

The Noble House



Hal Smith, Halco CEO
Matt Dennis, Home Energy Advisor



Noble House



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305 East Genesee St.
Fayetteville, NY 13066
Owner: William Sunderlin



Why We Feel This Project is Top-Job Worthy

- Retrofit job, not new construction. If we are going to bring geothermal to scale, there are a lot more homes to be retrofitted than new homes being built.
- Whole home makeover following historical guidelines, including major shell work.
- Tight village application drilling in driveway of home in Fayetteville (Syracuse area)
- Pearl Platinum Certified Home (1 of 2 in the state)
 - NYSERDA Pilot
- HeatSmart CNY - NYSERDA program
- 4 separate GSHP systems
 - 1-DHW, 2-split systems, 1-centralized system for main living space
- We used all GeoStar equipment, the sponsor of this top job competition!





Challenges

- Design challenges due to historical significance
- Tight city lot
- Original and period specific windows
- Lath and plaster walls
- 3 separate attic spaces
- 2 crawlspaces and dirt floor basement with stone laid foundation
- Attached carriage house converted to apartment



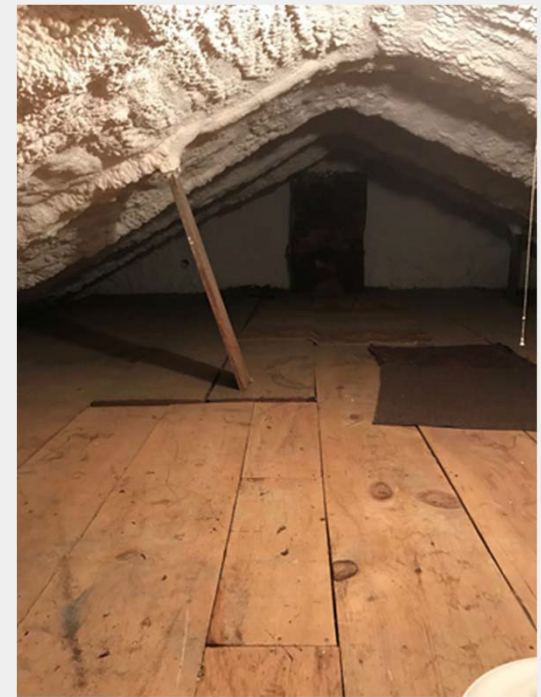
Addressing the building envelope

- Attic-
 - Installed new pull down stair hatch
 - Cleared out loose insulation
 - Spray foamed roof deck and gables
 - Installed storage decking





Addressing the building envelope





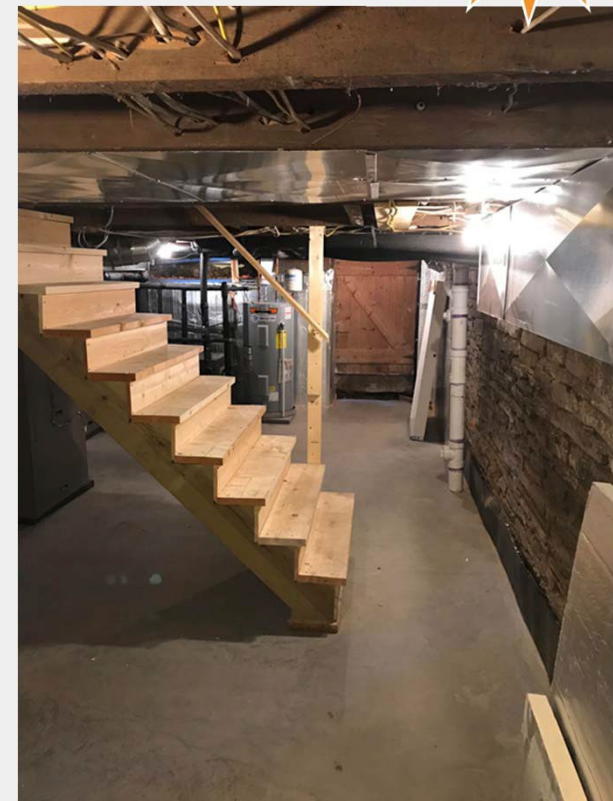
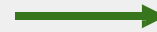
Addressing the building envelope

- Basement and Crawl Spaces
 - Wet ground, excavation and new slab
 - Perimeter drain
 - Vapor barriers
 - Spray foam insulation and foam board
 - Windows and door
 - Whole home dehumidifier





Addressing the building envelope





Addressing the building envelope





Envelope Improvements

- Blower door
 - Test in and test out blower doors completed
 - Made significant improvements



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Ground Source Heat Pump

- 12-ton system
- 3, 420' bores with 1.5" loops tied into 4 separate heat pumps
- Vertical wells
- Drilling in the stone driveway behind the house, trenched ~20' to the home



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Drilling

- Moravec Drilling on tight lot





GSHP #1 - Main Floor

- 5-ton GeoStar Aston dual stage unit
- Installed in the basement
- To heat the main floor
- Installed new ductwork using existing registers with modifications
- GeoStar communicating thermostat with Symphony monitoring



GSHP #1 - Main Floor





GSHP #2 - Second Floor

- 2-ton GeoStar Aston split unit
- To heat the top floor
- Air handler in attic and heat pump in basement
- GeoStar communicating thermostat with Symphony monitoring





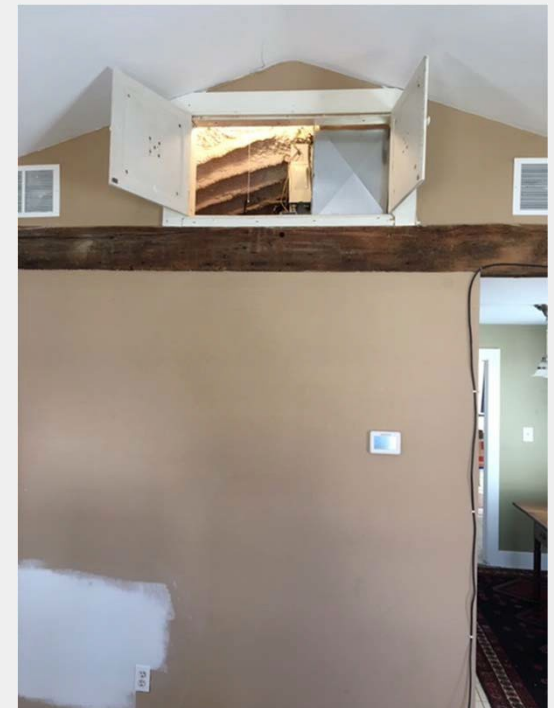
GSHP #2 - Second Floor





GSHP #3 - Carriage House

- 3-ton GeoStar Aston split unit
- Air handler in attached attic of carriage house and heat pump in basement
- Installed new ductwork using existing registers
- Shared crawl space in basement for lines
- Paired with GeoStar communicating thermostat with Symphony monitoring





GSHP #3 - Carriage House





GSHP #4 - Hot Water

- 2-ton GeoStar Aston water to water
- For DHW
- Tied into a State EN6 50-gallon water heater





A Happy Customer!



Check out Williams
testimonial the the NY-
GEO website!

Thank you!

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HALCO

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Crawl Space Encapsulation

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