Energy Efficiency in State Government
Annual Conference and Awards Presentation

NH Veterans Home Case Study

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NH Veterans Home

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Employees Working Together to Reduce Energy Use, Protect the Environment, and Save Money

NH Veteran's Home Energy Initiatives

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NH Veteran's Home Facts:

- 250 resident facility.
- Almost 500 Full Time-Part Time-Per Diem Staff.
- A 24/7 operation.
- Established in 1890 under RSA 119:1 as a home for Veteran Civil War Soldiers.

History

The Soldiers Home circa 1890

- Construction of the Welch Unit in 1971.
- Construction of Tarr North Unit in 1979.
- Construction of the Tarr South Unit in 1989.
- Construction of the 100 Bed Life Enhancement Dementia Unit in 2003.
- Construction of Recreation Center and Facility Services Building in 2006.
- Construction of Multi-Purpose Operations Center in 2012.
- Over the years multiple interior renovations and upgrades.

Support

- Funding is provided by the US Department of Veterans Affairs State Home Construction Grant Program.
- VA funds 65% of projects.
- State of NH funds the remaining 35% of the project.
- Governor – Executive Council – Legislature Department of Administrative Services - Bureau of Public Works Design and Construction

Campus Wide Geothermal Heating and Cooling

System consists of 90 vertical wells at a depth of 310 feet with 5 horizontal slinky systems.

There are 33 miles of HDPE piping in the ground.

Heat Pumps

Gone are the days of pneumatic thermostats and boiler controls. Heating and cooling operations are serviced by heat pumps throughout the facility and are controlled by a DDC EMS system.

Solar Domestic Hot Water System

System was designed to produce 50% of the facility's domestic hot water. Usually by 9:00 a.m., we have water production of 145 degrees. Due to the success of the system we are currently exploring ways of expanding its use to other areas of the facility.

Domestic hot water is produced from solar tubes and stored in multiple tanks throughout facility.

Other Initiatives

Variable Frequency Drives

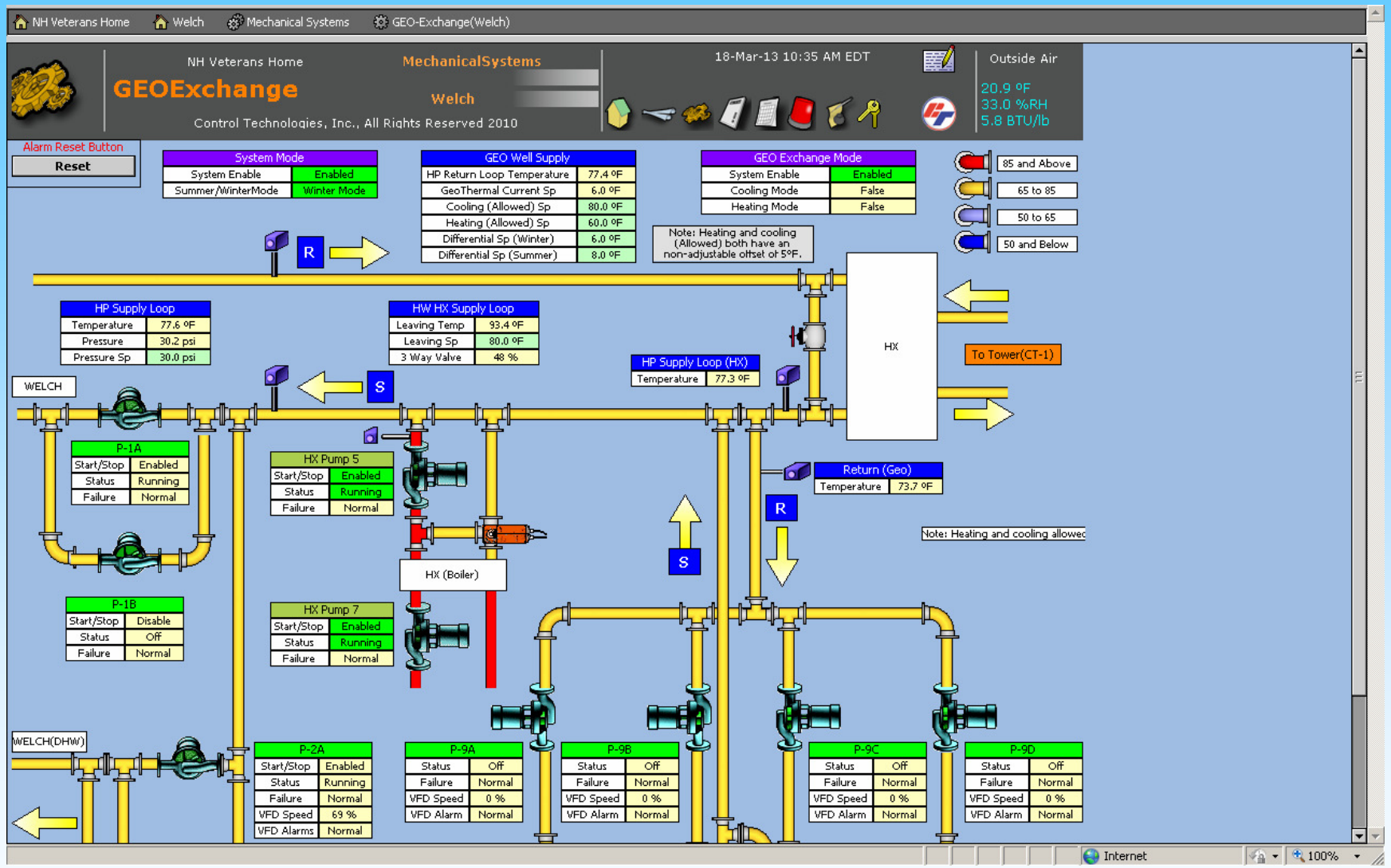
NEMA Premium High Efficiency Motors

High-efficiency, high-extract washing machines. New washers feature a 4G spin cycle.

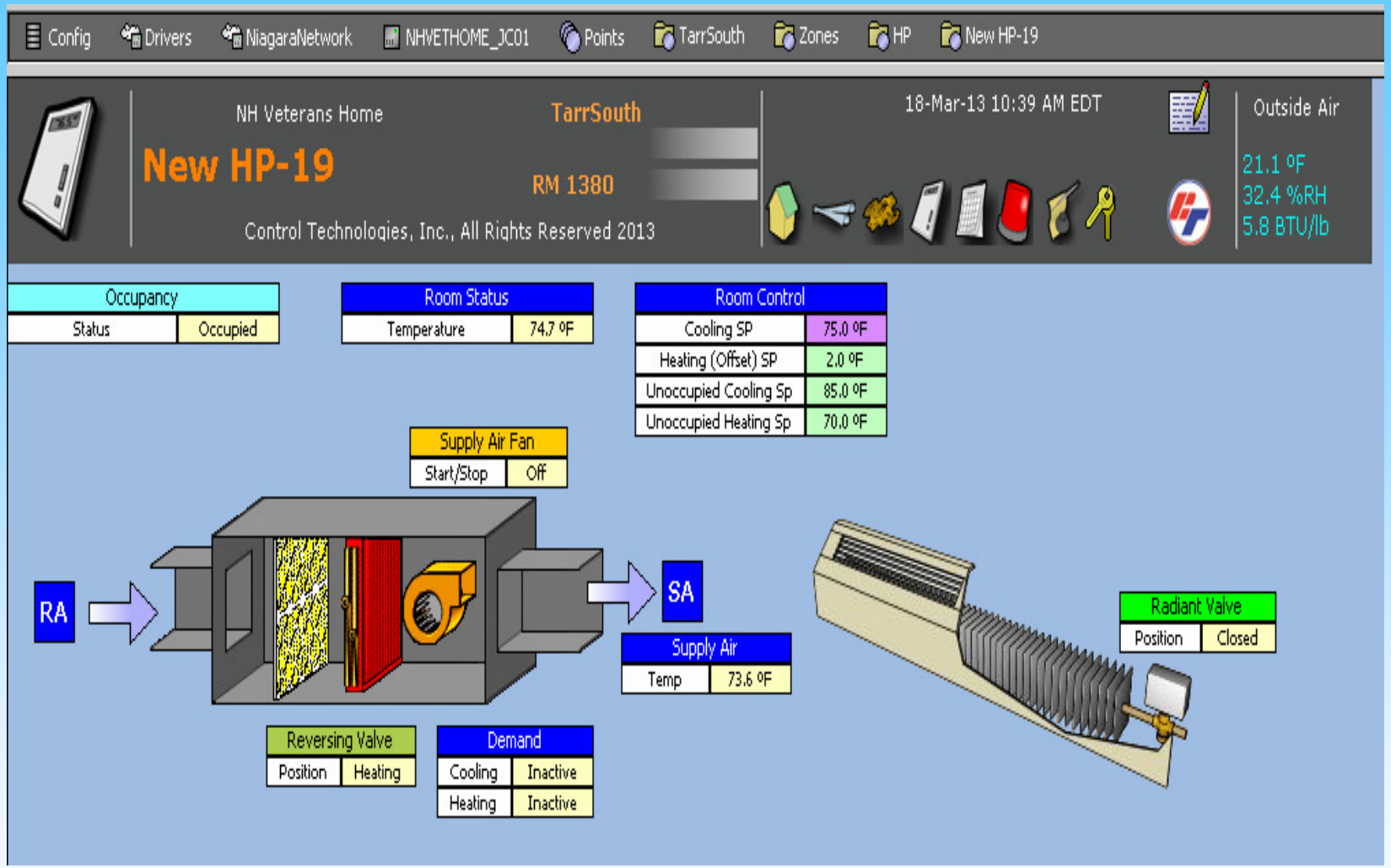
Laundry is washed daily from 5:00 a.m. to 5:00 p.m.-up to 3,000 lbs per day.

So much water is removed in the spin cycle that drying times were cut by 65% decreasing the amount of gas used to dry clothes.

Ozone washing technology. Prior to the Ozone system we used 16,000 gallons of hot water a day off of our boiler plant which uses #2 fuel oil. Now all clothes are washed in cold water. The savings are huge with a 4 month payback on our investment.



Facility-wide Energy Management System



Individual room control to ensure the comfort of residents and staff.

Hot Water Production

Water to water heat pumps pre-heat domestic water by removing latent heat from the Geothermal Loop. They take the entering 50 degree water pre-heating it to 105 degrees. Water is then stored after is passes through a copper/silver ionization system allowing us to store water at 118 degrees rather than the traditional 145 degrees in turn saving energy.

Lighting and Water Conservation

Entire facility utilizes automatic faucets, automatic flush valves, and occupancy sensors for lighting. All lighting in facility is T5, T8, or LED technology.

Building Envelope

Replacement of store fronts and windows to high energy efficient rated units. Original windows were so inefficient that it wasn't uncommon to see frost on the window sills and curtains moving from air leaks.

"We had a resident who stored soda on his window sill to keep it cool prior to the new windows!!"

ENERGY STAR

Roof replacements on 2 of our older buildings received 4 inches of rigid insulation to improve the building envelope. New construction has utilized the most stringent energy codes to ensure the lowest possible operating costs.

Power Generation

A new Tier III emission rated generator that operates on 15 ppm Ultra Low Sulfur Diesel. Better for the environment and allows us to participate in load shedding programs and use as little fuel as possible when doing so.

QUESTIONS??

If I can ever be of any assistance, please feel free to contact me.

All are welcome for visits and tours.

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