Calculating Heat Load Estimates

Following are two different formulas that can be used in calculating heat load estimates. Both are acceptable and often used by operators in various applications. Depending on the variables and how critical the job is, use the formula with the most conservative rating. In most cases, calculating the loads both ways and then averaging the two together will come quite close to meeting the needs of most jobsite requirements.

Formula #1

Table #1 **BTUH/CU FT Building Volume Multiplier**

Type of Building	Masonry Wall				Insulated Steel Wall		
Indoor Temp – F	50	60	65	70	60	65	70
4 Walls Exposed	2.5	2.7	2.9	3.1	1.7	1.9	2.1
3 Walls Exposed	2.2	2.3	2.4	2.7	1.5	1.6	1.7
2 Walls Exposed	1.8	1.9	2.1	2.2	1.3	1.4	1.5

Table #2 **Correction Factors**

Outdoor Temp	+30	+20	+10	0	-10	-20	-30
Multiplier	.53	.69	.84	1.0	1.15	1.2	1.46

How to use the tables:

Determine the BTUH/CU FT of volume from Table #1 based on the desired indoor temperature, wall construction and number of walls exposed to the weather.

Correct for outdoor temperature using the Correction Factors in Table #2.

Using the gross building volume, estimate the heat loss.

EXAMPLE: 66,000 square foot building with a 12 foot ceiling height. Outside air temperature is 30 degrees F and maintaining an inside temperature of 60 degrees F is desired. The building is masonry (sealed) with four walls exposed to the weather.

66,000 X 12 X 2.7 X .53 = 1,133,352 BTUH of Heat Loss. Divide this by the 1 million BTUH of Maxi-Heat output and you find that 1.13 units are required. In other words, one Allmand Maxi-Heat should adequately heat and maintain the desired temperature in this building.

Formula #2

Square Footage X Ceiling Height X △T X Type of Building

Where △T = desired indoor temperature (F) minus the outdoor temperature (F).

Multipliers for type of building structure:

.135 - Sealed Building
.145 - Non-Sealed Building
.160 - Tent or Similar

Example: 66,000 Square Foot building with a 12 foot ceiling height. Outside air is 30 degrees F and maintaining an indoor temperature of 60 degrees F is desired. The building is sealed.

66,000 X 12 X 30 X .135 = 3,207,600 BTUH of Heat Loss. Now divide by the 1 million BTUH of Maxi-Heat output and the result is 3.2 total units. In other words, three Maxi-Heat units should adequately heat and maintain the desired temperature in this building.

Note that *Formula #2* is by far the more conservative rating of the two. As mentioned above, in order to get as close as possible to an accurate sizing, average the two examples from above and the result is that two Maxi-Heat units are required to heat and maintain the desired temperature in this building. This heat averaging technique has been successful in the majority of cases. However, in cost critical jobs always err towards the conservative side. Of course there are many variables (ventilation, insulation, rooms, etc.) that can impact the heat required, but these formulas can serve as a useful starting point.

Contact the Allmand Customer Service Department (phone 800-562-1373) if you have any questions on using these formulas, tuning, setting up or otherwise using your Allmand Maxi-Heat.