

LOAD ESTIMATING

BY FREEZE-PRO, INC. (Use this data at your own Risk)

REV11700

Date: May 16, 2002

Name :

Company :

From :

Ref :

Refrigerated Room Temperature	25	°F
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TRANSMISSION LOAD

Wall	Length/Height (ft)	Insulation Material	Thickness (in)	K-Value BTU-in/hr-ft ² -F	Outside Temp (F)	Solar Factor (F)	ΔT (F)	Heat Transfer BTU/day
North	60	Urethane	3	0.18	95	0	70	108,864
East	28	Urethane	3	0.18	95	4	74	53,706
South	60	Urethane	3	0.18	95	2	72	111,974
West	28	Urethane	3	0.18	95	4	74	53,706
Ceiling	18	Urethane	4	0.18	100	20	95	172,368

Location	Area (ft ²)	Construction Material	Thickness (in)	F-Factor BTU/hr-ft ² -F	Ground Temp (F)	Solar Factor (F)	ΔT (F)	Heat Transfer BTU/day
Floor	1,680	6" Concrete on Grade	-	4.8	60	-	35	282,240

Total Transmission Load	783	kBTU/day	2.72	Tons
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INFILTRATION LOAD

Properties of Moist Air	Temperature (°F)	Rel. Humidity %	Enthalpy BTU/lba	Specific Vol. ft ³ /lba
Infiltrated Air	95	50	42.397	14.382
Refrigerated Room Air	25	80	8.333	12.261
Average Door Opening Time	1.222	min/hr		
Heat Removed per Cubic Foot of Air	2.368	BTU/ft ³		
Number of Air Changes per Day	4.000	#/day		
Total Infiltration Load	286	kBTU/day	0.99	Tons

PRODUCT LOAD

Product Name or Description	Chicken			
Product Loading Rate per Day	10,000	lbs/day		
Entering Product Temperature	31	°F		
Final Product Temperature	25	°F		
Specific Heat above and below Freezing	0.8	BTU/lb-F	0.42	BTU/lb-F
Number of Day(s) / Hr(s) for Pulldown	1.00	days	24	hrs
Room Volume	30,240	ft ³		
Product Loading Density	15	lbs/ft ³		
Product Respiration Heat	0	BTU/24-hr		
Total Product Load	1,100	kBTU/day	3.82	Tons

MISCELLANEOUS LOAD

Number of People in Room	1	-		
Equivalent Heat per Person	24,422	Btu/24-hr		
Lighting Load	1	Watts/ft ²	137,577	BTU/day
Number of Forktrucks in Room	0	-		
Horsepower per Forktruck	0	HP		
Miscellaneous Motor Load in Room (not air units)	2	HP		
Approximate Fan Horsepower from Air Units	5,000	HP		
Motor Load Equivalency	2,950	BTU/hr-HP		
Total Miscellaneous Load	658	kBTU/day	2.28	Tons

TOTAL LOAD	9.82	Tons
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Total Load + 10% Safety Factor	10.80	Tons
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Cubic Foot per Ton of Refrigeration	2,800	ft ³ /Ton
Square Foot per Ton of Refrigeration	156	ft ² /Ton

AIR UNIT REQUIREMENTS

Temperature Difference, TD (°F)	10	10	12	12
Number of Air Units	1	2	1	2
Number of Defrosts per Day	2	2	2	2
Number of Minutes per Defrost (min)	30	30	30	30
Required Capacity per Air Unit (BTUH/°TD)	13,522	6,761	11,268	5,634