Design Heating and Cooling Loads

Primary Heating System

Space Name	Load (Btu/Hr)	Load (Btu/Hr-SqFt)	Distribution GPM	Ft of baseboard
First Floor	25,463	21	3	49
Second Floor	34,003	28	4	65
Basement	27,021	36	3	52

Required Heating Equipment Output Capacity: 95,539 Btu/hr
Available Heating Equipment Output Capacity: 87,360 Btu/hr
Total Flow: 10 GPM
Baseboard Capacity: 575 Btu/Hr-Ft
Heating Equipment Efficiency: 84%
Calculated Distribution Efficiency: 100%
Supply Temperature: 180 F
Temperature Drop: 20 F
Heating Safety Factory: 1.10
Distribution Safety Factor: 1.10

HEAT SYSTEM IS UNDERSIZED AND DOES NOT MEET THE REQUIRED HEAT LOAD.

Cooling System

Space Name	Load (Btu/Hr)	Load (Btu/Hr-SqFt)
First Floor	7,259	6
Second Floor	9,828	8
Basement	0	0

Required Cooling Equipment Output Capacity: 19,097 Btu/hr
Available Cooling Equipment Output Capacity: 12,000 Btu/hr
Total Flow: 632 CFM
Cooling Equipment Efficiency: 18 SEER
Calculated Distribution Efficiency: 96%
Temperature Drop: 28 F
Cooling Safety Factory: 1.10
Distribution Safety Factor: 1.10

COOL SYSTEM IS UNDERSIZED AND DOES NOT MEET THE REQUIRED COOL LOAD.

1. The room heating/cooling loads do not include the equipment and distribution safety factor and distribution losses.
2. The room distribution includes distribution safety factor.
3. The load on the room is the peak load for this room in a year.
3. Available equipment output capacity includes equipment efficiency.
5. Required equipment output capacity includes diversity, distribution losses and equipment safety factor.
6. Overall distribution CFM/GPM for heating/cooling includes equipment safety factor, distribution losses and diversity.
7. TREAT load sizing has been tested in minimize calculation time mode and results were compared to Manual J. TREAT heating and cooling loads proved to be slightly more conservative. Please use professional judgement in applying the results to sizing heating and cooling systems.