

# VENTILATION

## AIR CHANGES

Every ventilation problem contains factors that need to be studied. Patterson's dedicated sales staff has done just that! We focus on air movement to remove smoke, fumes, condensation and other specific air quality problems.

### RECOMMENDED AIR CHANGES

(air changes/hour)

	ADEQUATE	BEST
Auditoriums	8	15
Bakeries	20	30
Boiler Rooms	15	20
Engine Rooms	4	6
Factories	2	4
Foundries	15	20
Galvanizing Plants	20	30
Garages	20	30
Machine Shops	6	12
Poultry Houses	6	10
Precision Manufacturing	10	50
Warehouses	6	30

**NOTE:** Consider local code requirements when determining number of air changes.



### CFM/SQ FT

*example*

**Auditorium:** 70' x 150' x 20' High,  
Local Code: 4 CFM per Square Foot

$$\text{CFM} = 70 \times 150 \times 4 = 42,000$$

This simply states that for every square foot of floor space in a building an amount of air change should be present.

### HEAT REMOVAL

*example*

**Factory:** 200,000 BTU/Hour  
Outside Temp. 85°F, Inside Temp. 80°F

$$\text{CFM} = \frac{200,000}{(85 - 80) \times 1.08} = 37,037$$

The rate of ventilation required increases rapidly as the difference in outside and inside temperature increases. Excessive heat should therefore be exhausted at the source using a separate ventilation system.

### AIR CHANGE

*example*

**Warehouse:** 100' x 100' x 25' High,  
12 Air Changes per Hour Desired

$$\text{CFM} = \frac{100 \times 100 \times 25}{60/12} = 50,000$$

**NOTE:** Consider local code requirements when determining number of air changes.