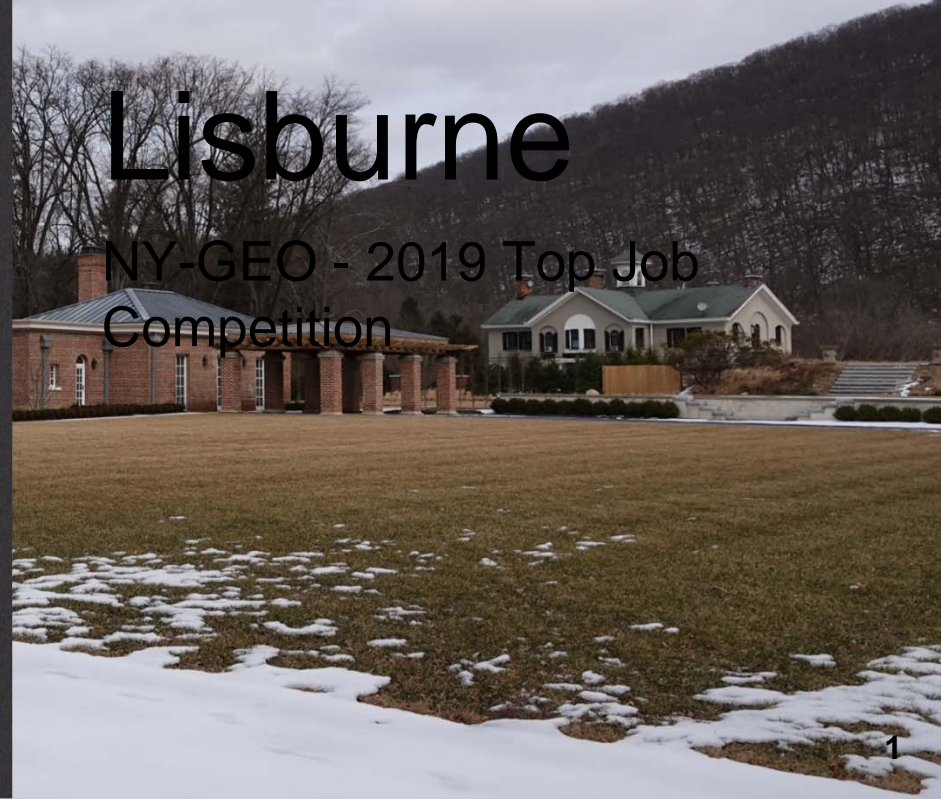




Lisburne

NY-GEO - 2019 Top Job Competition



PIC•COLLAGE







Preexisting Challenges



- Past challenges with previous approaches
- 80% plastered and painted ceilings. Customer instructed no breaches to be made.
- Existing mechanical issues
 - Room modifications were not reflected in prints
 - Undersized or missing supply and return air ducts
 - Inaccurate plumbing and pumping
 - Air handlers not zoned
 - No controls installed

The Solution

- 20 ton closed loop with a vertical bore



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The Solution

- 20 ton closed loop with a vertical bore
- Four 5-ton, 2-stage water to water heat pumps



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- 2 Manifolds With 100-Gallon Buffer Tanks



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- Variable Speed, Wet Rotor Circulators



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- 3 Unico Hydroair air handlers



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The Solution

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- 3 Nortec modulating humidifiers



The Solution

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- 3 Nortec modulating humidifiers
- 3 Zehnder ERVs, 2 HRVs



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- Geo domestic hot-water pre-heat



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- Geo hot tub & pool heating



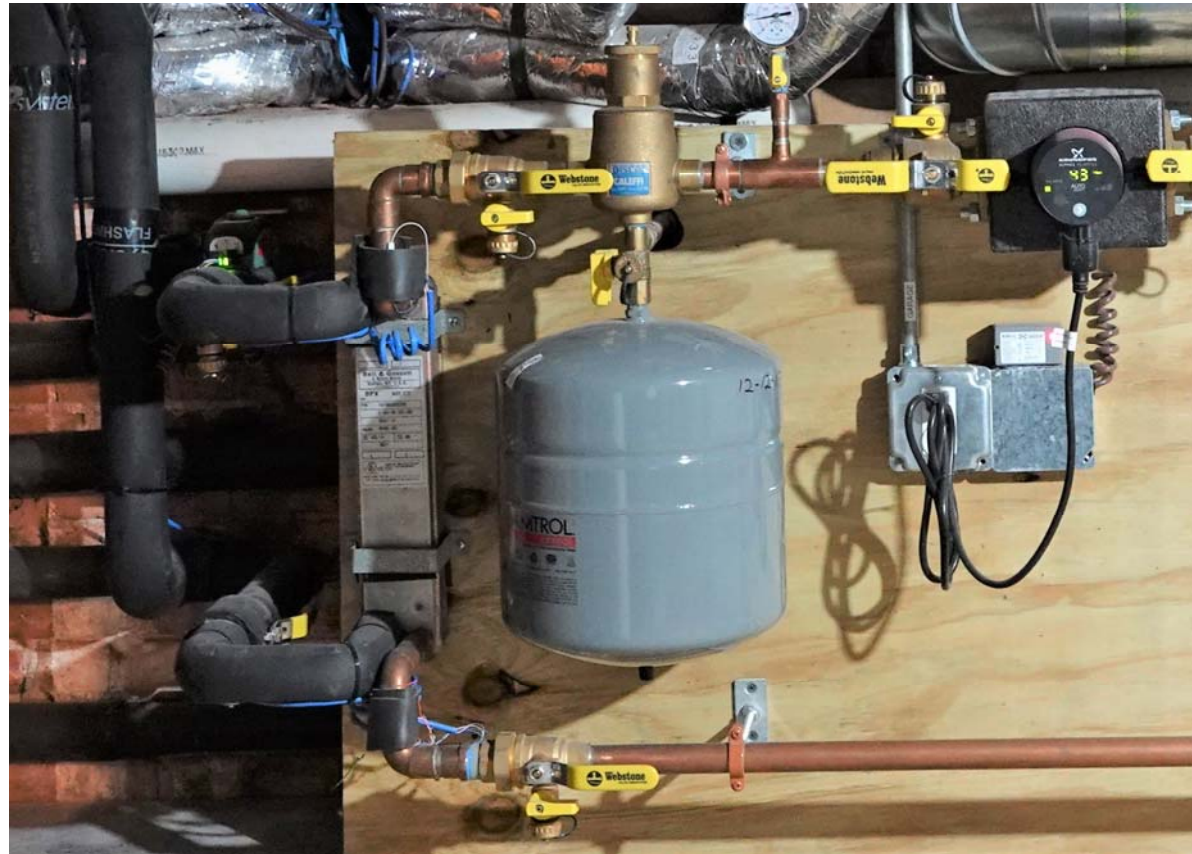
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The Solution

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The Solution

- 3 Unico Hydroair air handlers
- 3 Nortec modulating humidifiers
- 3 Zehnder ERVs, 2 HRVs
- Geo domestic hot-water pre-heat
- Geo hot tub & pool heating
- Geo radiant slab heat & snow melt
- Supplemental heat with 92% efficient Veissmann boiler



Outcomes



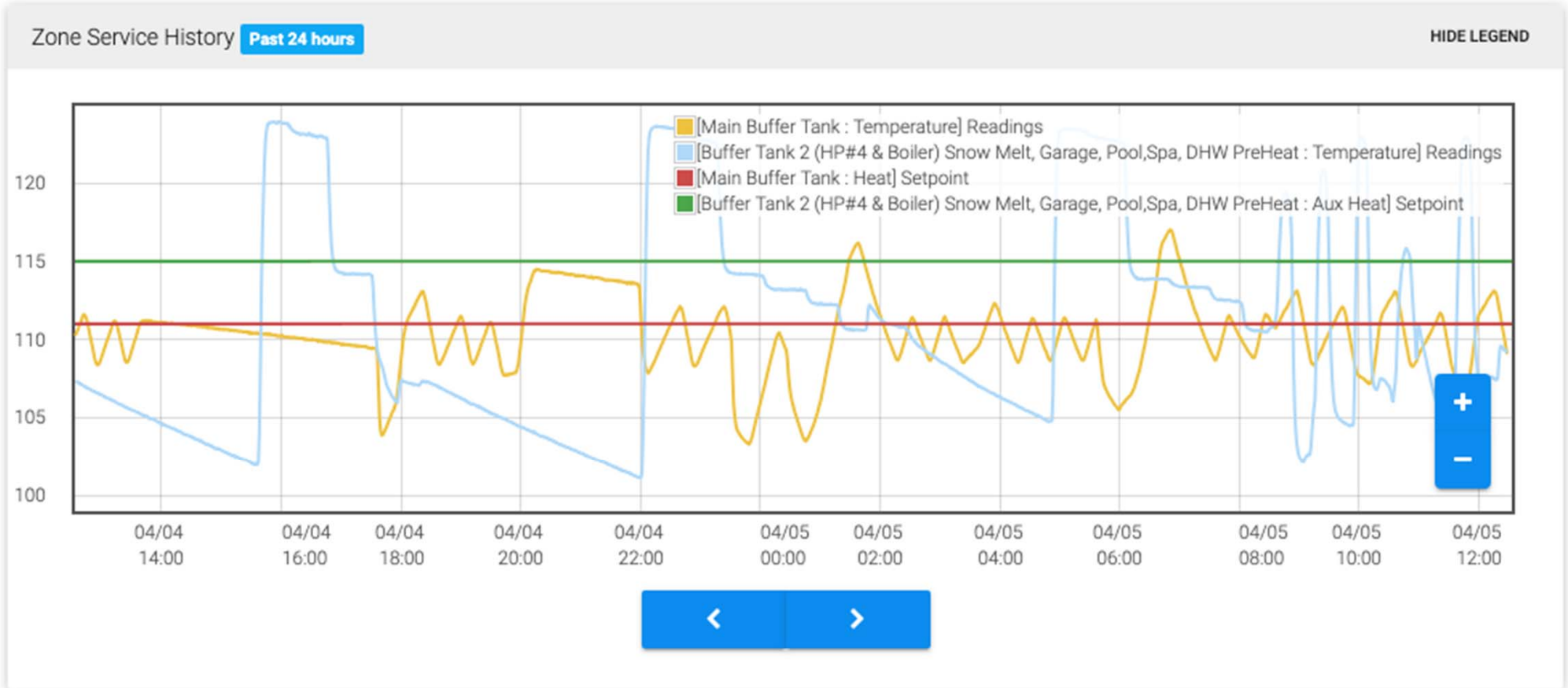
- Value engineering reduced installation cost
- Repiping load-side manifolds in a direct-to-load configuration gaining ~10% additional energy efficiency.
- Substantial labor and time savings
 - 600 feet of piping and fittings saved from previous design and eliminating circulator pumps
- Affordable, integrated control of equipment
- Efficient, renewable geothermal in a 160 year old historic building
- A highly satisfied customer

Enhancing Geothermal

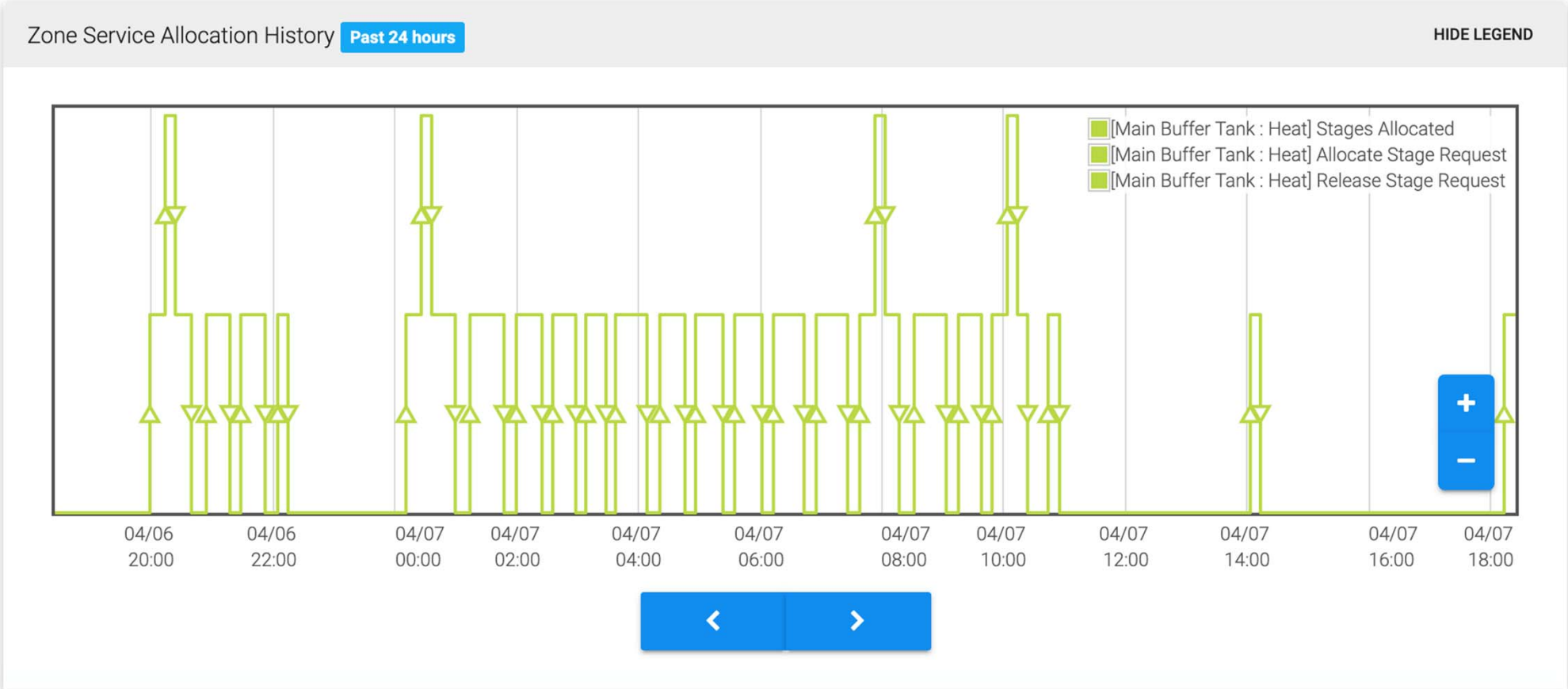
- Configurable controls
 - Integrated control of 16 pieces of equipment
 - 51 modulating and relay control signals
 - Online system tuning and troubleshooting
- Detailed monitoring on building and equipment
 - 105 sensors collecting data every minute
 - Temperature, humidity, pressure energy, safety, equipment reliability
- Remotely accessible to customer and contractors



Enhancing Geothermal



Enhancing Geothermal



Partners





Thank You

Dan Silvestri

D. SILVESTRI SONS, INC.

dsilvestri@silvestrisons.com

(845) 897-4008

