How Much Is That Exhaust Fan Costing You?

You can't get away from it! If you don't provide exhaust, odors, smoke, haze and other contaminants will build-up and complaints about poor air quality will follow. But running those wall exhausters and roof exhausters each winter gets expensive. What can you do?

Cashins & Associates has found that most exhaust systems are inefficient, ineffective and often both. To control costs as well as improve efficiency and contaminant control effectiveness, we recommend the following:

1. **Start by calculating the annual unit cost of present dilution exhaust systems**.

$$\textit{Yearly Cost} = \frac{0.154\ (Q)\ (dg)\ (T)\ (c)}{q}$$

Q = air flow rate, CFM	= 1 CFM
T = operating time, hours/week	= 60 hours/ week
dg = annual degree days	= 6,950 (Boston @ 68 F. temp.)
c = cost of fuel, $/unit	= $2.50/ gallon oil
q = available heat per unit fuel	= 106,000 BTU/Gal. oil @ 75% efficiency. (or = 800 BTU/ft^3 gas heat exch. @ 80%)

The "Yearly Cost" then would be $1.50 per CFM exhausted per heating season with just 60 hours per week of operation.

2. **Add up or roughly estimate the total air being exhausted via dilution exhaust systems.**

Just a couple of nominal 10,000 CFM roof or wall exhausted could be costing you $30,000 annually.

3. **Make sure the building has adequate make-up air; that is, assure any air being exhausted has the approximate equivalent of make-up air.**

Buildings without adequate make-up air are likely to have safety, comfort and cost inefficiency issues. They will run at a negative pressure. This can be easily determined by placing a wet finger along wall opening cracks on 2 or 3 sides of the building. Evidence of inward air velocities at all cracks/openings will reveal a negative pressure.

4. **Evaluate all possible air contaminant sources within the building.**

Wherever feasible, estimate the cost of alternate contaminant controls rather than using dilution exhaust systems. For example, a 20,000 CFM roof exhauster used to control propane-fueled lift truck emissions may cost upwards of $30,000 annually in additional utility costs. Here, battery powered lift trucks may prove a cost saver.

Cashins & Associates, Inc. can evaluate your ventilation systems and recommend changes that could save you thousands of dollars a year!!