Calculating Air Sealing Btu Savings **Exercise 6**

The sample ranch blower door test in result is 1900 CFM50. After determining this was too leaky and after the recommended air sealing work taking place you return to the sample ranch to conduct a test out to verify the air sealing work. The blower door test out results in a CFM50 equal to 70% of BAS calculated on the previous work sheet (Pg 4) Sample Ranch Building Air Flow Calculations.

Step 1: Calculate the difference in CFM50 BEFORE and AFTER air sealing using the following formula:

$CFM_{50\ Existing} - CFM_{50\ Improved} = CFM_{50\ Savings}$

Step 2: Convert the $CFM_{50\ (savings)}$ to $CFM_{n\ (savings)}$ using the following formula:

$CFM_n = CFM_{50} / NCh$

NCh is the height-corrected N-factor found in your BPI standards, use the same one use on Pg. 4

Step 3: Calculate Btu savings from air sealing. Using the Convective Heat Loss Formula below, calculate the Btus saved per year on the Sample Ranch.

$$Q = CFMn \times 1.08 \times HDD \times 24 \times .75$$

Q = seasonal Btus saved
1.08 = the heat capacity of a cubic foot of air over an hour (.018 Btu x 60 minutes)
HDD = the annual heating degree days for the home's location. Use Albany NY: 6875
24 = hours per day
.75 = a correction factor to ensure that savings predictions are not overstated.

CFMn Savings:

Total Btu savings from insulation improvements Exercise 4 on Pg12	
Total Btu Savings from Air Sealing improvements Exercise 6 This Page	
Total Annual Btu savings	