

Energy Audit Report
Lee Town Hall Annex
7 Mast Road, Lee NH
August 16 & 17, 2011



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Lee Town Hall Annex

Description:

Building: 1 story
Year built:
Foundation: Concrete Slab
Framing: Wood
Roof: Gable
Exterior: Vinyl siding

Interior: Drywall
Flooring: Carpet, concrete slab
Bathrooms: one
Heat: Propane Gas, Forced Hot Water
A/C: window units

Finished area: _____

Test Results:

Blower Door Reading

Winter-time conditions: 2786 CFM 50

Air Sealing Limit

Building Airflow Standard: 924 CFM 50

Ventilation required for occupants: 60 cfm

Ventilation required for building:

1. History:

The building was originally built as a three sided, open faced, highway shed, then renovated as a police station. Subsequently, the building was renovated as the Town Hall Annex, housing the Lee Planning and Zoning Department.

2. Attic



Existing Conditions:

- The building has a gable roof.
- There is a suspended ceiling throughout the interior of the building. An attempt was made to lay fiberglass batts on top of the suspended ceiling. Given discontinuous thermal barrier, interrupted by wiring and other obstructions, the effective R-value of this insulation is nil.
- The attic has no apparent access hatch, though is visible and accessible if necessary through either of two gable windows at the attic level. Initial inspection through the gable window reveals attic floor boards over an indeterminate type and amount of insulation, with a projected minimal insulation value, if any.
- The attic is partially obstructed with random storage items.

Recommendation:

- Remove storage items from the attic floor.
- Air seal all roof penetrations.
- Temporarily remove one of the gable windows for access to the attic.
- Add 14” of loose-fill cellulose insulation (R-value 3.7 per inch) for an R-value of 50.

3. Walls

Existing Conditions:

- The walls of wood framed with vinyl siding exterior, fiberglass insulation and drywall on the interior.

Recommendation:

- The greatest benefit per cost is derived from air sealing and insulating at the basement/crawl space and the attic level – where the building pressures and air infiltration and exfiltration are the greatest. The benefit per cost of accessing and installing additional wall insulation is marginal and is not recommended at this time.

4. Windows

Existing Conditions:

- There are a combination of wood framed, double hung, double glazed (5/16” gap), with no storm windows; and wood framed single pane windows with no storm windows.

Recommendation:

- Consider replacing single pane window(s) on the first floor with double glazed windows, with storm windows.
- Add storm windows to the existing double pane windows (on the first floor).
- Consider replacing one of the gable window at the attic level with an access door (or window) to the attic.

5. Doors

Recommendation:

- Add weatherization kits to the doors.

6. Heating Ventilation and Air Conditioning



Existing Conditions:

- Propane fired – Burnham America boiler; Btu/hr 96,000 output
 - Well-Rite water storage tank; 30 gallon maximum drawdown capacity.
- Electric hot water heater, 40 gallon capacity (estimated)
- Portable dehumidifier – runs regularly throughout the year.
 - Regular operation dehumidifiers can significantly increase electric cost

Recommendation:

- Wrap the electric hot water tank with insulation.
- Ensure that floor, ceiling or wall registers are not blocked by furniture or other related items. If they are blocked the heating or cooling system will not function to its peak performance when it was installed.
- **See Recommendations provided by Revolution Energy for heating system and electrical generation improvements**

7. Lighting

Recommendation:

- Consult with a lighting expert (e.g. PSNH) for high efficiency replacement fluorescent bulb options.
- Replace all incandescent lighting with Compact Fluorescent Lighting (CFL). There are many new colors and designs that don't flicker or cause headaches!

8. Electrical Machines and Appliances



Recommendation:

- When replacing these units opt for an energy star unit. (Energy Star units are certified by the federal government to have met certain energy reduction criteria.)
- Utilize automatic computer shutdown systems to turn off all computers at the end of each day
- Turn off all, printers, cable modems, TVs and other media equipment when not in use.
- Quarterly clean refrigerator coils. This will ensure the appliance is running in its intended condition.
 - A good way to remember this, is when you get your property tax you'll know it's time to clean the refrigerator coils!

*(*Turn Cycle Solutions does not permit or take responsibility of any of work that is done without a trained weatherized specialist or trained professional to oversee weatherization work stated above.)*



Lee Town Hall Annex – Energy Efficiency Recommendations

In order from highest to lowest priorities

1) *Install Attic Insulation*

- Remove storage items from the attic floor.
- Air seal all roof penetrations with expanding foam.
- Temporarily remove one of the gable windows for access to the attic.
- Add 14” of loose-fill cellulose insulation (R-value 3.7 per inch) for an R-value of 50.

2) *Install High-efficiency windows*

- Consider replacing single pane window(s) on the first floor with double glazed windows, with storm windows.
- Add storm windows to the existing double pane windows (on the first floor).
- Consider replacing one of the gable window at the attic level with an access door (or window) to the attic

3) *Walls*

- The greatest benefit per cost is derived from air sealing and insulating at the basement/crawl space and the attic level – where the building pressures and air infiltration and exfiltration are the greatest. The benefit per cost of accessing and installing additional wall insulation is marginal and is not recommended at this time.

4) *Door weatherization*

- Add weatherization kits, including gaskets to all exterior doors.

5) *Lighting*

- Consult with a lighting expert (e.g. PSNH) for high efficiency replacement fluorescent bulb options. PSNH will also outline available rebates for the town
- Replace all incandescent lighting with Compact Fluorescent Lighting (CFL). There are many new colors and designs that don't flicker or cause headaches!

6) *HVAC maintenance*

- Ensure that floor, ceiling or wall registers are not blocked by furniture or other related items. If they are blocked the heating or cooling system will not function to its peak performance.
- Wrap the electric hot water tank with insulation.
- Conduct annual heating system inspections and cleanings.

7) Electrical Machines and Appliances

- As aging units need replacement, opt for an energy star unit. (Energy Star units are certified by the federal government to have met certain energy reduction criteria.)
- Utilize automatic computer shutdown systems to turn off all computers at the end of each day or when idle.
- Turn off all, printers, cable modems, TVs and other media equipment when not in use.
- Quarterly clean refrigerator coils. This will ensure the appliance is running in its intended condition. Also, fill empty milk jugs to increase the mass inside the refrigerator, it will increase its efficiency and help it maintain a constant temperature.
 - A good way to remember this, is when you get your property tax you'll know it's time to clean the refrigerator coils!