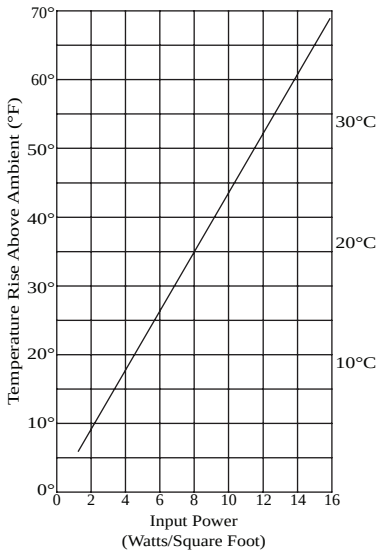
Thermal Management Chart

Enclosure Temperature Rise
Heat Dissipation in Electrical Enclosures

Surface Area = 2[(Height x Width)+(Height x Depth)+(Width x Depth]÷144
Input Power = Watts ÷ Total Sq. Ft.

Example:

Surface Area = 2[(48 x 36) + (48 x 16) + (36 x 16)] ÷ 144 = 42 Sq. Ft.
Input Power = 300 ÷ 42 = 8.1 Watts per Sq. Ft.



EXAMPLE

An enclosure generates 550 Watts of internal heat. 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.

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

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

SCE-BP (Blower Package)

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 x Amps = Watts

Fan Blower Selection