



# Refrigeration Load Analysis

Job Name: **Corona Project**  
 Location: **Corona, CA**  
 Project: **Freezer**

Quote # **200920**  
 For: **Environmental Refrigeration**  
 Date: **May 28, 2009**

Construction Freezer on - Earth Temperature is: 65°F  
 6" (Equiv.) insulated Floor with; (R=43)  
 6" (urethane insulated) Walls; (R=43)  
 6" (urethane insulated) Roof; (R=43)  
 (Located inside parent building)

Dimensions : **368' x 130' x 34' high**

Exterior Temp:	32°C	<b>90°F</b>	Area	<u>47,840</u>	Sq. Ft.
Interior Temp:	-23°C	<b>-10°F</b>	Walls	<u>33,864</u>	Sq. Ft.
Ambient Temp:	35°C	<b>95°F</b>	Volume	<u>1,626,560</u>	Cu. Ft.

Product Load: (No Product Load)

Load Determination:

A. Transmission Load:

Walls: 1,896,384 Btu/Day 6.6 T.R.  
 Roof: 2,679,040 Btu/Day 9.3 T.R.  
 Floor\*: 2,009,280 Btu/Day 7.0 T.R. \* Cured, concrete slab

Total Transmission **6,584,704 Btu/Day 22.9 T.R.**

B. Usage Load: **Normal**

From tables of experience and temperature difference:  
 (Entering Moisture = Approximately 872 #/day)

Total Usage: **2,181,193 Btu/Day 7.6 T.R.**

C. Lighting Load:

Based on 0.5 watts/sq. ft.

Total Lighting: **1,951,872 Btu/Day 6.8 T.R.**

D. Product Load:

None

Total Product: **0 Btu/Day**

E. Respiration Load:

None

Total Respiration **0 Btu/Day**

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F. Internal Loads - (forklifts, conveyors, people, etc.)  
 Fork lifts (and/or other equipment) are 20 hp

Total Internal Loads                      17.6 kw    **1,440,000** Btu/Day    **5.0 T.R.**

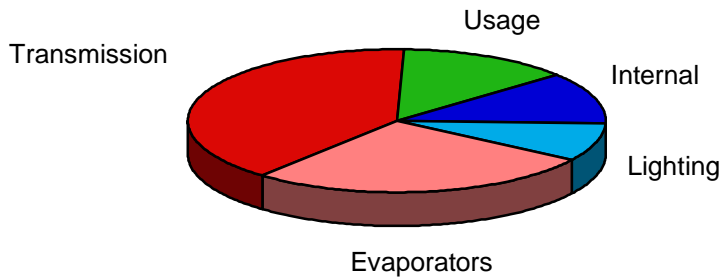
G. Blower Load:  
 (Blower heat is a function of blower motor power.)

Total Blower Load - (All evaps run)            55.0 kw    **4,485,984** Btu/Day    **15.6 T.R.**

<b><u>Total Load:</u></b>	<b><u>16,643,753</u></b> Btu/Day <b><u>57.8 T.R.</u></b>
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**Refrigeration Load Distribution**



For a hot gas defrost system, operation is 22 hours/day.

Therefore: Minimum refrigeration required is 756,534 btu/hr (or 63.0 tons).

With an additional safety factor of 20% the minimum total refrigeration to be supplied is:

907,841 btu/hr (or 75.7 tons)

This capacity is for a -10°F (-23°C) room and a suction temperature of -21.8°F.

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*The refrigeration system to provide 75.7 tons would require 134.0 Bhp.*