**Thermal Management Chart**

### Enclosure Temperature Rise

**Heat Dissipation in Electrical Enclosures**

- **Surface Area** = \(2[(\text{Height} \times \text{Width})+(\text{Height} \times \text{Depth})+(\text{Width} \times \text{Depth})] \div 144\)
- **Input Power** = Watts \(\div\) Total Sq. Ft.

**Example:**
- **Surface Area** = \(2[(48 \times 36) + (48 \times 16) + (36 \times 16)] = 144 = 42 \text{ Sq. Ft.}\)
- **Input Power** = 300 \(\div\) 42 = 8.1 Watts per Sq. Ft.

### Fan Blower Selection

**Step 1:** Determine the internal heat load in Watts.

**Step 2:** Determine temperature difference between the maximum temperature outside the enclosure and the maximum allowable temperature inside the enclosure.

**Step 3:** Plot your application on the chart.

- a) Find the internal heat load in Watts. (vertical scale)
- b) Draw a horizontal line to the point of intersection with the diagonal line representing temperature difference.
- c) From that point, extend a vertical line down to the horizontal scale to determine your CFM requirement.
- d) Continue the vertical line to the table to identify applicable filter fan package(s).

**Step 4:** Select the filter fan package and exhaust grille kit which best fits the application.

### Help Notes - Electronic Conversions:
- 1 Watt = 3.413 BTU/hr
- Volts \(\times\) Amps = Watts

### Example
An enclosure generates 550 Watts of internal heat. The maximum temperature inside the enclosure is 100°F. The maximum temperature outside the enclosure is 85°F.

**Step 1:** 550 Watts

**Step 2:** 100°F - 85°F = 15°F

(internal temperature difference)

**Step 3:** Plot application.

**Step 4:** Select best combination for filter and fan package(s) and exhaust grille kit(s).

### Alternate Method of Selection:

**Step 1:** Choose a filter fan package.

**Step 2:** Draw a vertical line from the fan package.

**Step 3:** Draw a horizontal line from the internal heat load in Watts.

**Step 4:** The point of intersection is the approximate internal temperature difference using the selected fan package.

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**SCE-FA/N12FA (Fan Package)**
- **Filter, Fan & Grille**

**SCE-CF (Cooling Fan)**
- **Fan Motor & Finger Guard**

**SCE-BP (Blower Package)**