

NRGY 235: Building Energy Efficiency

Week 1 Quiz



Reference the following resources:

- Week 1 Lectures 1 and 2
 - Energy Information Administration (EIA) fact sheet “Household Energy Use in Colorado”
1. Refer to the example building model presented in the lecture on Wed 1/28: Two part question:
 - a) List three (3) things you think could be done to most cost-effectively improve the efficiency of the example building. 1. 2. 3.
 - b) If the three (3) improvements you listed were to be implemented, guess at the approximate impact in terms of the energy savings as a percentage of the total annual energy consumption of the base case building:
(circle/highlight one) 1. 1%-5% 2. 5%-15% 3. 15%-30%
4. 30%-60%
 2. Is it possible (ignoring costs) to design and build a comfortable home in Missoula, MT such that net annual energy consumption is zero?
 - a) If yes, how? List three key elements to the design/construction: 1. 1 2. 2 3. 3
 - b) If no, why not?
 3. How many square feet is the average American home (avg since yr 2000)? (circle/highlight one)
 - 980 s.f.
 - 1,971 s.f.
 - 2,480 s.f.
 - 3,650 s.f.

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4. How many kWh of electrical energy is consumed in the avg. American home on a monthly basis?
5. What's the approximate cost of one kWh in Missoula, MT (or wherever you reside; if elsewhere indicate the place)?
6. What's the approximate range of costs for one kWh across the nation? a) High: b) Low:
7. What percentage of total energy consumption in the typical American home is for space heating?
8. What's the approximate cost of one therm in Missoula, MT (or wherever you reside; if elsewhere indicate the place)?
9. What's a typical monthly energy bill in dollars (electric and natural gas) for an average American home?
10. Since 1950, the global average CO₂ concentration in the Earth's inner atmosphere has increased from about 280 parts per million (ppm) to about 390 ppm. For how many years before 1950 was the concentration less than 300 ppm (based on measurements from ice core samples)? a) 20,000 b) 8,000 c) 300 d) 400,000