SPACE-RAY INFRARED GAS HEATERS

COMPUHEAT BUILDING HEAT LOSS & DESIGN ANALYSIS

Date: 05-01-2012 Time: 11:39:59 Prepared by: RJ Herrington

Job Name: Warehouse - Lincoln, NE

2 Wall(s)	16 ' high	240 ' wide	16 ' peak	7680 sq ft	U = 0.09
2 Wall(s)	16 ' high	100 ' wide	26 ' peak	4200 sq ft	U = 0.09
2 Wall(s)	4 ' high	240 ' wide	4 ' peak	1920 sq ft	U = 0.33
2 Wall(s)	4 ' high	100 ' wide	4 ' peak	800 sq ft	U = 0.33
10 Window(s)	4 ' high	4 ' wide		160 sq ft	U = 0.66
10 Door(s)	12 ' high	12 ' wide		1440 sq ft	U = 1.20
4 Door(s)	7 ' high	3 ' wide		84 sq ft	U = 1.20
10 Skylight(s)	3 ' high	8 ' wide		240 sq ft	U = 0.70
1 Floor section	240 ' long	100 ' wide		24000 sq ft	
1 Roof section	240 ' long	100 ' wide	25.0 ' high	24000 sq ft	U = 0.09
2 Slab edge	240 ' long		total slab edge length =	480 ft	U = 0.55
2 Slab edge	100 ' long		total slab edge length =	200 ft	U = 0.55

Total Net Area Of Each Basic Surface

Walls	Skylights	Windows	Doors
12916 sq ft	240 sq ft	160 sq ft	1524 sq ft

Floor Area	Perimeter	Roof Area
24000 sq ft	680 ft	24235 sq ft

Basic Building Heat Loss

+ Conduction Loss	=	444861 BTU/hr	Power Vent Flow	=	2500 CFM
- Internal Heat Source	=	0 BTU/hr	Total Vent Flow	=	2500 CFM
+ Infil Air Heat Loss	=	269745 BTU/hr	Infiltration Air Flow	=	3500 CFM
Total Building Heat Loss	=	714606 BTU/hr			
Height Inlet to Outlet	=	24 Feet	Building Volume	=	600000 cu ft

Design Temperatures 65ºF Indoor -5ºF Outdoor 70ºF Temperature Difference

Recommended Heater Mounting Height 18 ft

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COMPUHEAT ESTIMATED ANNUAL FUEL COST

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Condition 1 Heater requirements with existing building ventilation

Existing Building Vent Flow = 2500 CFM
Total Computed Heat Loss = 907281 BTU/hr
Infrared Heat Required = 734898 BTU/hr
Space - Ray Model LTU100 Input rating 100000 BTU/hr Natural Gas

Total No. of Space-Ray Heaters = 8

Input BTUH/cu. ft. Bldg. Volume = 1.3 Infrared Heater Input = 800000 BTU/hr
Input BTUH/sq. ft. Bldg. Area = 33.3 Total Computed Air Changes = 0.60 AC/hr
Maximum Temperature Rise With Recommended Heaters = 76.2 ºF

Building Operation Parameters

Normal Operating Conditions

Inside Design Temperature = 65 ºF
Outside Design Temperature = -5 ºF
Operating Hours per Day = 12
Operating Days per Week = 5

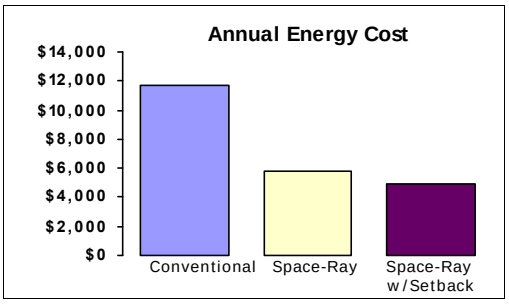
Setback Operating Conditions

Setback Temperature = 50ºF
Hours per Day = 12
Days per Week = 5
Weekend Hours per Day = 24
Weekend Days per Week = 2

Degree Days @ Normal 65 ºF Inside Design Temperature = 6375
Degree Days @ Setback 50 ºF Inside Design Temperature = 3285

Fuel Specifications

Type of Fuel = Natural Gas
Fuel Cost = $ 0.60 per therm



Estimated Annual Fuel Cost

Conventional Unit Heaters = $ 11,649
Space-Ray InfraRed Heaters = $ 5,850
Space-Ray InfraRed Heaters w / Night Setback = $ 4,934