

Heating Calculation

June 18, 2015

INPUT

Project Name:	My Project Name
Area Name:	Warehouse
Program User:	My Name Here
Heating Outdoor Design Temp:	7
Heating Indoor Design Temp:	50
Building Length, Ft:	1,200
Building Length, Exterior Faces:	2
Building Width, Ft:	340
Building Width, Exterior Faces:	1
Building Height, Ft:	32
Number of Dock Doors:	65
Dock Door Width, Ft:	10
Dock Door Height, Ft:	10
Building Materials:	METAL ROOF, CONC WALLS
Roof Insulation R-Value:	11.0
Wall Insulation R-Value:	0.0
Dock Door Insulation R-Value:	0.0
Building Construction:	AVERAGE BUILDING (1 CFM/LF Crack)

OUTPUT

	<u>ROOF</u>	<u>WALLS</u>	<u>DOORS</u>
Net Areas, Sq. Ft.	408,000	81,180	6,500
U-Values	0.08	0.54	1.18
Envelope Heating Load: $Q = U \times A \times \Delta T$			
Roof: $0.08 \times 408000 \times (50 - 7) =$			1,480,506 BTU/HR
Walls: $0.54 \times 81180 \times (50 - 7) =$			1,897,141 BTU/HR
Doors: $1.17 \times 6500 \times (50 - 7) =$			328,824 BTU/HR
Floor: Perimeter $\times 0.55: 2740 \times 0.55 =$			1,507 BTU/HR
TOTAL:			3,707,978 BTU/HR
Infiltration CFM, Building: Linear Ft of Crack \times Selected CFM/LF of Crack			
Infiltration: $2868 \text{ LF} \times 1 \text{ CFM/LF Crack} =$			2,868 CFM
Infiltration CFM, Dock Doors: Linear Ft of Crack \times 2 CFM/LF of Crack			
Infiltration: $2600 \text{ LF} \times 2 \text{ CFM/LF Crack} =$			5,200 CFM
Total Infiltration:			8,068 CFM
Infiltration Heating Load: $Q = 1.1 \times \text{CFM} \times \Delta T$			
$1.1 \times 8068 \times (50 - 7) =$			381,616 BTU/HR
TOTAL HEATING LOAD:	$3707978 + 381616$		= 4,089,594 BTU/HR
			= 1,198.2 KW