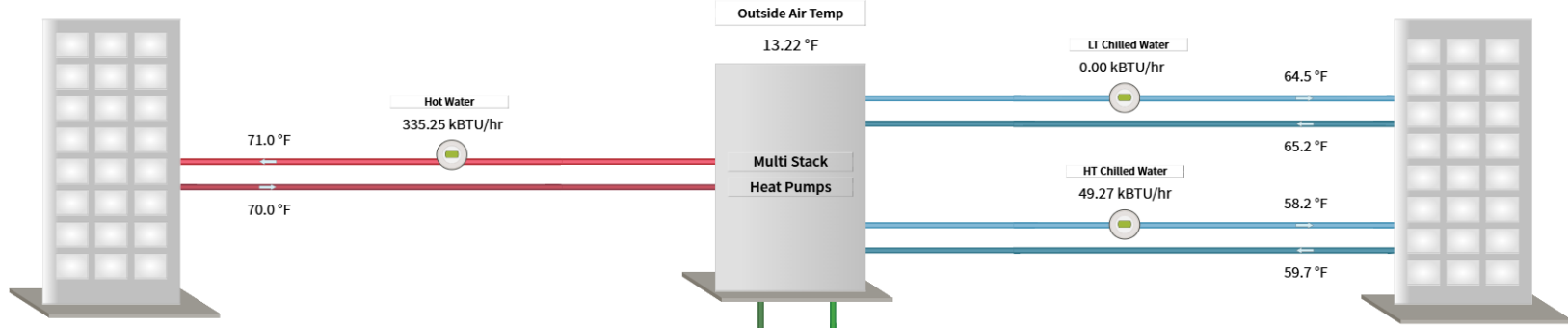
2024 Top Jobs



Update From Monitoring System at 555 Greenwich - February 2026



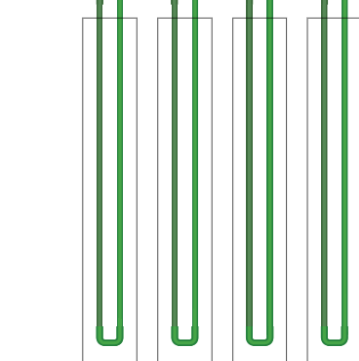
Wintertime goal is to allow ground loop temperatures to cool down to enable efficient summertime cooling



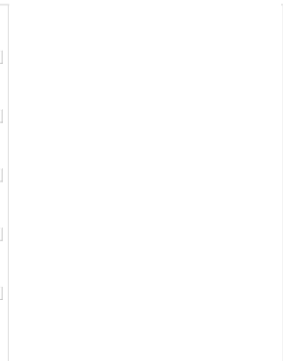
Reported Outside Air Temperature 13F
 Ground loop temperature 46F
 One of the coldest days of the year! An ASHP delivering heating to the building would be using 3x as much electrical energy as the GS solution connected to energy foundations
 GSHP 55°F = 5.7
 ASHP 13°F = 2.0

Thermal Battery
 5°C / 40°F target - summertime
 32°C / 90°F target - wintertime

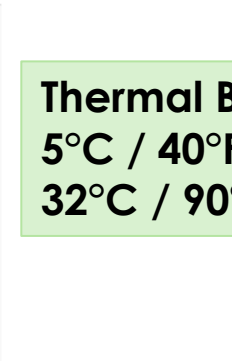
SG01-T	45.22 °F
SG04-T	46.86 °F
SG06-T	67.36 °F
SG05-T	37.36 °F
SG08-T	60.76 °F
SG07-T	69.55 °F
SG10-T	68.66 °F
SG09-T	66.25 °F
SG12-T	46.58 °F
SG11-T	66.73 °F



T01-A	45.22 °F
T02-B	45.72 °F
T03-A	37.55 °F
T04-B	43.68 °F
T05-A	44.94 °F
T06-B	45.88 °F
T07-A	44.48 °F
T12-B	39.34 °F
T09-A	63.62 °F
T14-B	46.85 °F



T03-A	45.21 °F
T04-B	45.71 °F
T05-A	45.71 °F
T06-B	43.68 °F
T07-A	44.93 °F
T08-B	45.88 °F
T09-A	44.48 °F
T11-A	63.79 °F
T14-B	39.83 °F



2024 Top Jobs



And Now for the 2026 Awards!

Award Winner Presentations:

- Commercial New Construction
- Commercial Retrofit
- Campuses / TENs
- Residential



2026 Top Jobs



Creek View Apartments Phase 2



Project Overview

CreekView Apartments Phase II is a 72-unit affordable family housing development in Canandaigua, NY designed to achieve near net-zero energy performance through an integrated Passive House envelope, geothermal heat pump system, centralized ERV ventilation, and rooftop solar PV. The project uses ground source heat pumps to provide heating, cooling, and domestic hot water while balancing seasonal loads and simplifying system maintenance. Supported by NYSERDA programs and Low-Income Housing Tax Credits, the project demonstrates that deep decarbonization and long-term affordability can be achieved simultaneously.



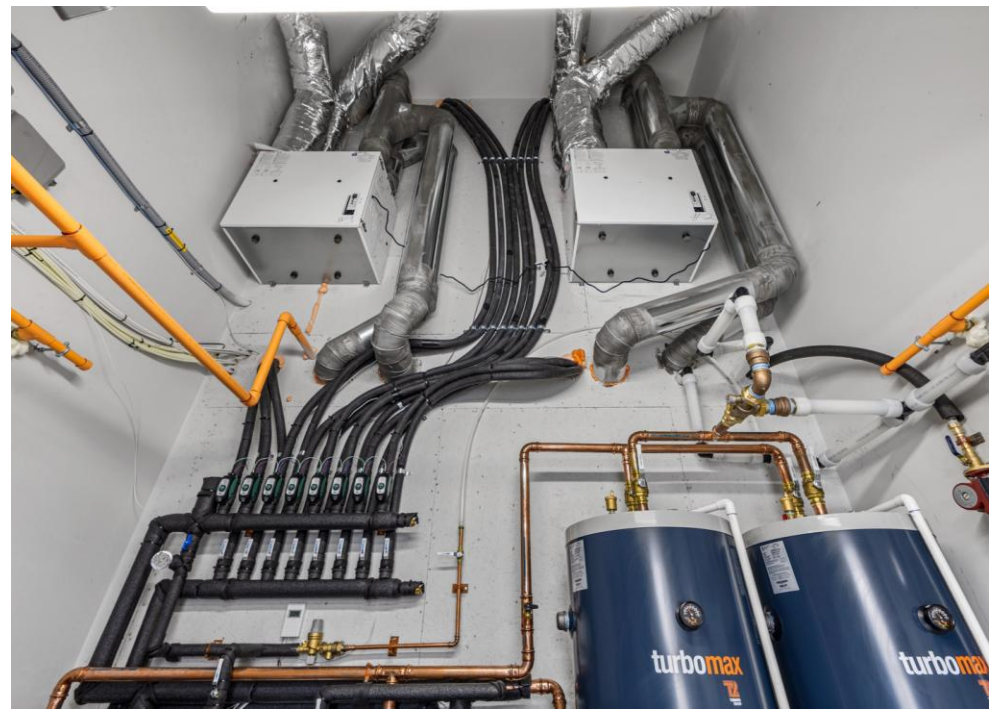
Project Goals

- Deliver **72 units of high-performance affordable housing** with long-term sustainability.
- Achieve **near net-zero energy performance** through Passive House design, geothermal heating/cooling, and rooftop solar.
- **Reduce operational carbon emissions** compared to previous developments through electrification and high-efficiency systems.
- **Lower operating and maintenance costs** for ownership while maintaining resident comfort.
- Provide **healthy, resilient homes** with superior indoor air quality and airtight construction.
- Demonstrate a **replicable low-carbon housing model** for future developments in New York State.

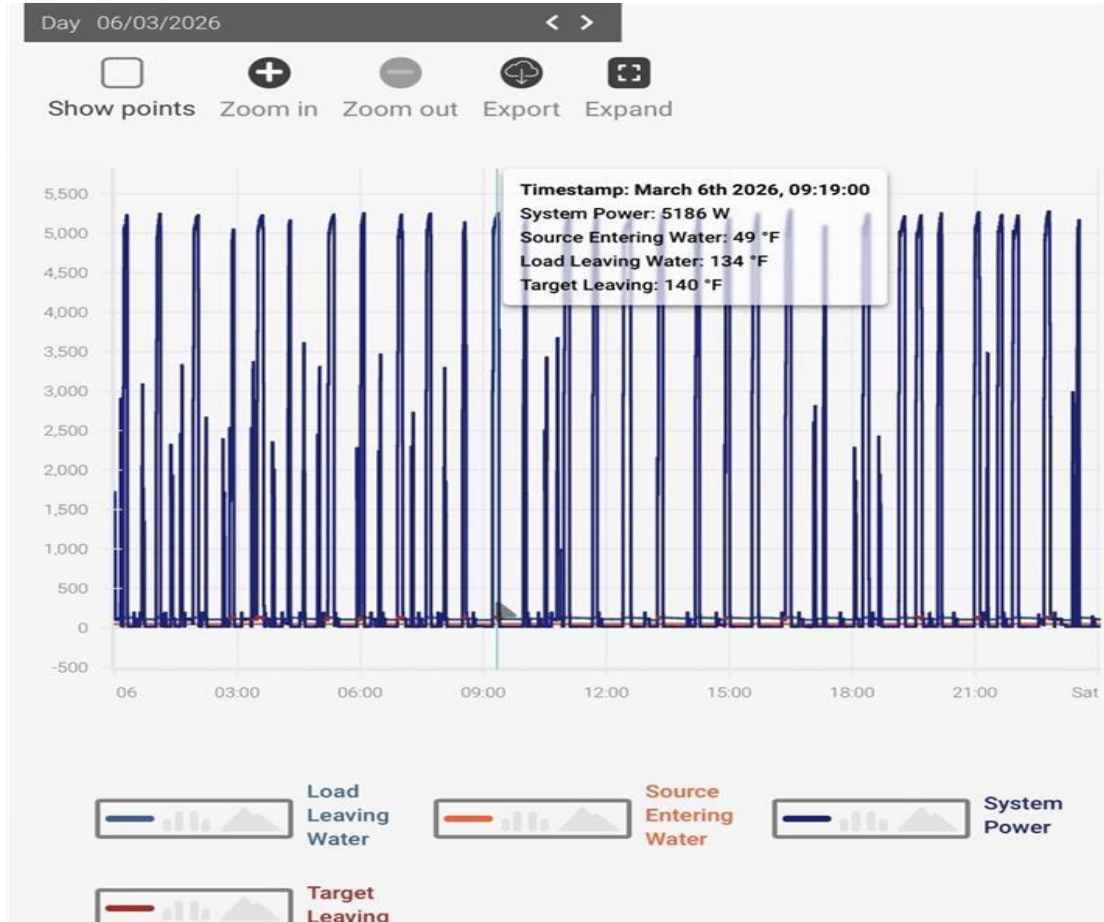


Mechanical System Performance

- **Enertech Variable Speed Water – to – Water Centralized GSHP System** provides 100% of building heating, cooling, and domestic hot water.
- **Vertical bore fields** are sized approximately **3 × 400 ft for 1-bedroom buildings and 4 × 400 ft for 2- and 3-bedroom buildings**, slightly oversized to maintain stable entering water temperatures and support long-term system performance.
- **Refrigerant impact minimized** through centralized factory-charged heat pumps using **R-454B**, reducing refrigerant leakage emissions by ~97% compared with distributed mini-split systems used in phase 1.
- **Peak electrical demand reduced ~18%** compared to the Phase I air-source heat pump design due to improved heat pump efficiency and integrated geothermal hot water production.
- **Centralized ERV ventilation system** replaces distributed unit ERVs, improving filtration access, reducing maintenance complexity, and maintaining balanced ventilation across the building envelope.







Innovative Financing

- **9% Low-Income Housing Tax Credit (LIHTC)** financing enabled high-performance construction while controlling first cost.
- **Stacked public incentives supported electrification and geothermal adoption:**
 - NYSERDA Buildings of Excellence: **\$1,000,000**
 - Early Design Support: **\$100,000**
 - NYSERDA New Construction Housing: **\$288,000**
 - NY-Sun Solar Incentive: **\$84,750**
- Passive House envelope + geothermal + solar **significantly reduce operating costs and utility burden**, improving lifecycle ROI for affordable housing.



Obstacles Overcome

Evolution across development (CreekView I → CreekView II) built confidence in electrified geothermal systems.

Mechanical system redesign shifted from distributed mini-splits to centralized geothermal and ERV systems to reduce maintenance and complexity.

Strong collaboration with NYSERDA, HCR, and project partners enabled decarbonization goals to align with affordable housing funding requirements.

Centralized mechanical and ventilation design reduced building penetrations, simplified service access, and improved long-term operability.

Project Team

- **Developer / Owner**
Baldwin Real Estate Development Corp
- **General Contractor**
DiMarco Constructors
- **Mechanical Contractor**
Van Hee Mechanical
- **Architect**
SWBR Architects
- **Energy & Passive House Consultant**
Sustainable Comfort, Inc.
- **Geothermal Equipment**
Enertech Global
- **Program Support**
NYSERDA



NYCHA Eastchester Gardens/Jackson Houses Geothermal DHW System

Awards: ACEC/ENR/GEOSTAR Best Geothermal Hot Water System

Marc Preston - Project Manager
Contractor: Adam's European Contracting Inc.

Project Location: Bronx, NY

Client: New York City Housing Authority (NYCHA)



Domestic Hot Water Challenges in Multifamily Housing Complex

- Aging, inefficient DHW infrastructure
- High carbon emissions from conventional systems
- Rising energy costs
- Increasing electrical grid constraints
- Limited scalable decarbonization solutions

Why Geothermal DHW is Difficult at Scale At Jackson Houses, Bronx, NY



- High and continuous hot water demand
- Temperature requirements (>140°F typical, >180°F peak)
- Load variability across large residential buildings
- System efficiency drops under peak conditions
- Integration with existing infrastructure

Project Goal – NYCHA Objective

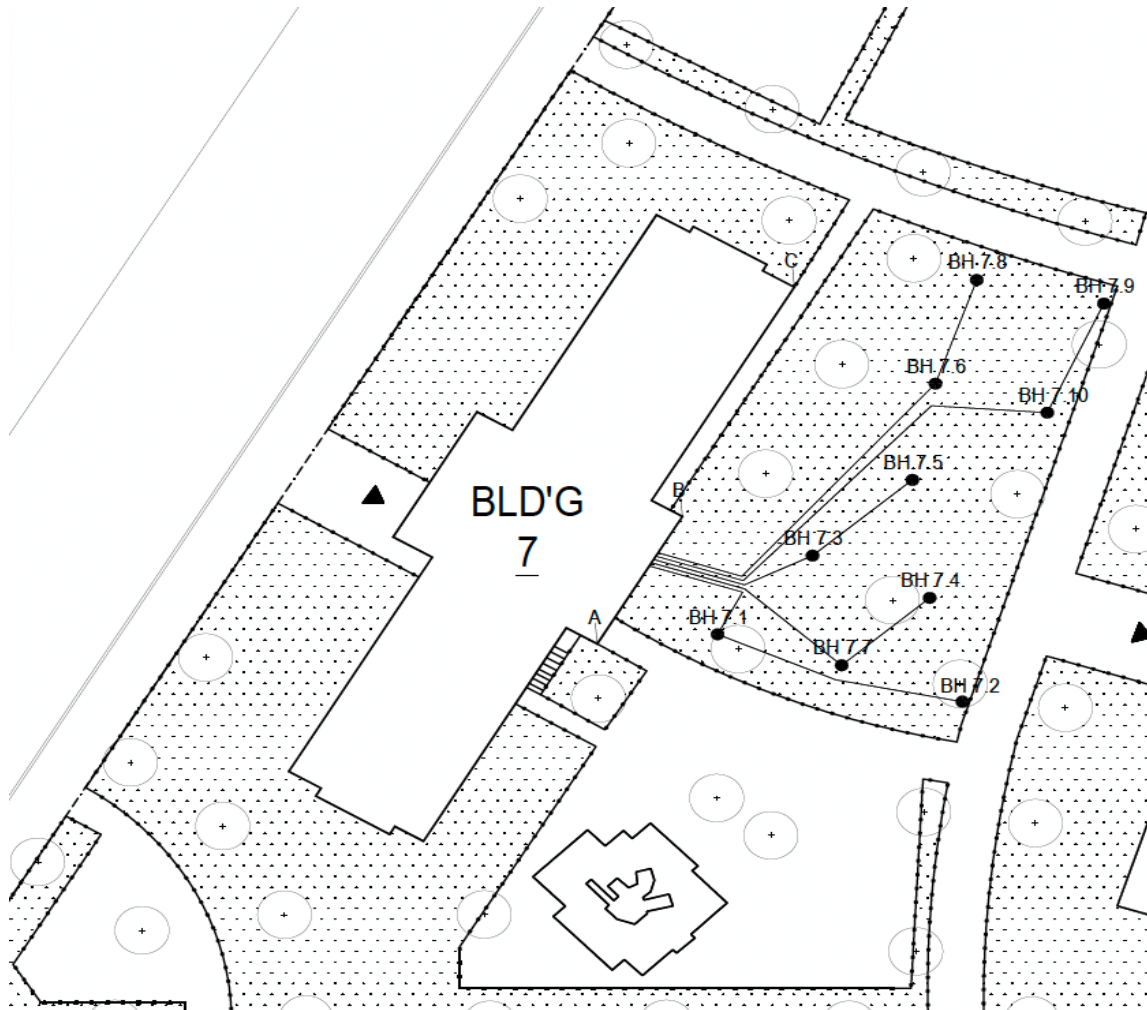
- Reduce energy use and emissions by **40%**
- Develop a **scalable, long-term DHW solution**
- Minimize grid impact
- Ensure reliability for large multifamily buildings

Our Solution – ACEC/ENR Award Winning - Geothermal-Based Domestic Hot Water System

- Borehole geothermal loop field
- High-efficiency heat pumps
- Integrated hot & cold water storage
- Custom system controls
- 🙌 Designed through a **Design-Build approach** with no fixed spec constraints
- See the following video

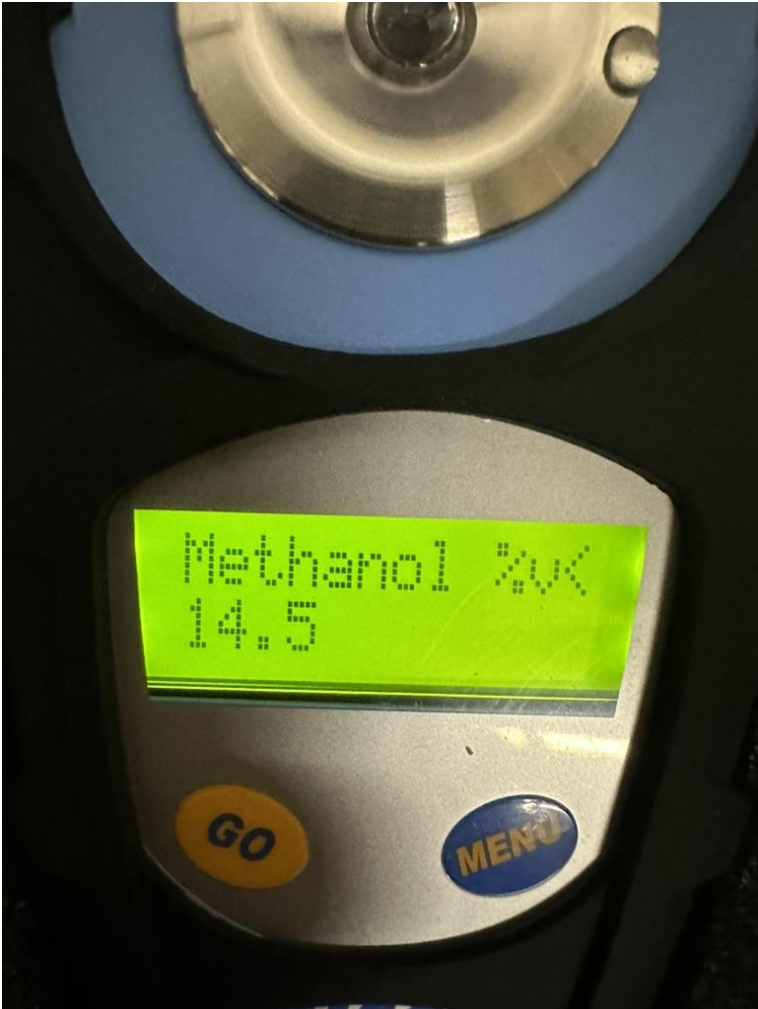


Bore Field Overview



- Example building: Jackson 7
- 10 boreholes @ 500 ft each
- Minimum 30' Spacing Between Boreholes
- Duplicated At All 7 Buildings in the Development

Jackson Houses, Bronx NY





Instantaneous Hot Water Geothermal Heat Pump

System Overviews - Settings Diagnostics Refresh

System	
Status	Normal
Operation	Test Mode
Method	AquaStat

Current Setpoints	
Control Temp (°F)	46.3
Mode	Heat

Current Temperatures	
Load Inlet (°F)	46.3
Load Outlet (°F)	153.4
Source Inlet (°F)	30.7
Source Outlet (°F)	24.3

Chiller #1	
Model	
Serial	

Circuit A	
Status	Active
Operation	Normal

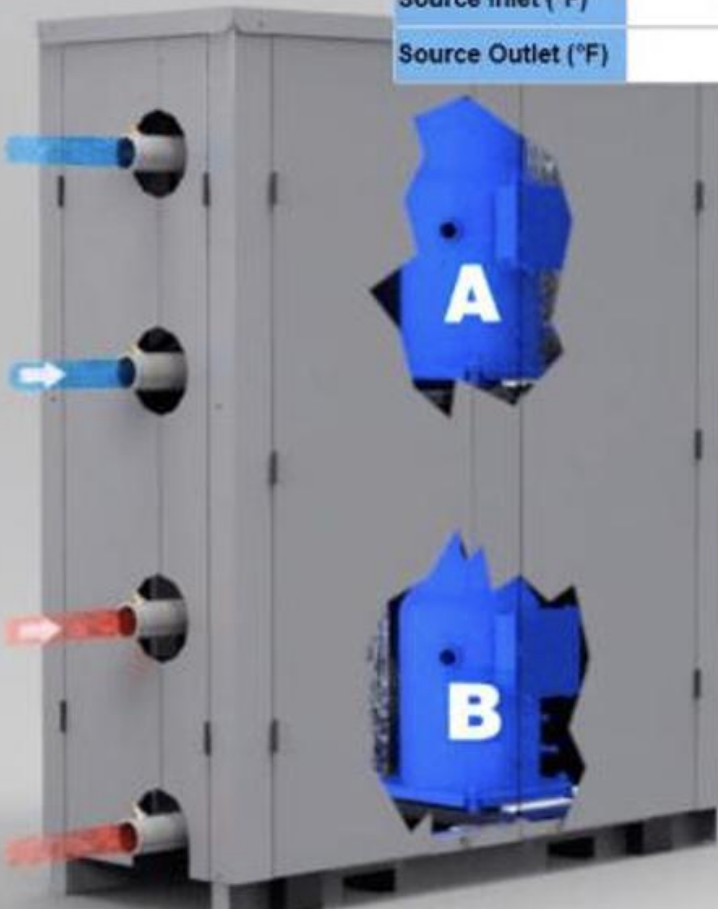
Refrigeration			
Disch Press (psig)	473.6	Sat (°F)	129.8
Liquid Line (°F)	94.9	SC (°F)	-34.7
Suct Press (psig)	75.0	Sat (°F)	18.1
Suct Temp (°F)	28.0	SH (°F)	9.9

Electrical	
Est Power (kW)	17.5
Comp Run Hrs	118.9

Circuit B	
Status	Active
Operation	Normal

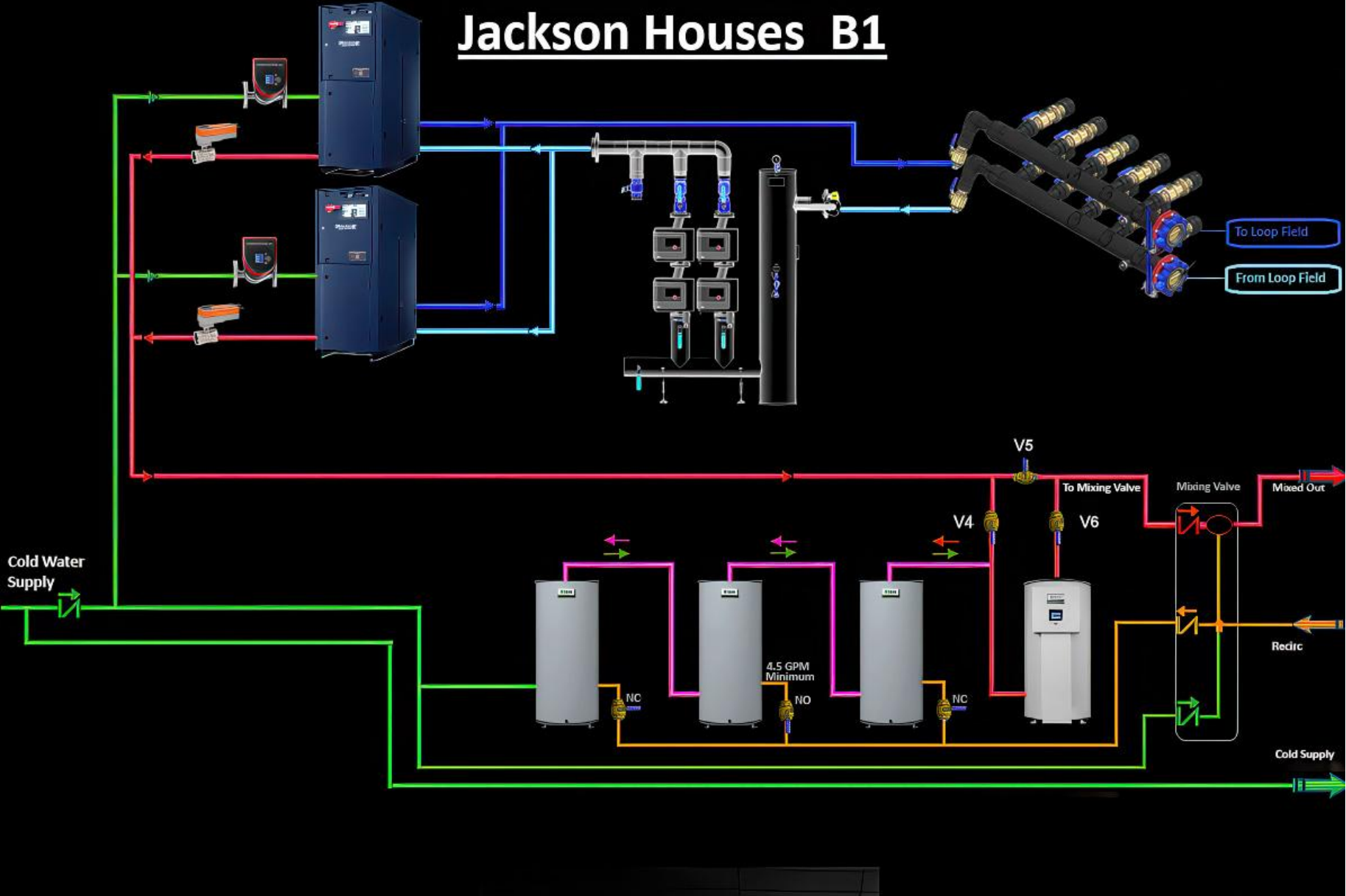
Refrigeration			
Disch Press (psig)	438.5	Sat (°F)	123.9
Liquid Line (°F)	85.2	SC (°F)	-38.7
Suct Press (psig)	74.7	Sat (°F)	17.9
Suct Temp (°F)	26.8	SH (°F)	8.9

Electrical	
Est Power (kW)	16.6
Comp Run Hrs	119.6



HydroLink2
AURORA

Jackson Geo System (Schematic)



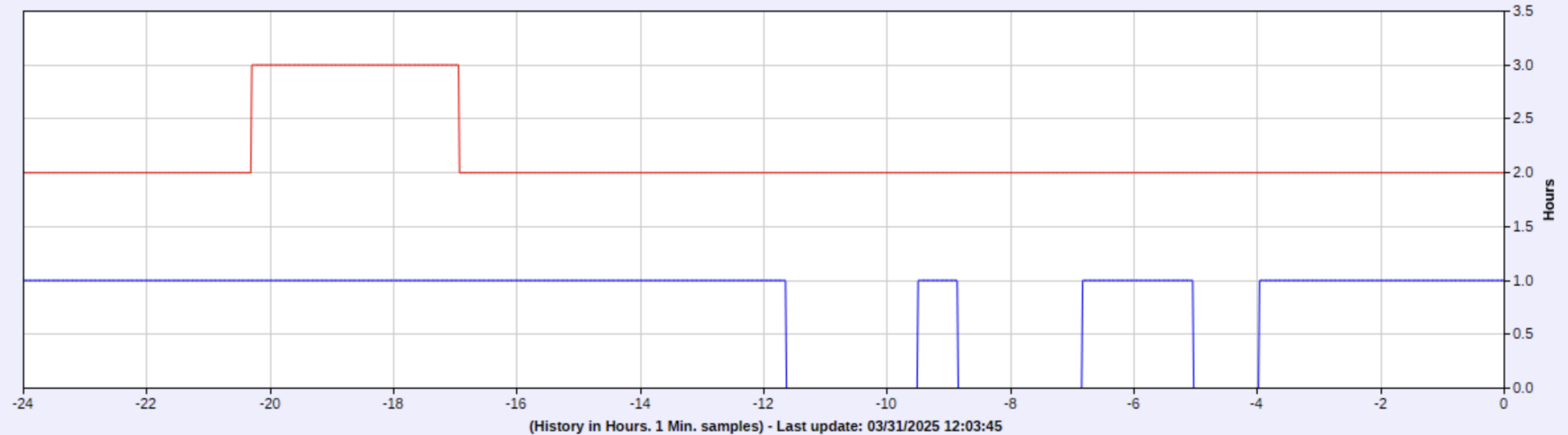
Eastchester 3 Run Time 03-31-2025

System was operating at 43% capacity during the Month of March 2025

HP_Run_Times.png

RedHP1Virtual; Blue=HP2 Comp1

■ HP1Virtual ■ HP2_C1_On

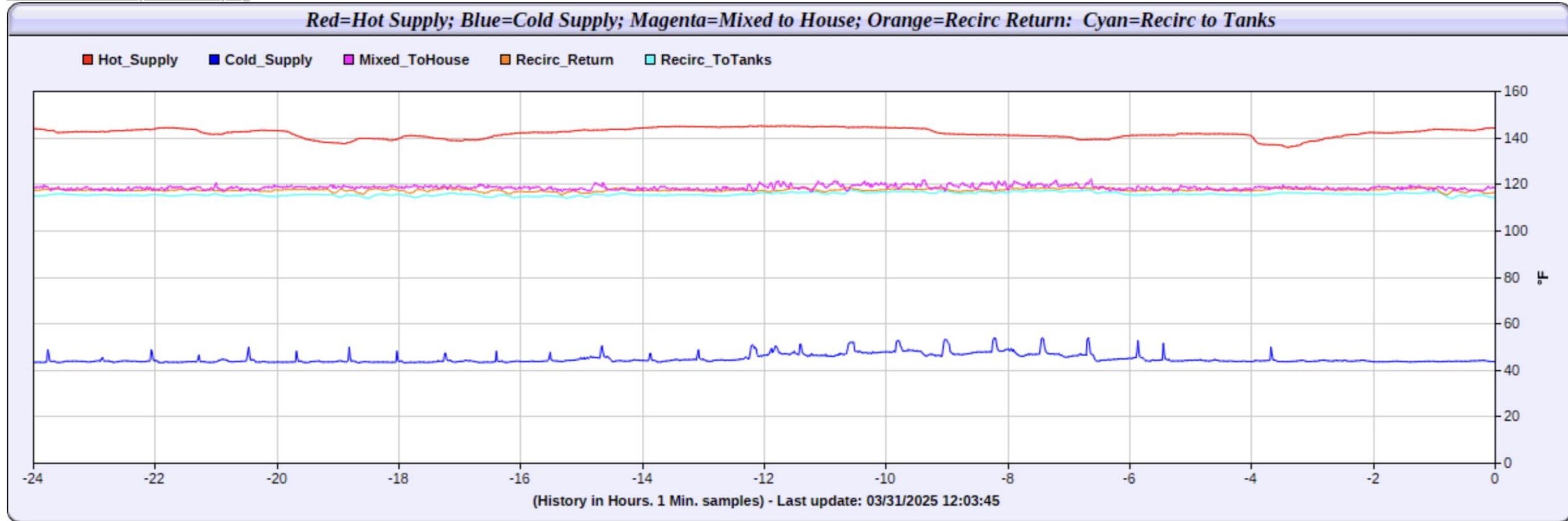


Eastchester 3

140F Supply Temperatures to Building

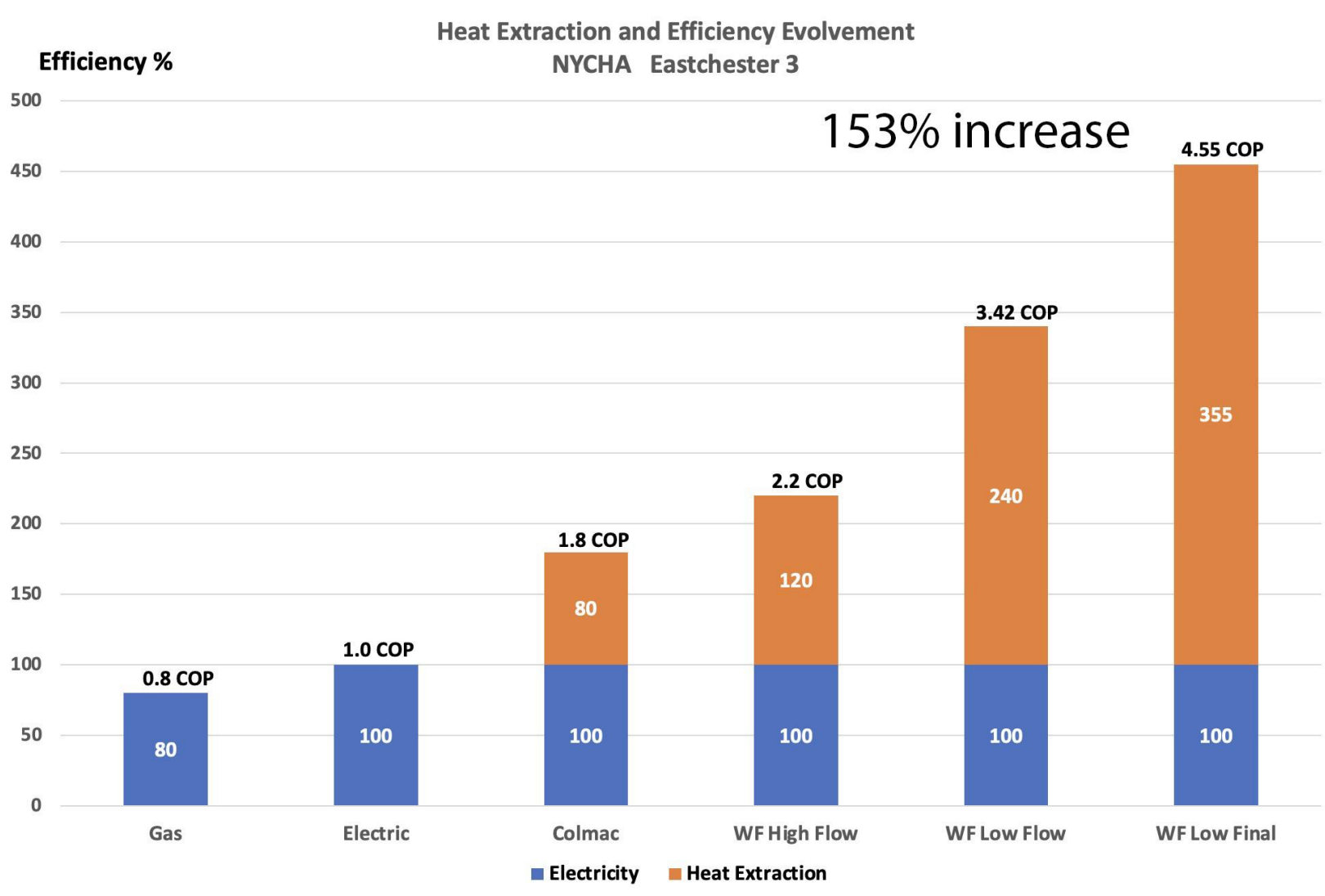
03-31-2025 System operating as designed

HouseWaterTemperatures.png



Bottom Line - Jackson Houses

153% increase in efficiency compared to original design
In-house control software development



Bottom Line

Heat Extraction from the loop field 394,000 vs 170,000 BTUs/h
231% increase

Capacity is up from 311 MBTUH to 507 MBTUH
63% increase

Power consumption down from 41.3KW to 32.5KW
21% decrease

NYSERDA verified efficiency gains

Draft Report

NYCHA's Geothermal Heat Pump Systems to provide Domestic Hot Water

October 16, 2024

Prepared for

Donovan Gordon
 New York Energy Research and Development Authority
 17 Columbia Circle
 Albany, NY

and

New York City Housing Authority
 250 Broadway
 New York, NY 10007

Prepared by

Hugh I. Henderson, Jr. P.E.
 Owahgena Consulting, Inc.
 1883 Ballina Road
 Cazenovia, NY 13035



Table 3. Summary of Readings taken from Water Furnace GHP#1 and GHP#2 at Eastchester 3

Unit	Load in Temp (F)	Load out Temp (F)	Sat Dist Temps (F)	Source in Temp (F)	Source out Temp (F)	Ultrasonic (gpm)	Willo Pmp (gpm)	WF Pwr (kW)	Satec Pwr (kW)	QE	QH	COP
Set Pt = 143												
GHP#2	64.2	136.8	120/123	41.9	38.8	115.5	122.3	30.7	30.9	296.6	401.3	3.83
GHP#2	70.3	137.7	122/124	41.9	38.3	119.3	126.3	31	30.9	336.9	442.7	4.19
GHP#2	65.3	138	125/123	41.9	38.3	121.8	129.8	30.7	30.95	346.2	451.0	4.31
GHP#2	64	139.1	122/124	41.7	38.5	124.7	130.8	30.9	30.9	323.5	429.0	4.07
Set Pt = 133												
GHP#2	64.2	128.9	115/118	45.5	38.3	65.2	71	29.4		313.4	413.7	4.12
GHP#2	64	128.9	115/118	45.7	38.3	66.1	72.1	29.3		325.2	425.2	4.25
GHP#2	64	128.3	115/118	45.7	38.3	65.6	70.3	29.4		317.1	417.4	4.16
GHP#2	63.9	128.6	116/118	45.9	38.3	65.7	72	29.3		331.7	431.7	4.32

- **What Makes This System Unique**
- 100% geothermal energy for DHW (year-round)
- Cold-water storage for optimized operation
- Serial storage design (shared piping system)
- 180°F DHW production using standard heat pumps

- **Why These Innovations Matter**
- Eliminates fossil fuel dependency
- Maintains efficiency under variable loads
- Enables high-temperature output without auxiliary systems
- Maximizes system performance and lifespan

Carbon & Energy Impact

- **Sustainability Outcomes**
- 40% reduction in carbon emissions
- 100% geothermal DHW operation
- Reduced energy consumption
- Transition toward emission-free operation

Grid Impact (For ConEd)

System-Wide Electrical Benefits

- Reduced peak electrical demand
- Lower overall system power consumption (-21%)
- Potential to **avoid grid infrastructure upgrades**
- Supports electrification without overloading the grid

Design-Build Advantage

Why This Project Succeeded

- No fixed specification constraints
- Full integration of engineering + construction
- Rapid innovation and iteration
- Custom in-house control system development

Scalability - Future Applications

- Expandable to space heating and cooling
- Applicable across NYCHA building portfolio
- Repeatable design for large multifamily housing

Lifecycle & Cost - Long-Term Value

- Loop field lifespan: **200+ years**
- Equipment lifespan: **30+ years**
- Minimal maintenance requirements
- Lowest lifecycle cost after incentives

Key Takeaways - Why This System Wins

- First **100% geothermal DHW system** of its kind
- Verified performance exceeding design expectations
- Higher capacity, lower energy use
- Reduces grid strain while improving efficiency
- Scalable, cost-effective, and long-lasting solution

Closing - The Future of DHW in Multifamily Housing

- This system demonstrates that geothermal can:
- Fully replace traditional DHW systems
- Improve performance while reducing energy use
- Support large-scale decarbonization efforts

ENR REGIONAL 2025 New York BEST PROJECTS



BEST RESIDENTIAL/HOSPITALITY PROJECT
**NYCHA EASTCHESTER AND
JACKSON HOUSES - GEOTHERMAL
DHW AND HEATING UPGRADE**



ENR REGIONAL 2025 New York BEST PROJECTS



BEST PROJECT: EXCELLENCE IN SUSTAINABILITY
**NYCHA EASTCHESTER AND
JACKSON HOUSES - GEOTHERMAL
DHW AND HEATING UPGRADE**





2026 TOP JOBS



AFFORDABLE RENEWABLE CLEAN

Presented by:

Matt Desmarais

Energy Catalyst Technologies

518-520-3770

Mattd@energycatalysttech.com

Project Name: Hawthorne Valley Waldorf School

Address: 1926, 330 County Rte 21C, Ghent, NY 12075

Hawthorne Valley Waldorf School

“The School That Couldn’t Go Net Zero — Until It Could”



Classic Barriers to Clean Heating

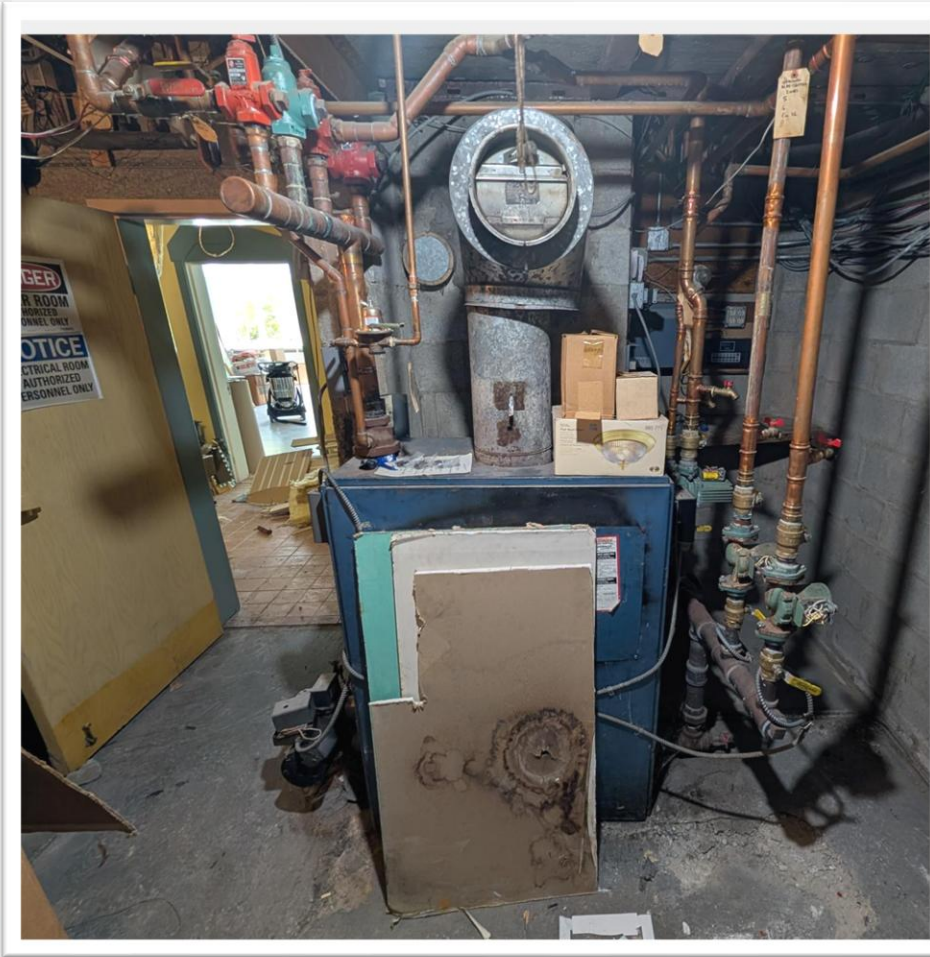
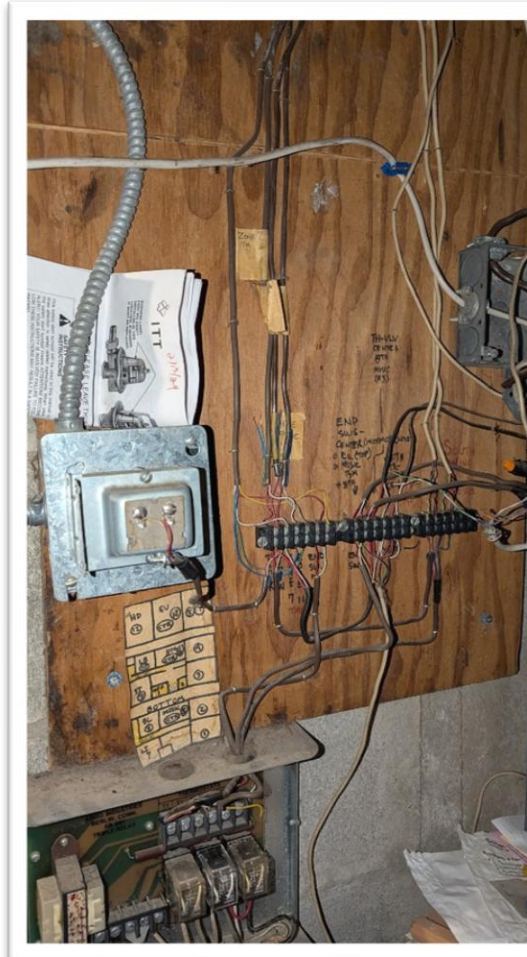
Needed to replace 5 aging boilers but...

Project Constraints:

- All high temperature baseboard, no ductwork. Boiler temp 180°F.
- Very little space to add ductwork
- No options for rooftop units
- Basic thermostat controls
- No make up air or air filtration
- Limited power budget (600 amps for the entire campus)

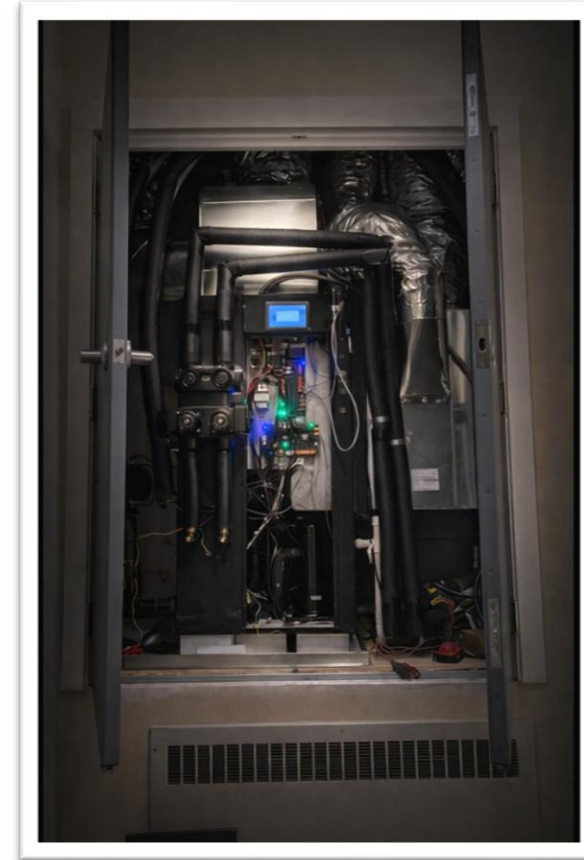
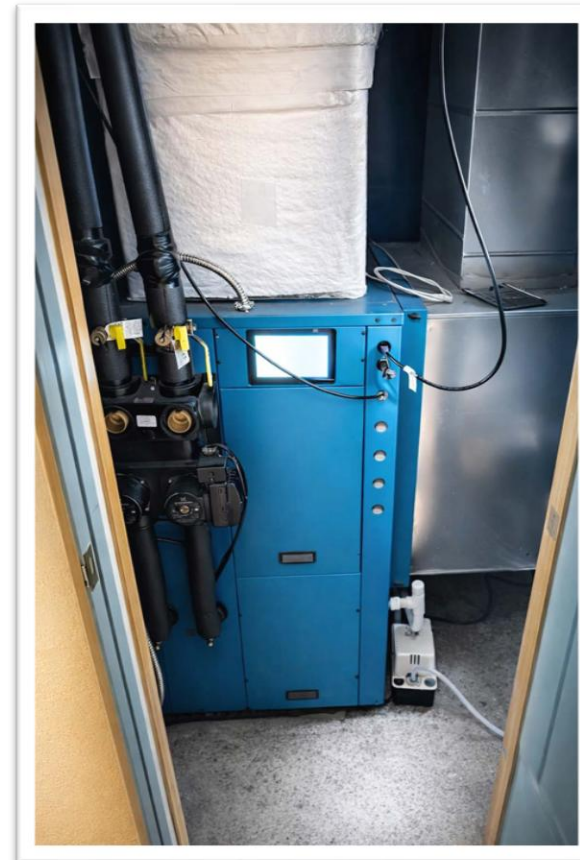
Small budget (2 million dollars) for 45,000 ft² spread over 4 buildings

Most projects like this don't go geothermal—they stay on fossil fuels.

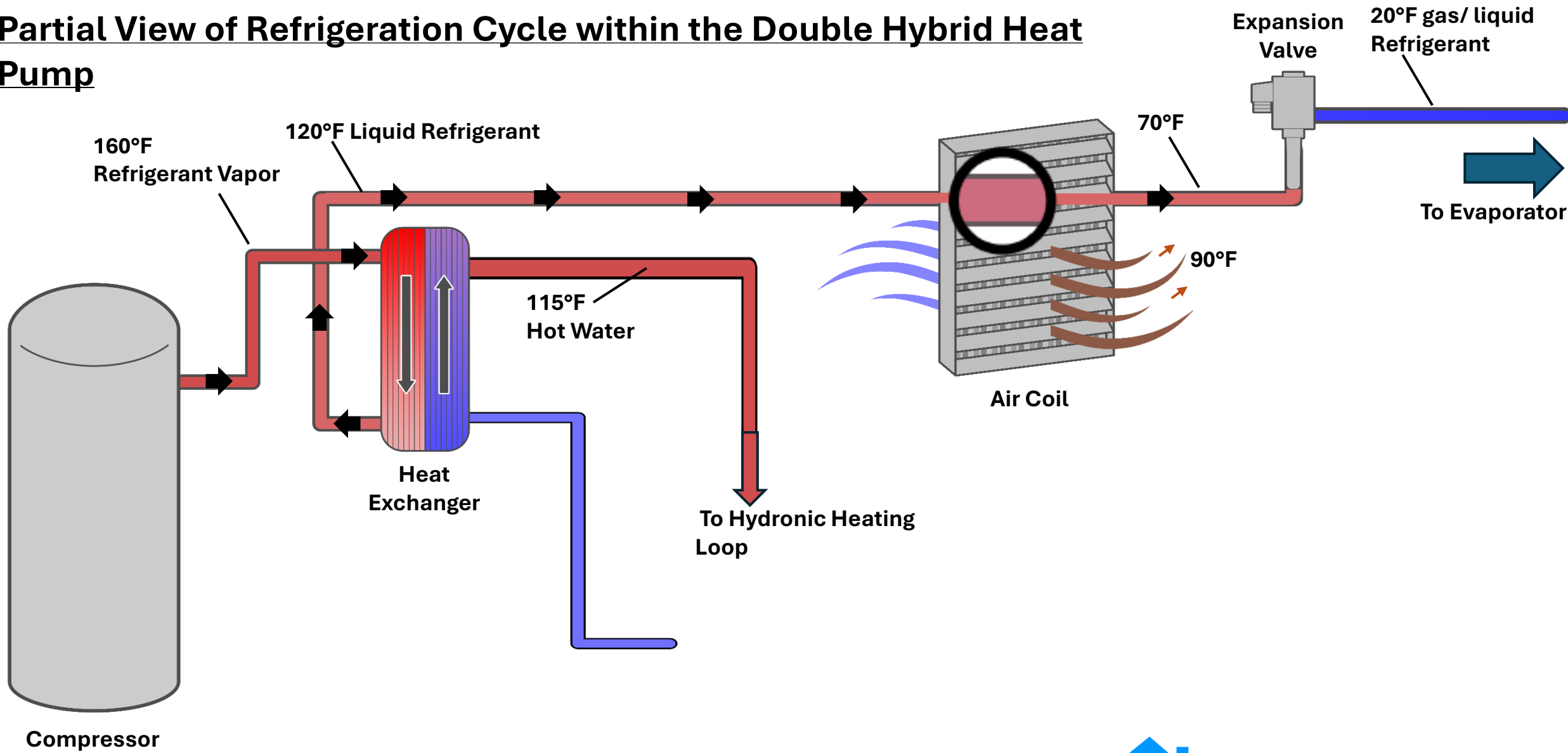


Our Design: A Central Plant- In Reverse

- If we converted the largest building to forced air heating, we would have needed 16,000 CFM of duct. **We had room for 5,000 CFM.**
- We found small nooks around the building to place five **8-ton Double Hybrid heat pumps** and reused their existing baseboard.
- Each heat pump can deliver energy as a Hybrid:
 - 80% high efficiency hot water (up to 130°F)
 - 20% hot air to unlock full system capacity
- All units are connected via central buffer tank and will operate as a coordinated system.



Partial View of Refrigeration Cycle within the Double Hybrid Heat Pump



ENERGY CATALYST
GROUNDBREAKING CLEAN HEAT

Evolution in heat pump controls

This project pushed us to evolve beyond equipment into **full system intelligence**:

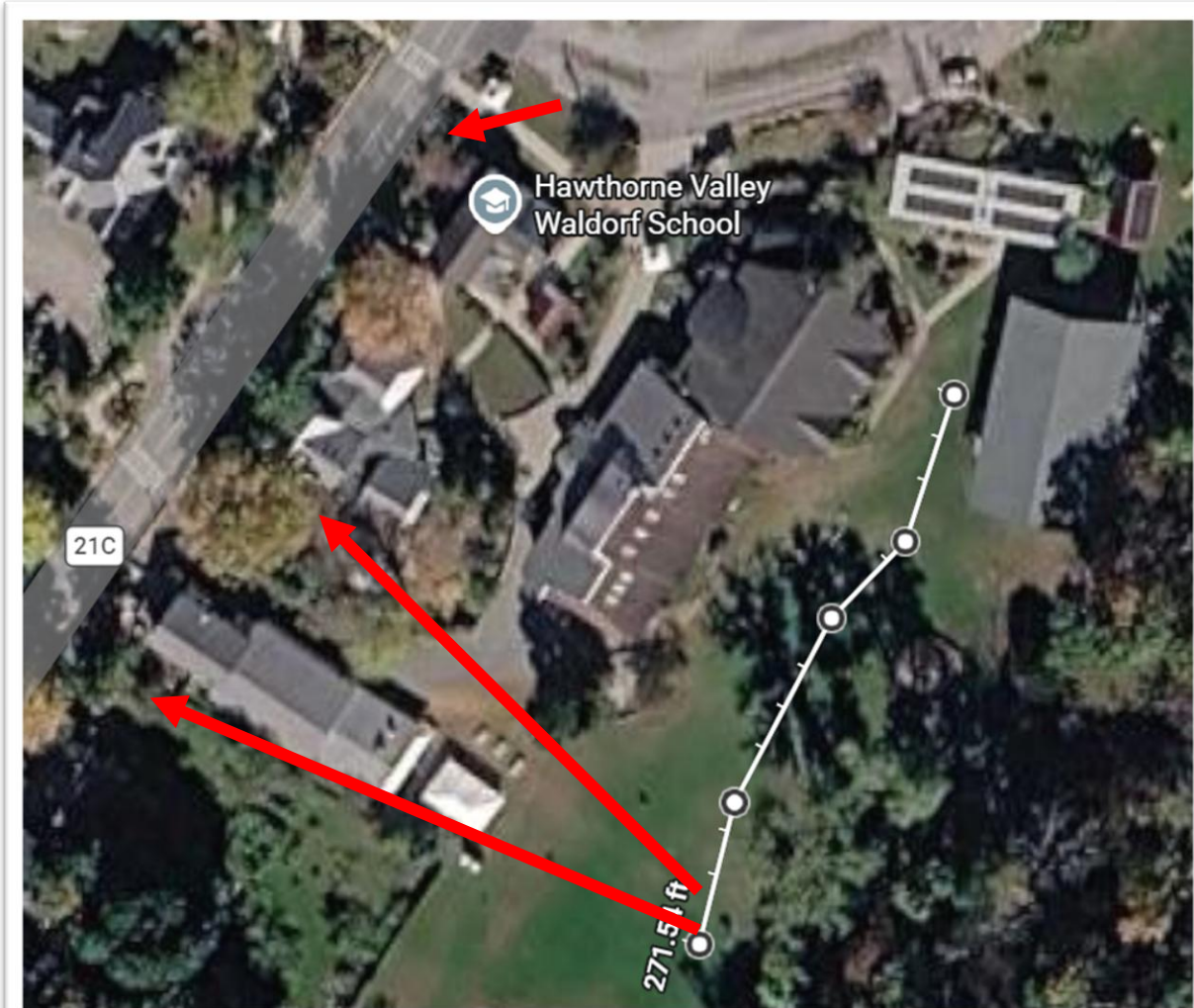
- **Integrated BMS:** Heat pumps coordinate automatically and adjust based on thermostat feedback.
- **Load sharing:** Units support each other via shared hot water loop
- **Remote optimization:** Real-time adjustments and performance tracking

Result:

A decentralized system that behaves like a single, intelligent plant.

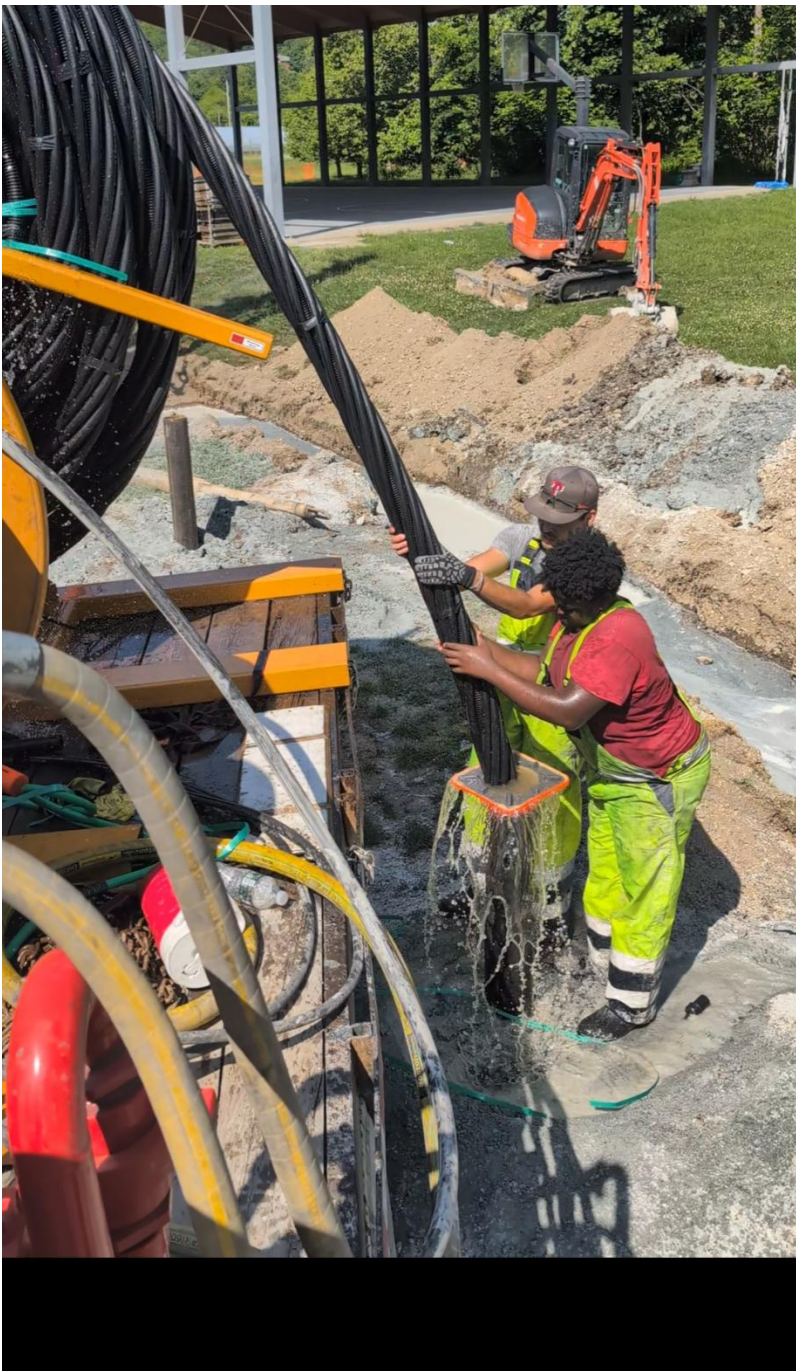
Installation with Limited Disruption

Horizontal Drilling allowed us to avoid damaging the playground and road between the vertical borefield and buildings.



Installation of 17 Vertical Twister Loops





Main Building Manifold:

Combines 10 of the 17 Twister loops from the borefield.

We Engineered Reliability:

Manifold design uses 5 sets of 2 so that if one goes down, the system can still operate with 80% capacity.



System flushed by ports on the left by our flush truck.

**Main Building Construction:
Hiding Ductwork in the ceiling.**





Project Results and Lessons Learned

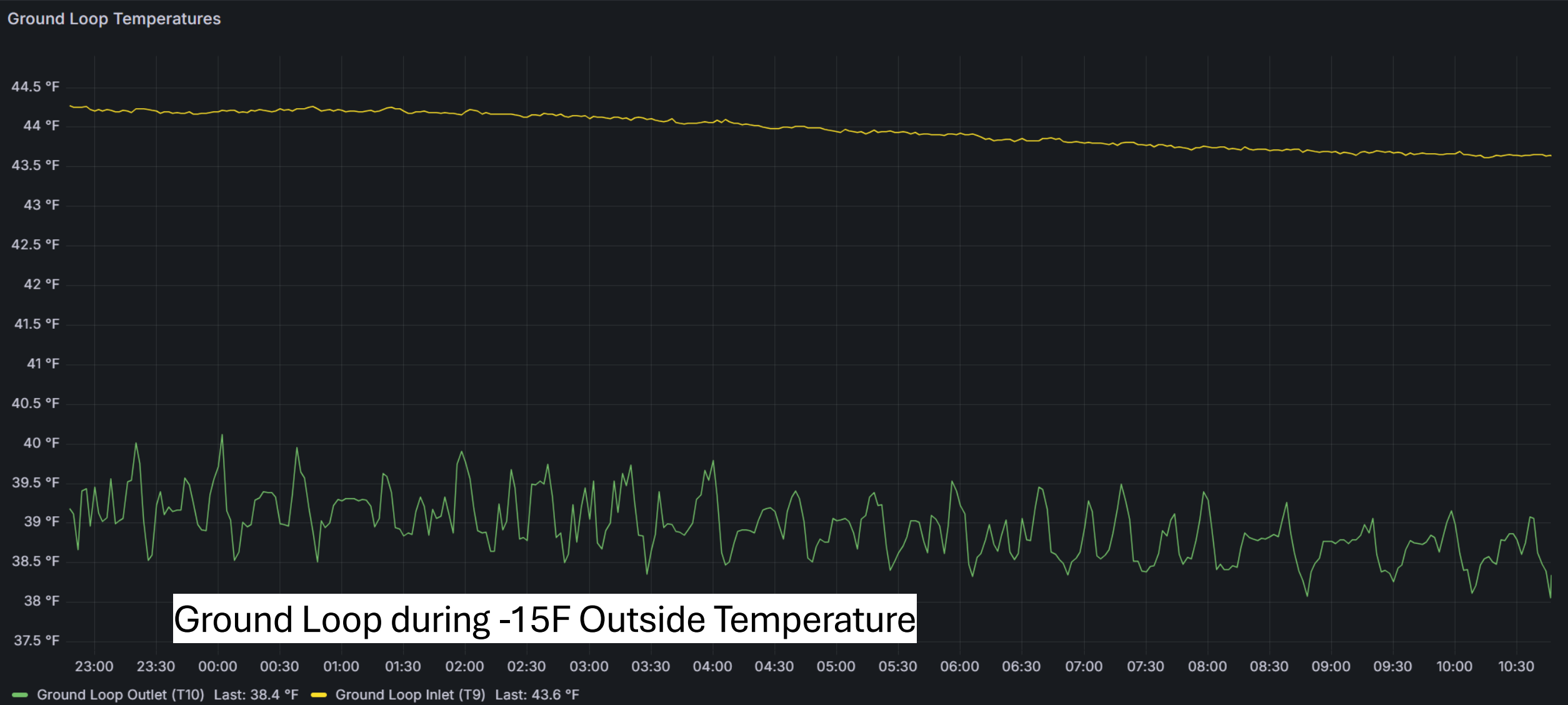
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Date

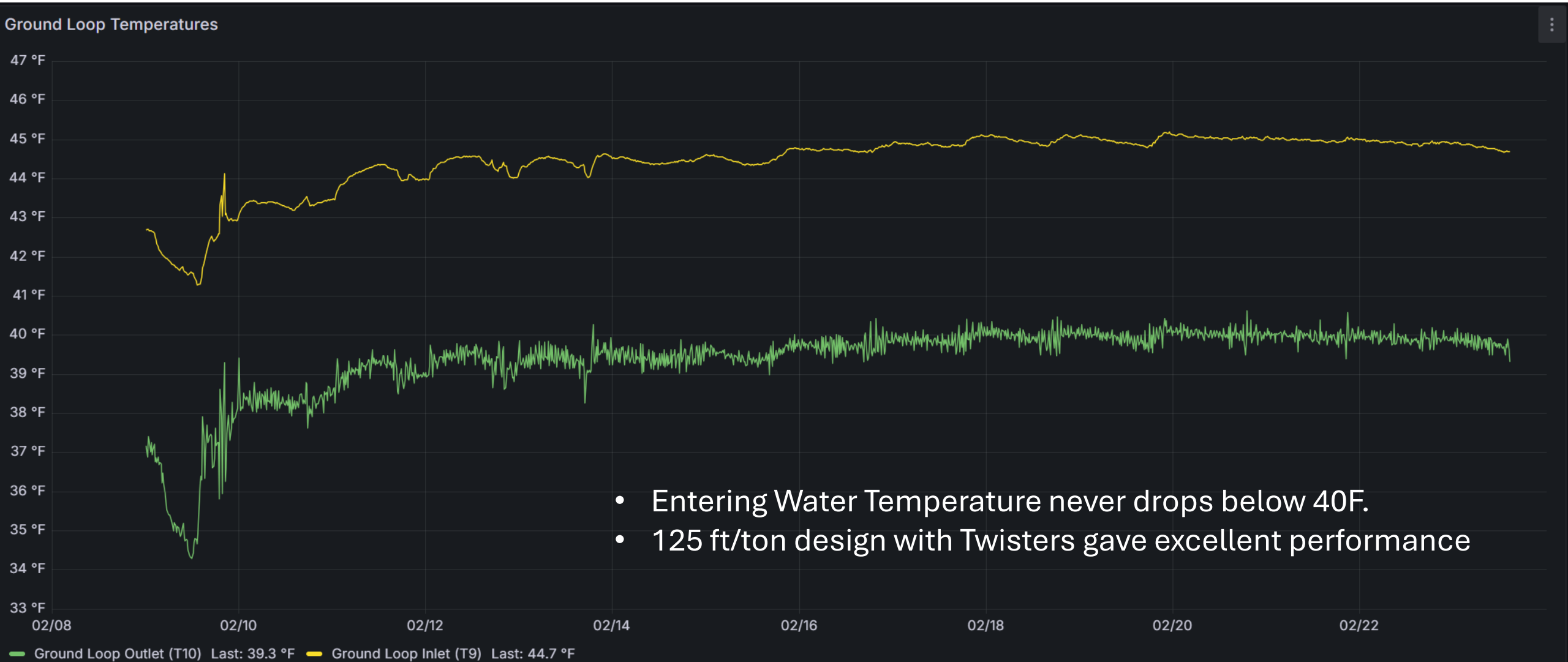


Twisters Overperformed: Never reaching below 40°F Entering Water Temp.

Site s_boiler ▾ Heatpump hp_000002 ▾ Tank tank_000007 ▾ Thermostat All × × ▾ < ⌚ Last 12 hours ▾ > 🔍 Refresh 30s ▾



Ground Loop during Winter's Peak 2 Weeks

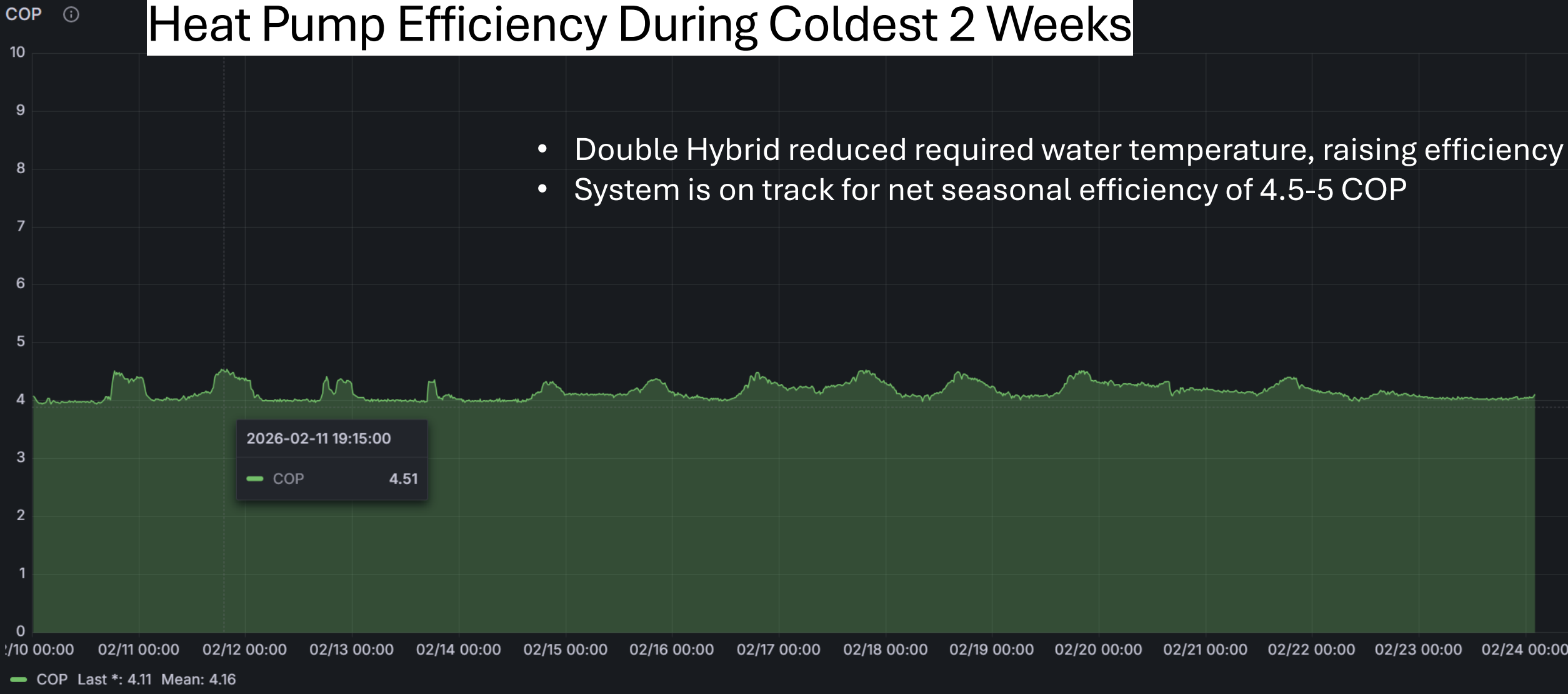


- Entering Water Temperature never drops below 40F.
- 125 ft/ton design with Twisters gave excellent performance

The Double Hybrid Approach Raises Efficiency

Heat Pump Efficiency During Coldest 2 Weeks

- Double Hybrid reduced required water temperature, raising efficiency
- System is on track for net seasonal efficiency of 4.5-5 COP



A Lesson that Changed Our Thinking: *A Little Air Goes a Long Way*

- Circulating air between classrooms helps to even out temperatures in the spaces.
- Where possible, we added HRVs and used CO2 control for added ventilation.
- Except on the coldest days, the building could be heated with hot water temperatures between 110-122F.
- During commissioning period, overheating was as common of problem as underheating.

What This Project Proves:

With the right equipment and design team:

- Buildings once considered **“impossible to electrify”** can succeed
- High-temperature hydronic systems are **not a barrier**
- Distributed heat pumps can outperform centralized systems

“It is no small feat that we were able to complete a massively complex undertaking in five buildings, some two hundred years old, on budget. It is heartening to come to school on days when the temperature is below zero, see no smoke coming out of any chimneys, and walk into warm and welcoming spaces.”

-Statement from Martin Ping, Director of Hawthorne Valley School



2026 TOP JOBS



AFFORDABLE RENEWABLE CLEAN

Presented by:

Matt Desmarais

Energy Catalyst Technologies

518-520-3770

Mattd@energycatalysttech.com

Project Name: Hawthorne Valley Waldorf School

Address: 1926, 330 County Rte 21C, Ghent, NY 12075

Geoff Hoffer, VP of Operations & Engineering

Aztech Geothermal, LLC



- AEE Certified GeoExchange Designer (CGD)
- IGSHPA Certified Residential Designer (CRD)
- IGSHPA Certified Geothermal Inspector (CGI)
- IGSHPA Accredited Geothermal Installer
- ME from U.S. Naval Academy

Aztech Geothermal, LLC

- 650+ Geothermal Projects (NY & MA)
- Turnkey GSHP HVAC Systems
- Ground Loop Design & Installation
- Consult to MEP Firms
- Provide Inspection & Commissioning

- Formation Thermal Conductivity Tests



Bonnie View – Lake George Retreat

Project Team

- Architect –
Balzer Tuck Architecture
- Builder –
Teakwood Builders, Inc.
- Geothermal Designer/Installer –
Aztech Geothermal
- Mechanical Contractor –
Adirondack P&M
- Drilling Contractor –
Rosick Well Drilling
- Home Automation –
Adirondack Audio & Visual



Bonnie View – Lake George Retreat

Home Specs

- 8,000 Square Feet
- Spray Foam Insulation
- Triple Pane Windows
- 8 Zones – Radiant/Air



Bonnie View – Lake George Retreat

HVAC System

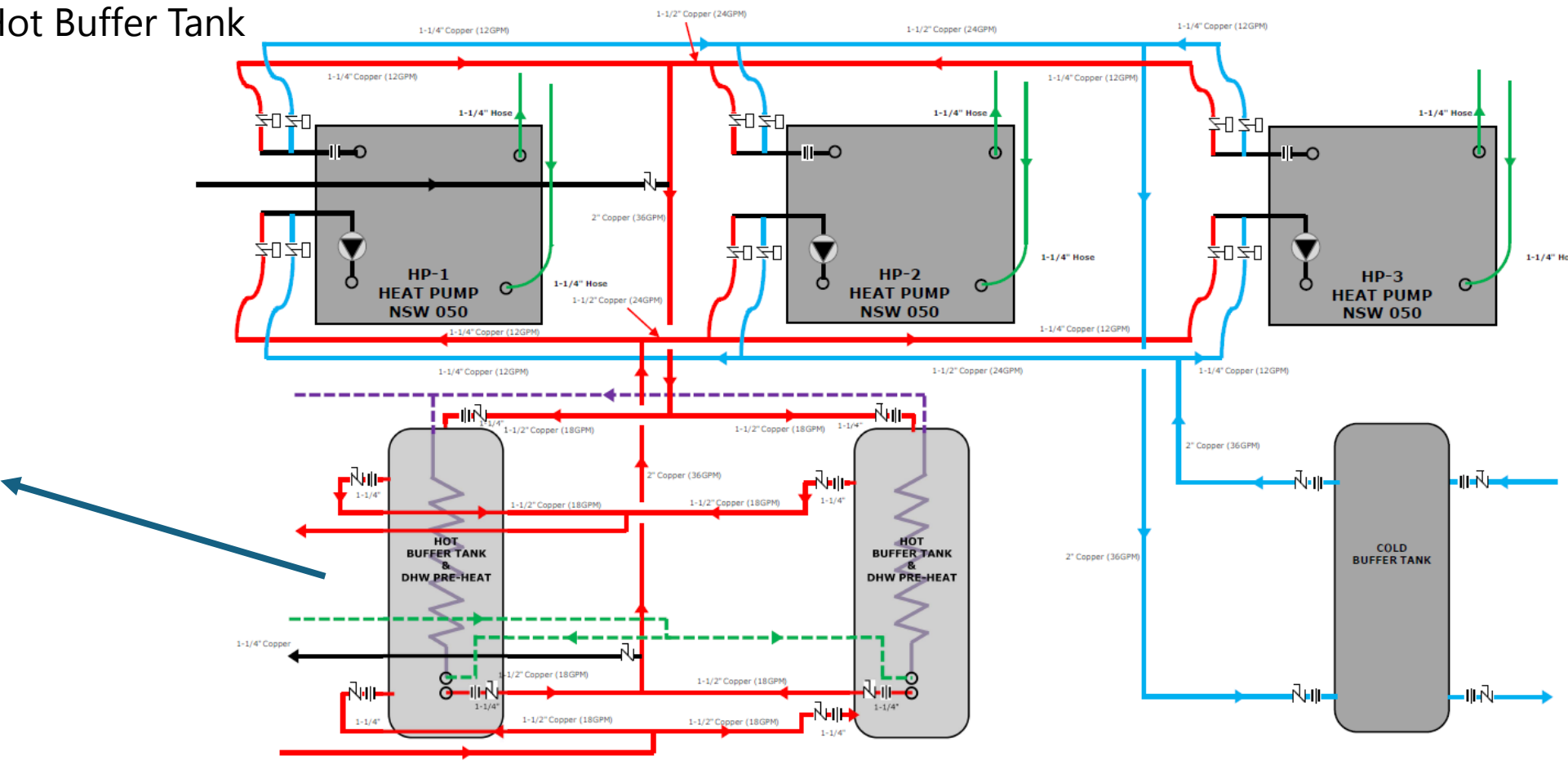
- (3) 4-Ton WaterFurnace NSW W-W Heat Pumps
- (4) 450' Vertical Ground Loops
- (6) First Co Hydronic Air Handlers
- Warmboard Radiant Floors
- Simultaneous Heating & Cooling
- TurboMax Buffer Tanks
- Savant Thermostats
- Honeywell Zone Controls
- HBX Setpoint Controllers
- Lochinvar Knight Boilers w/ Indirect DHW Tanks
- Wine Guardian
- Fantech ERV
- MultiAqua High Wall Hydronic Fan Coil
- Aprilaire Steam Humidifiers



Bonnie View – Lake George Retreat

Geothermal Hydronics

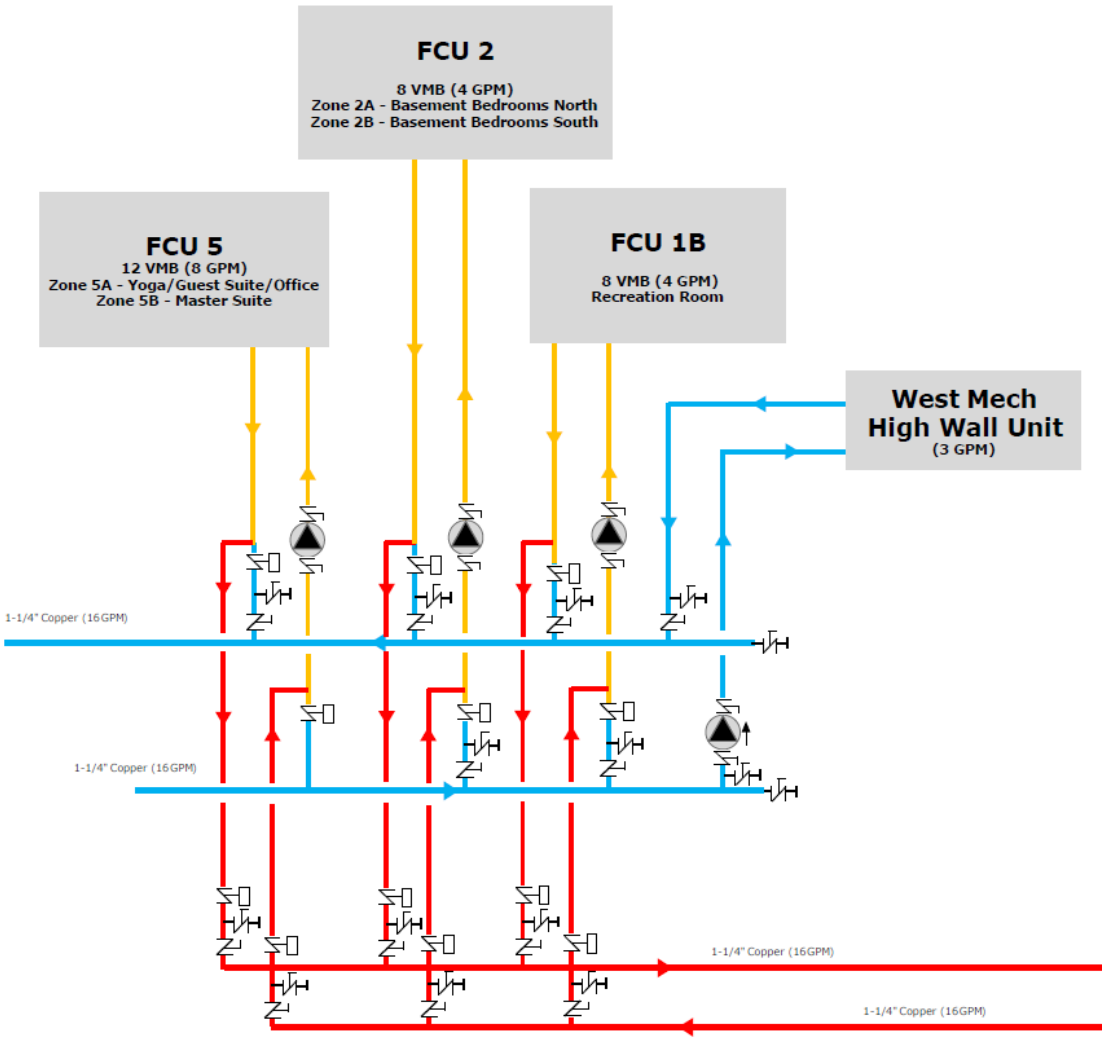
- Simultaneous Heating & Cooling
- DHW Pre-Heat in Hot Buffer Tank



Bonnie View – Lake George Retreat

Hydronic Air Handlers

- Hydronic Air Handlers Used for Cooling & Heating
- Zones Coordinated for 1st Stage Radiant Heat, 2nd Stage Air Handler Heat
- MultiAqua Hydronic High Wall Unit for Mech Room Cooling



Bonnie View – Lake George Retreat

Integrated Systems

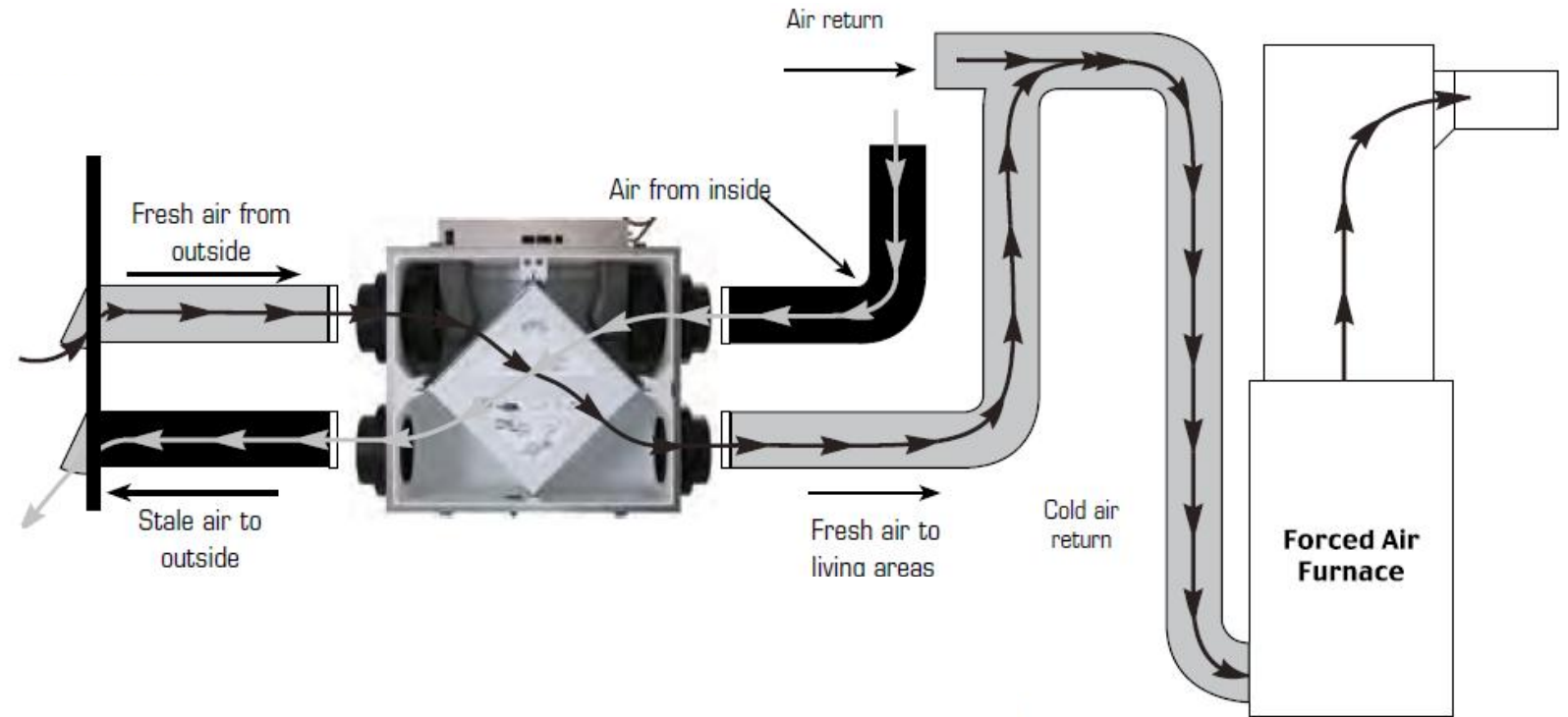
- Water Cooled Wine Guardian for Wine Room Space Conditioning



Bonnie View – Lake George Retreat

Integrated Systems

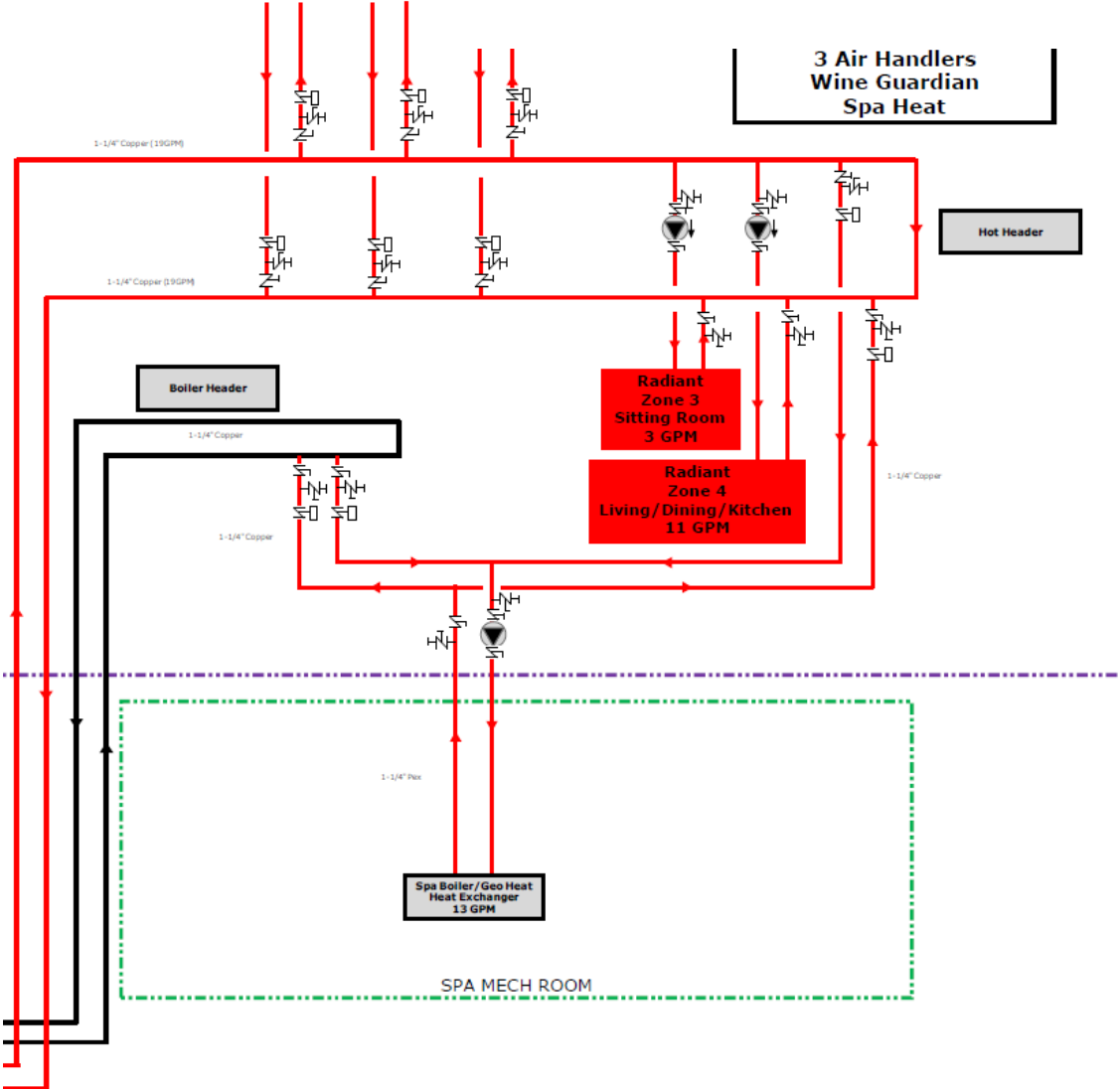
- Water Cooled Wine Guardian for Wine Room Space Conditioning
- Fantech ERV for Ventilation & Bathroom Exhaust



Bonnie View – Lake George Retreat

Integrated Systems

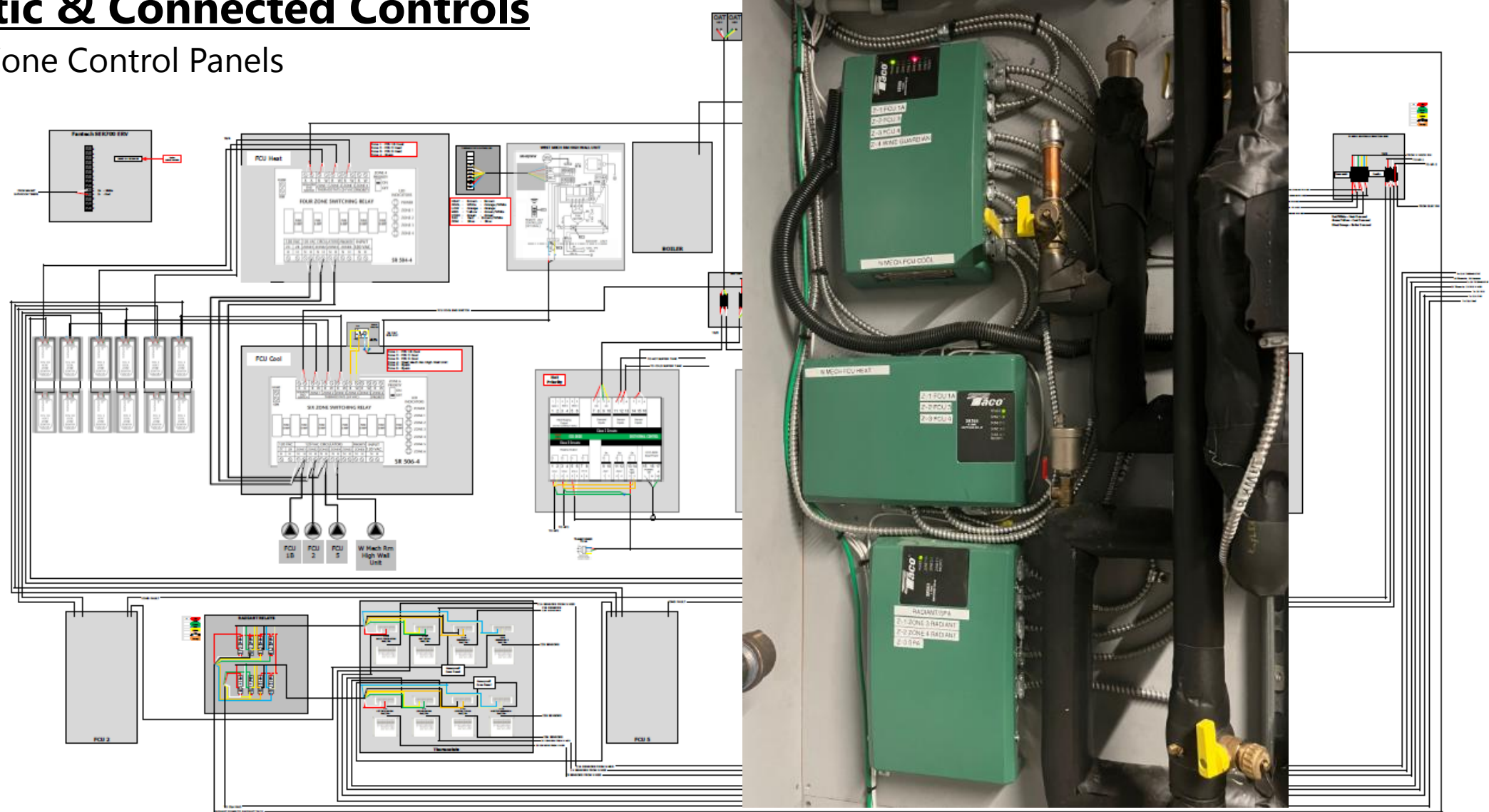
- Water Cooled Wine Guardian for Wine Room Space Conditioning
- Fantech ERV for Ventilation & Bathroom Exhaust
- Geothermal Heating of Outdoor Spa when covered and in unoccupied mode to reduce the use of propane



Bonnie View – Lake George Retreat

Simplistic & Connected Controls

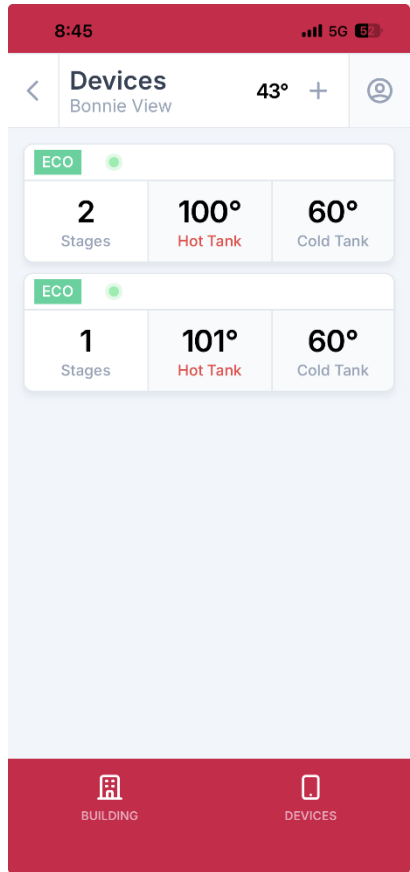
- Taco Zone Control Panels



Bonnie View – Lake George Retreat

Simplistic & Connected Controls

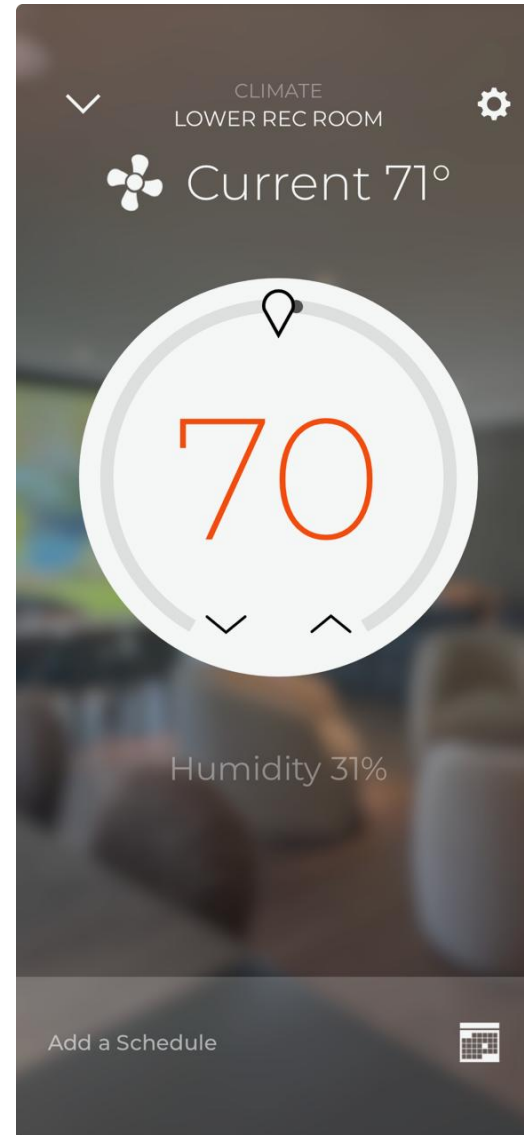
- Taco Zone Control Panels
- HBX Setpoint Controllers



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Simplistic & Connected Controls

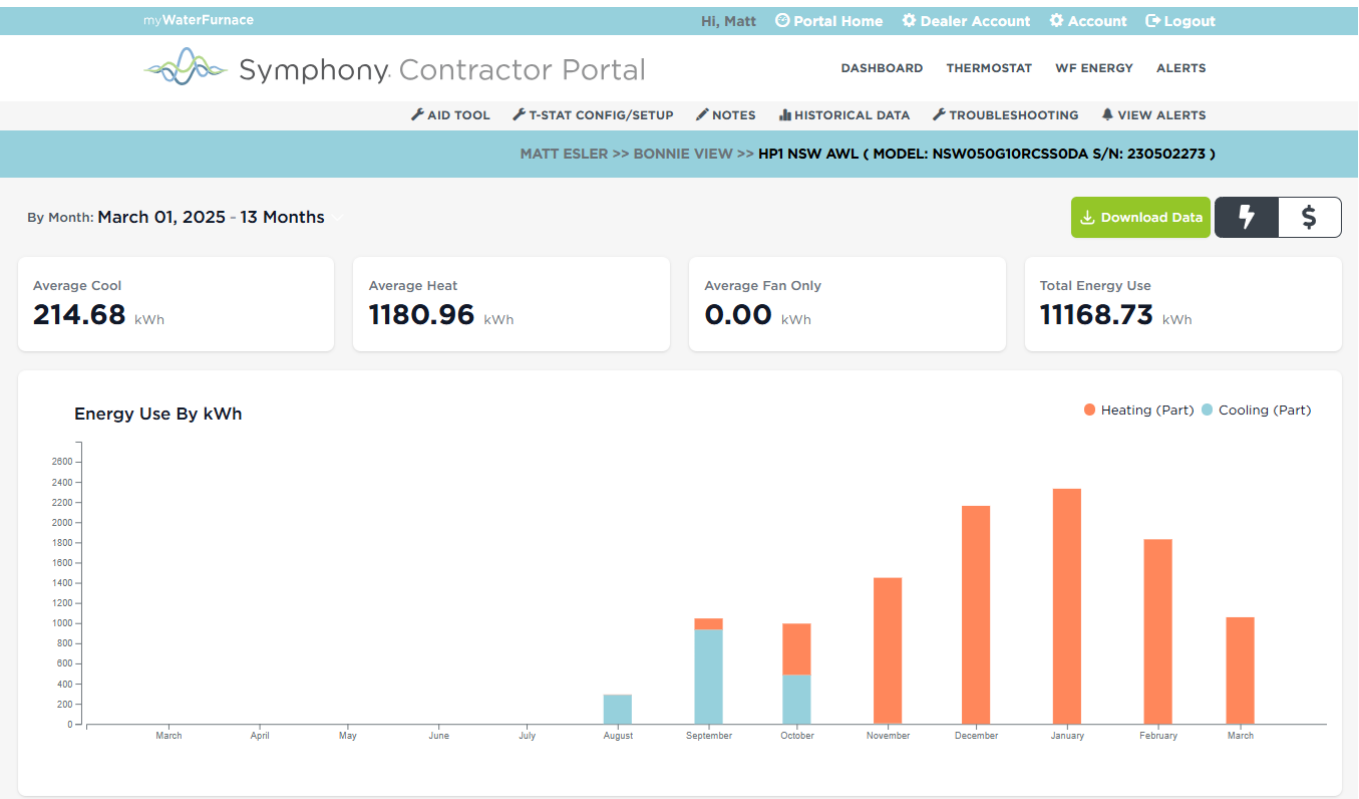
- Taco Zone Control Panels
- HBX Setpoint Controllers
- Savant Thermostats



Bonnie View – Lake George Retreat

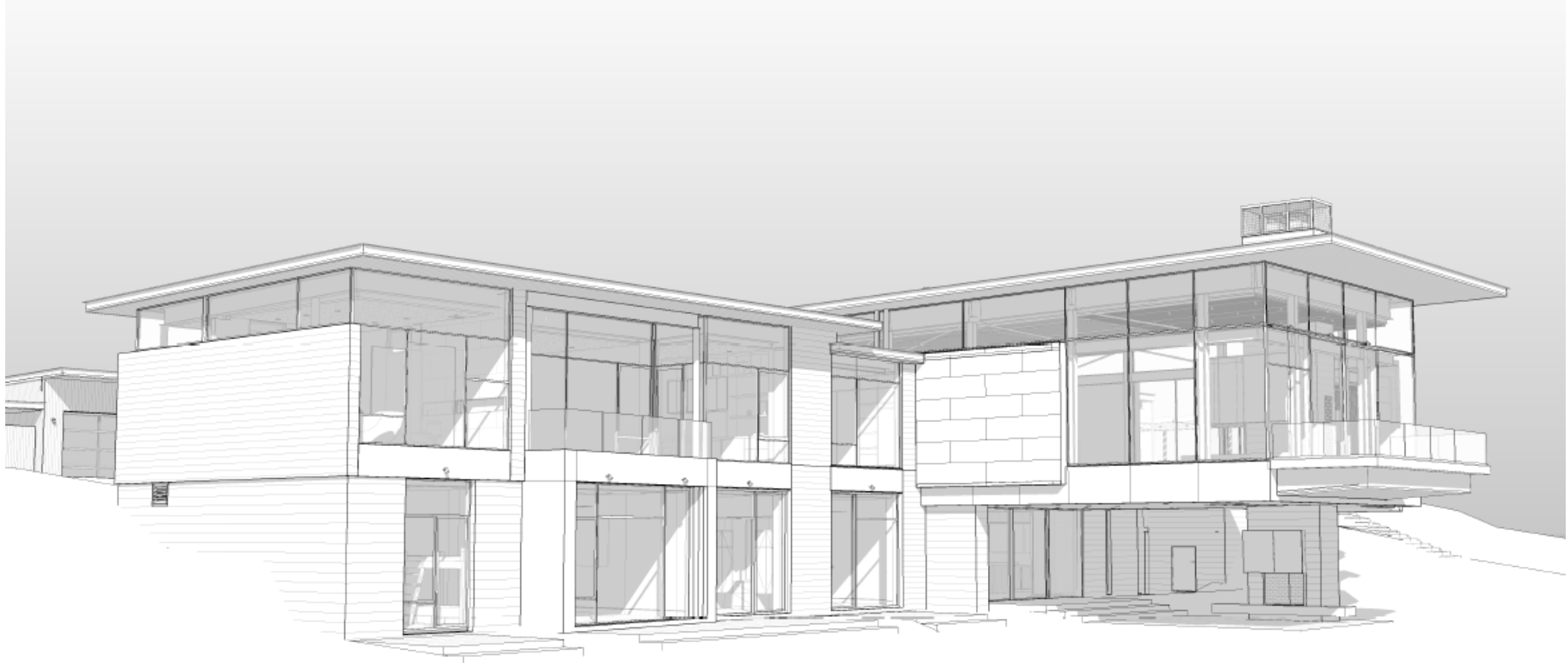
Simplistic & Connected Controls

- Taco Zone Control Panels
- HBX Setpoint Controllers
- Savant Thermostats
- WaterFurnace Symphony Monitoring
- Condensate Safeties Integrated w/ Symphony Home Automation Alerts



Bonnie View – Lake George Retreat

Aesthetic Execution



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Aesthetic Execution

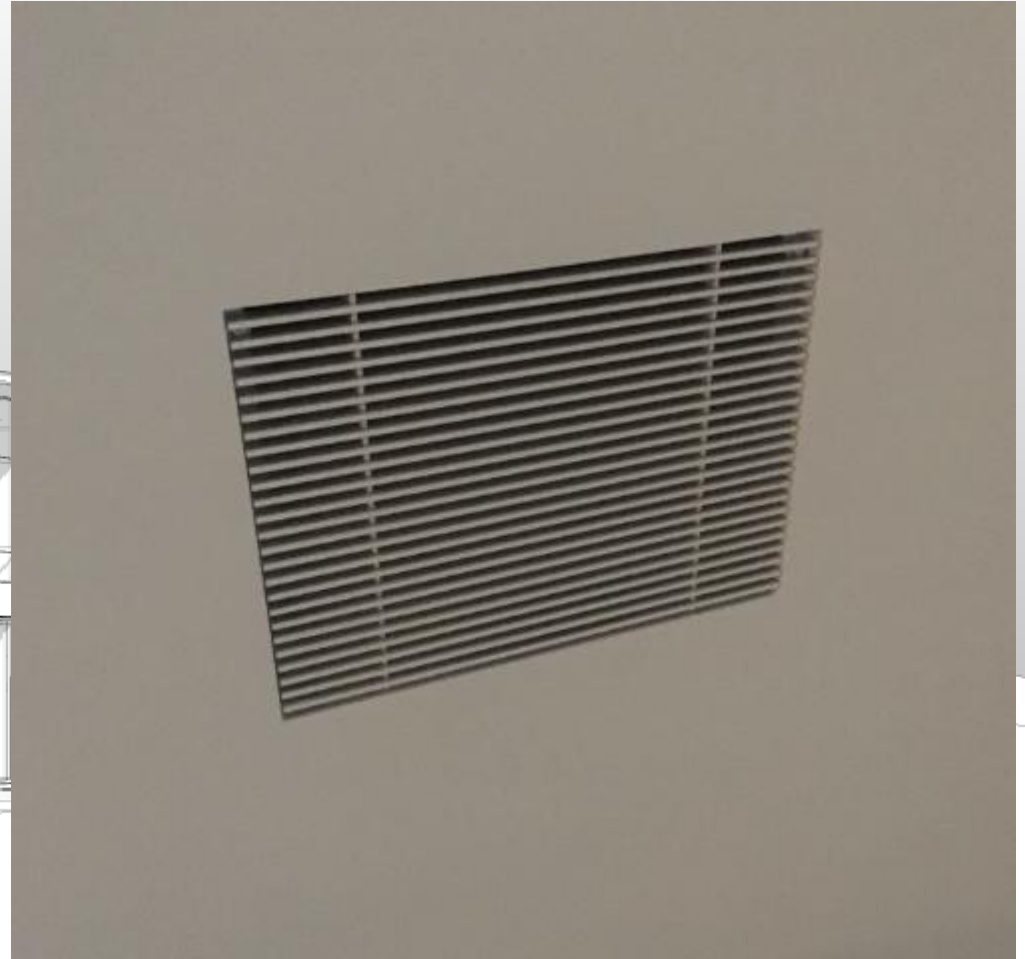
- Wall Sensors w/ Thermostats in Mechanical Room



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Aesthetic Execution

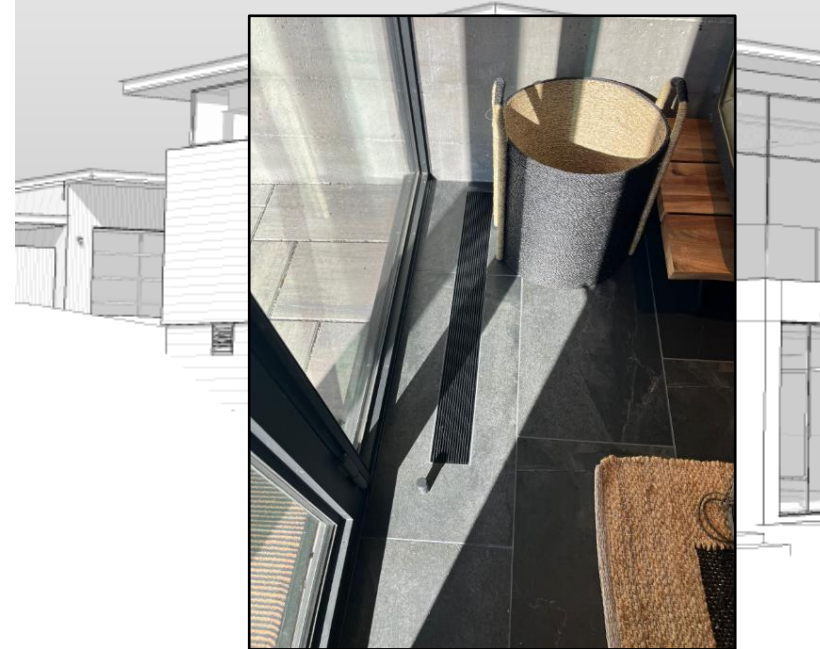
- Wall Sensors w/ Thermostats in Mechanical Room
- Linear Mud-In Wall Grilles



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Aesthetic Execution

- Wall Sensors w/ Thermostats in Mechanical Room
- Linear Mud-In Wall Grilles
- Linear Floor Grilles incorporated in Architectural Design



Bonnie View – Lake George Retreat

“The home is so quiet and comfortable, I feel like I’m living in a hotel.”



Bonnie View – Lake George Retreat

“The home is so quiet and comfortable, I feel like I’m living in a hotel.”





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2026 GeoStar Top Job Presentations

Introduction: Ryan Johnson / *WaterFurnace*

Moderator: Tony Amis / *Endurant Energy*

Award Categories:

1. Commercial New Construction
2. Commercial Retrofit
3. Campuses / TENs
4. Residential