

Grace Cottage Hospital – Energy Action Plan (2014-2015)
Update as of 01/31/2018

1. Optimization of building HVAC systems

- Jun14 Study by JFPCS to identify areas of improvement (cost share w/ EVT)
- Aug14 Replace steam traps
- Apr15 Utilize VAV boxes/rebalance diffusers
- Oct15 Controls
- Apr16 Replace steam with WSHP
- Jul16 Insulate piping to heating coils
- Nov16 Enthalpy controls
- Sep17 Replace condensing units
 - 2014: *Energy Audit completed by JFP Consulting.*
 - 2015: *Insulated all piping to heating coils in Grace Cottage Hospital Building.*
 - 2015: *Heins Building - replaced antiquated oil-fired boiler with high-efficiency propane boiler.*
 - 2017: *Wolff Building - replaced antiquated oil-fired boiler with high-efficiency propane boiler.*
 - 2017: *Grace Cottage Hospital Building – replaced antiquated AC compressor/air handlers with Daikin heat pump system.*
 - 2017: *Entire HVAC system was removed, including two antiquated oil-fired steam boilers, the 50+ year old steam traps, and all air conditioning units (both compressors and window units) in the two GCFH Physician Practice Buildings. The new HVAC system is a high-efficiency Daikin heat pump system.*

2. Pursue lighting upgrades to LED

- Oct14 Change interior T8s to LEDs
- Jun15 Convert exterior lighting fixtures to LED - pole and wall mounted
 - 2014-2015: *All interior T8s were converted to LEDs in both the Hospital and Physician Practice.*
 - 2017: *All exterior pole mounted lighting fixtures converted to LED.*

3. Thermal improvements

- Nov14 Improve thermal envelope
 - 2015: *Grace Cottage Hospital Building - the thermal envelope in the attic was completed, achieving almost zero heat loss in winter and cooling loss in summer.*
 - 2016: *Heins Building - replaced old single-pane windows in front half of building.*
 - 2017: *GCFH Physician Practice Buildings - the thermal envelope of the basement and attic was completed in these two mid-1800s buildings.*

4. Engage IT staff for campus opportunities

- Oct14 Discuss feasibility of PC power management across hospital devices

- *Our network computer policy puts the computer to sleep 30 minutes after being idle. All printers sleep after 5 minutes.*
- Feb15 Server virtualization
 - *The IT department has upgraded the majority of wireless equipment, network switches, and personal computers with more efficient units/models throughout the facility. Additionally, a server virtualization project has been completed, resulting in the elimination of approximately 25% of our server and networking hardware. This also reduced thermal load in our server room.*

5. Employee engagement through energy workshops & campaigns

- Oct14 Launch Employee Energy Challenge
- Apr15 Host a Kaizen event to focus on energy waste in targeted hospital areas
 - *While no formal workshops or campaigns have occurred, education of employees regarding energy efficiency and conservation is on-going.*

6. Build efficiency into operations & maintenance practices and new designs

- Aug14 Investigate kitchen for equipment & operational changes
- Sep14 Verify operational control strategies & scheduling for HVAC systems
- Oct14 Establish policies to reduce energy consumption for lighting systems
 - *2016: Kitchen - replaced 12-year old commercial dishwasher with high efficiency model*
 - *2017: Kitchen - replaced 11-year old ice maker with high efficiency model*
 - *2017: Replaced main water heaters with high efficiency model*
 - *Electronic control of HVAC system for main Hospital building now able to be controlled remotely, offering ability to reduce energy waste during off hours.*