

Building Airflow Standard (BAS)

The BAS is based on ASHRAE ventilation standard 62-89 that requires a minimum of 15 cubic feet per minute (cfm) per person or .35 air changes per hour based on the volume of the home. The BAS is calculated using the three formulas listed below and is expressed as a BAS cfm50.

The calculated BAS cfm50 is compared with a blower door measured cfm50 of the house to determine whether mechanical ventilation is required.

The contractor shall calculate the Building Airflow Standard (BAS) using each of the three formulas listed below and select the highest BAS calculated.

Note: Listed below are 3 different names for the same airflow standard.

- a. The Building Airflow Standard (BAS)
- b. The Building Tightness Limit (BTL)
- c. The Minimum Ventilation Level (MVL)

Formula #1

$$15\text{cfm} \times \text{ \# of occupants} \times \underline{n^1} = \text{ _____ cfm50 BAS}$$

This is one of three formulas for calculating the Minimum Ventilation Level (MVL) or Building Tightness Limit (BTL) Building Airflow Standard (BAS) for a given home.

Formula #2

$$15\text{cfm} \times \text{ number of bedrooms} \text{ ___} + 15 \times \underline{n^1} = \text{ _____ cfm50 BAS}$$

This equation is based on potential occupants for a given dwelling. This calculation takes into consideration 1 or 2 people living in a 4 bedroom that is likely to be rented or sold to a family much larger. Also a home with a small square footage or volume may have few occupants but the potential occupancy (may have many small bedrooms) may be much higher.

Formula #3

$$\text{ Estimated volume of conditioned living space} \times .35 \times \underline{n^1} / 60 = \text{ _____ cfm50 BAS}$$

This equation is based solely on the volume of the conditioned living space. Measurements may be the actual interior living space including interior walls or the rough outside measurements of the conditioned living space (not including attics, garages or crawlspaces etc.) subtracting 10% for the exterior walls.

Building Airflow Standard = highest number calculated using formulas 1, 2 and 3

Record the highest cfm50 BAS calculated using formulas 1, 2 or 3.

The number recorded here should be the minimum allowable cfm50 of the conditioned living space unless there are documented factors which result in decision that would indicate a higher or lower BAS be recommended (see line #14 on diagnostic test report).

1. The “n” in each of the formulas above is a conversion factor used to estimate natural air changes from the measured blower door readings, the default number for “n” is 20. To determine a more accurate “n” follow the procedure outlined in Residential Energy by John Krigger, 2nd edition pages 73 and 252