Steam System Repair
Heating System
- Missing vent (re-tapped and replaced)
Heating System
• Missing vent
Heating System
• Missing vent
• Water feeder installed incorrectly (wiring)
3 a. Control must be installed within eyesight of boiler.
b. Clearance must be provided on all sides to service control.
c. Unit must be installed in a horizontal pipe in an upright position.
d. Arrow on feeder must point in the direction of flow into the boiler.
e. Install isolation valves and unions on the inlet and outlet piping for easier troubleshooting and repair/replacement.
f. Install manual fill valve and bypass line for removal while the boiler is in service.
Heating System
- Missing vent
- Water feeder installed incorrectly (wiring and mounting)
Boiler work
Water feeder repair (guided by Henry Gifford)
Owner instructed to replace water every 3 weeks
3rd feeder since owner moved in
All three likely installed wrong (based on wire length) – installed sideways. Also wired wrong.
Boiler underfired. Diagnose by clocking gas meter and sticking hand in flue!
Solution: new gas valve, with spark. Installed without spark – lesson learned.

Heating System
• Missing vent
• Water feeder installed incorrectly (wiring and mounting)
Heating System
- Missing vent
- Water feeder installed incorrectly
- Boiler underfired; gas valve was the culprit.

Steam System Repair
Construction
Hit easy targets, hard. Look for cost savings and synergies. Aim to get projected energy use under PV size.

Shell
• Attic air sealing & insulation (Jason)
• EIFS on side wall
• New triple glazed windows
• New skylight

Systems
• New split system for heating & cooling
• Heat pump water heater
• Replacement LED A-lamps
• 9.9 kW PV system (McGowan)

User behavior
• Charm users (McGowan)
Air Sealing (Jason)
Air Sealing
- Service shafts open to basement
Air Sealing
- Service shafts open to basement
Air Sealing
• Service shafts open to basement
• Gaps at perimeter basement level
Air Sealing
- Service shafts open to basement
- Gaps at perimeter basement level
- Radiator pipe penetrations
Air Sealing
• Service shafts open to basement
• Gaps at perimeter basement level
• Radiator pipe penetrations
Air Sealing
• Service shafts open to basement
• Gaps at perimeter basement level
• Radiator pipe penetrations
Air Sealing
• 35% reduction in leakage
• ~2,500 would be 5 ach, so mechanical ventilation officially required by common standard

Construction
EIFS on side wall
- Least expensive surface for over-insulation
- Used to bury refrigerant & condensate that run along exterior in order to avoid interior demo
- Over-insulates new window frames
EIFS on side wall
- Big surface, easy to apply EIFS
- Used to bury refrigerant & condensate that run along exterior in order to avoid interior demo
- Over-insulates new window frames
EIFS on side wall

- Big surface, easy to apply EIFS
- Used to bury refrigerant & condensate that run along exterior in order to avoid interior demo
- Over-insulates new window frames
EIFS on side wall
- Big surface, easy to apply EIFS
- Used to bury refrigerant & condensate that run along exterior in order to avoid interior demo
- Over-insulates new window frames
EIFS on side wall
- Big surface, easy to apply EIFS
- Used to bury refrigerant & condensate that run along exterior in order to avoid interior demo
- Over-insulates new window frames

Construction
EIFS on side wall
- Big surface, easy to apply EIFS
- Used to bury refrigerant & condensate that run along exterior in order to avoid interior demo
- Over-insulates new window frames

Construction
Construction

EIFS on side wall
- Big surface, easy to apply EIFS
- Used to bury refrigerant & condensate that run along exterior in order to avoid interior demo
- Over-insulates new window frames
Shell
Air sealing and attic insulation – Jason

Initial/final blower door numbers

EIFS – interaction with heat pump sizing (see calcs)
Was there any cost:benefit analysis? How did I come to conclusions about performance? I recall system sizing but nothing regarding net zero goal. Provide a budget/prediction?

why not front and rear walls? Historic front, gnarly rear

Windows – historic in front, overinsulated frames w/EIFS (photo), T/T rear.

Skylight – remove old, clean debris from stained glass, new skylight over (Jason?) Note: is this a code violation?

Whom to ask? Do we gloss over this?

Attic hatch – Jason?

Construction

EIFS on side wall
• Big surface, easy to apply EIFS
• Used to bury refrigerant & condensate that run along exterior in order to avoid interior demo
• Over-insulates new window frames
New Windows
- Triple glazed wood Marvin
- Double hung front (historic), tilt-turn side & rear
New Skylight

- Old skylight removed, stained glass cleaned, replaced with Velux double paned
- Sides of shaft insulated (Jason)
Roof Hatch

- 1” polyiso around sides, 2” top
- Nashua exterior foil tape
- Not easy, especially at hatch handle.
1
FIRST FLOOR PLAN
SCALE: 1" = 1'-0"
FIRST FLOOR PLAN

SCALE: 1" = 1'-0"
SECOND FLOOR PLAN

Scale: 1" = 1'-0"

NEW EIFS SYSTEM BUILT WITH #4 TYPE II EPS. FINISH TYPE AND COLOR TO BE SELECTED BY OWNER (BY OTHERS).

CONDENSATE DRAIN WITH SUPCO DP-34 WATERLESS TRAP AT TERMINATION, TYP. COORDINATE WITH EIFS INSTALLATION.
http://www.supco.com/web/supco_live/products/dp34.html
LOCAL SUPPLIER: TRANE BROOKLYN PARTS SUPPLY
115-49TH STREET
BROOKLYN NY 11232
(347)404-5814

M-02
Second Floor Mechanical Plan
Split System
• Design change from branch box to ported type
• Services run along side wall
• Next time, seal penetrations behind indoor units
Heat Pump Water Heater

- Gas water heater died
- Consider drain water heat recovery – Ecodrain is cheap!
- Verify correct install – esp. clearances for air outlet, filter access.
- Insulate hot trunks
Heat Pump Water Heater
• Gas water heater died
• Consider drain water heat recovery – Ecodrain is cheap!
• Verify correct install – esp. clearances for air outlet, filter access.
• Insulate hot trunks
• Set to heat pump operation only, 120 F
Ventilation
- Aeroseal of kitchen and bath ducts.
  Limited to 20 cfm!
Ventilation
- Aeroseal of kitchen and bath ducts. Limited to 20 cfm.
- CAR dampers with constantly running fan at end of bath riser
- Incorrect CARs installed; corrected
Ventilation
- Aeroseal of kitchen and bath ducts.
  Limited to 20 cfm.
- CAR dampers w/ constantly running fan at end of bath riser
- Incorrect CARs installed; corrected
Ventilation
• Aeroseal of kitchen and bath ducts. Limited to 20 cfm25!
• CAR dampers w/ constantly running fan at end of bath riser
• Incorrect CARs installed; corrected
• Back draft damper on kitchen exhaust
Ventilation

- Aeroseal of kitchen and bath ducts. Limited to 20 cfm25!
- CAR dampers w/ constantly running fan at end of bath riser
- Incorrect CARs installed; corrected
- Back draft damper on kitchen exhaust
- Rooftop fan on variable speed controller; set to achieve flow though CARs at lowest possible speed.
Dryer Exhaust

• Note: badly built drier duct is a health and safety issue – lint, CO, CO2, fire – and may be more problematic in a tighter house.

• Hard Duck product used to connect to dryer. Just buy the parts from Stamped Fittings.

• Mastic/mesh/mastic – use Vana when necessary or for easy cleaning

• Only 2 elbows, both smooth
Dryer Exhaust
• Note: badly built drier duct is a health and safety issue – lint, CO, CO2, fire – and may be more problematic in a tighter house.
• Hard Duck product used to connect to dryer. Just buy the parts from Stamped Fittings.
• Mastic/mesh/mastic – use Vana when necessary or for easy cleaning
• Only 2 elbows, both smooth
Dryer Exhaust

• Note: badly built drier duct is a health and safety issue – lint, CO, CO2, fire – and may be more problematic in a tighter house.

• Hard Duck product used to connect to dryer. Just buy the parts from Stamped Fittings.

• Mastic/mesh/mastic – use Vana when necessary or for easy cleaning

• Only 2 elbows, both smooth