

**FMC Green
Initiatives and
Meeting House
Electrification
Project**

7 January 2024

Past Greening

- Changing Out Light Bulbs
- Dishwasher, Cloth Napkins, Composting
- 2010 EnerSpective Study (energy and water efficiency assessment report)
 - Identified and prioritized improvements to building enclosure, heating, domestic water, ventilation/cooling, and lighting
- 2012 HEET Volunteer Day (energy- and water-saving improvements)
- In 1975 some YAFs installed insulation in the third floor of the Friends Center.

Energy and Water Efficiency Assessment Report
Friends Meeting at Cambridge



5 Longfellow Park, Cambridge, MA

Date: December 15, 2010

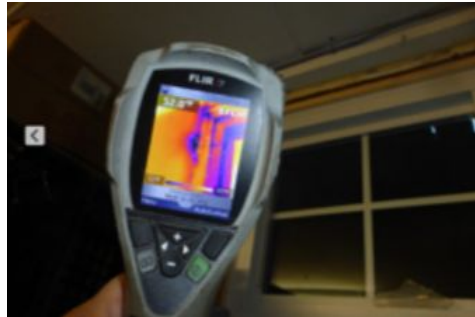
Submitted to:
Friends Meeting at Cambridge
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More Recent Actions

- Renovate FC Windows (reducing air leakage, \$50k Cambridge Historical Commission grant)
- 100% Green Electricity
- Storm Windows on Meetinghouse (CHC grant)
- Blower Door Test and Thermal Imaging for Meetinghouse (1/27/23)



Carbon Cutters LLC

AIR BARRIER/ THERMAL BARRIER ASSESSMENT
Report by Jason Taylor 617-470-6940

Customer Name: Cambridge Friends Meeting House
Address: 5 Longfellow Park, Cambridge, Mass. Date: 11/27/23 Outside Temp: 35 degrees
Working with: Mark, Bob and Ailsair (and Rise Engineering?)
Square footage: 4060 SF



Blower door number: Whole house: 5529 CFMs (-50)(including basement)



Proposed Project: Meetinghouse Electrification

Convert oil-fueled heating system to electric system.



Background

- Meeting is committed to addressing carbon emissions.
- Existing heating system is antiquated and runs on oil. Will need replacement soon.
 - The 2010 energy report described the furnace as 25 years old and at end of life.
- Heating system produces high greenhouse gas emissions.
 - Uses about 1300 gallons of heating oil each year.
 - About 13,000 kg annual CO₂e emissions (about 33,000 miles of automobile travel at 0.39 kg/mi).



Process

- Hired Elevated Design (EDI), a mechanical engineer, to design an electric system.
- EDI produced design drawings and recommended several contractors. We received two proposals.
- The preferred proposal from Guardian Energy Management Solutions is significantly less expensive than the alternative proposal.
- Cost: \$143,000 less \$20,000 rebate = \$123,000.
- Also made use of information from Massachusetts Interfaith Power and Light: <https://www.massipl.org/>

Benefits

- Fossil-fuel free with our 100% green electricity.
- Adds air conditioning for hot summer days.
- Adds controlled ventilation and filtration to improve air quality and reduce the spread of viruses.
- Can use our existing air distribution system (ductwork).
- Expected to save on heating costs compared to our existing oil-fired furnace.
- We can use our experience to encourage other faith communities to move away from fossil fuels.

Other Considerations

- We use gas-fired boilers to heat the Friends Center. When the boilers reach their end of life, we will investigate how to electrify the Friends Center.
- We are looking into the cost of just replacing the oil-fired furnace in the Meeting House. But that just locks us into using a fossil fuel which will have to stop in the not very distant future.
- We propose to cover the cost of the proposed electric-powered system with a combination of facility-allocated rollover funds and unrestricted investment funds.

If you have any questions contact Mark Webster or David White at trustees@fmcquaker.org