

## Direct-Fired Formulas

### Heating Requirements

$$\text{Input BTU/Hr} = (\text{Blower SCFM} * \text{Temp Rise} * \text{Density Factor}) / .92$$

$$\text{Temp Rise} = \frac{(\text{Input BTU/Hr} * .92)}{\text{Blower SCFM} * \text{Density Factor}}$$

$$\text{Density Factor} = \frac{1.08 + (70 - \text{Blower Temp}) * .024}{10}$$

### Output BTU/Hr

$$\text{Output BTU/Hr} = \text{Input BTU/Hr} * .92$$

### Profile Velocity

$$\text{Profile Velocity} = 945 * \text{sqrt}(\text{Profile Pressure} / 0.075)$$

### Burner Areas

$$6 \text{ Inch Straight} = .32 \text{ sq ft.}$$

$$12 \text{ Inch Straight} = .65 \text{ sq ft.}$$

$$\text{T Section} = .77 \text{ sq ft.}$$

$$\text{Ell Section} = .65 \text{ sq ft.}$$