

CASE STUDY BUILDINGS for the BuildingEnergy Conference
Based on the Chris Benedict, R.A. article, *NESEA's Methodology: Counting, Measuring, Reporting* in the Fall 2009 edition of the *Northeast Sun*

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We intend to introduce a “product” in our BE conference line up — “CASE STUDIES”.

A “Case Study” will be a single building project session — 90 minutes to thoroughly examine the design, construction, and early performance/POE with speakers ideally drawn for all of design team, construction team, and building owner and/or facilities management. We think that the BE conference should expect to feature a number of these session in EVERY conference from now on.

To qualify as a CASE STUDY (and to have this phrase as the initial two words of the session title) the presenters must have the following performance metrics in hand and be prepared and able to discuss them. It would be appropriate for these data to be posted to the nesea.org

1. REQUIRED BACKGROUND INFO

- a. State the use(s) of the building, expected number of occupants, and the major energy and water loads in the building
- b. System R values for major components of the building enclosure — walls (above and below grade), roof, windows, glazing systems,
- c. Describe the air barrier strategy and how has it been constructed?
- d. Measured ACH50 and leakage in CFM50/sf of enclosure — ideally at various staged of construction.
- f. State Owner's expectation regarding thermal comfort? Is a particular temperature and RH to be maintained for heating and cooling? Is the Owner willing to allow temperatures above 75 degrees and below 68 degrees
- g. Provide dates for C of O, first move-in, and full occupancy.
- h. Provide the dates of the twelve month period for the energy use information

2. REQUIRED SITE ENERGY INFO

- a. State the peak site and source energy input of the heating equipment.
- b. State the peak site energy input of the air conditioning equipment.
- c. State all non-site generated energy sources for the building and how each source is used
- d. State how each non-site generated energy source is quantified, i.e. electricity in metered KWH, oil in #BTU/gal, gas in #BTU/cf, wood or biomass in #BTU/unit, etc.
- f. State the floor area of the building in square feet and in square meters for each use and state what is included and not included. Areas may include exterior walls but may not include unconditioned spaces.

g. Non-site generated energy counting:

Provide site energy in:

BTU/sf/yr

and

KWH/sqm/yr

State unusual characteristics such as very high ceilings that may skew energy calculations

If it is possible to break out the energy for the heating season, provide BTU/sf/HDD, site energy.

h. Site generated energy counting

If wind or sun is used to generate electricity, report these amounts of energy generated for the year

For PV: the meter in a PV control can be used

For solar thermal: a meter that measures flow and temperature difference should be used not a meter on a solar controller that makes an assumption about flow but does not measure it.

i. Show electric peak load of a measured 12 month period.

3. REQUIRED WATER INFO

- a. State any issues with availability of water in the area.
- b. Are there unusual amounts water used in the building for specific reasons?
- c. State how or if the water use is measured.
- d. State the amount of water use per year in gallons.

4. REQUIRED COST INFO

- a. State the construction cost per square foot and state what if anything is not included in this price.
- b. State total cost for the building including what was not included in (a.) above.