

AIR SYSTEM SIZING SUMMARY FOR BLOCK LOAD

Air System Information
 Air System Name: BLOCK LOAD
 Equipment Class: SPLIT AHU
 Air System Type: SZCAV
 Number of zones: 1
 Floor Area: 3743.0 ft²
 Location: Portland, Maine

Sizing Calculation Information
 Zone and Space Sizing Method: Sum of space airflow rates
 Zone CFM: 895
 Space CFM: 0.24
 Calculation Months: Jan to Dec
 Sizing Data: Calculated

Central Cooling Coil Sizing Data
 Total coil load: 11.9 Tons
 Total coil load: 142.9 MBH
 Sensible coil load: 121.4 MBH
 Coil CFM at Jul 1600: 5751 CFM
 Max block CFM: 5751 CFM
 Sum of peak zone CFM: 5751 CFM
 Sensible heat ratio: 0.850
 RT/Ton: 314.2
 BTU/(hr-ft²): 38.2
 Water flow @ 10.0 °F rise: N/A

Central Heating Coil Sizing Data
 Max coil load: 166.1 MBH
 Coil CFM at Des Htg: 5751 CFM
 Max coil CFM: 5751 CFM
 Water flow @ 20.0 °F drop: N/A

Supply Fan Sizing Data
 Actual max CFM: 5751 CFM
 Standard CFM: 5739 CFM
 Actual max CFM/R²: 1.54 CFM/R²
 Fan motor BHP: 0.00 BHP
 Fan motor kW: 0.00 kW
 Fan static: 0.00 In wg

Outdoor Ventilation Air Data
 Design airflow CFM: 895 CFM
 CFM/person: 25.29 CFM/person
 CFM/R²: 0.24 CFM/R²

ZONE SIZING SUMMARY FOR BLOCK LOAD

Air System Information
 Air System Name: BLOCK LOAD
 Equipment Class: SPLIT AHU
 Air System Type: SZCAV
 Number of zones: 1
 Floor Area: 3743.0 ft²
 Location: Portland, Maine

Sizing Calculation Information
 Zone and Space Sizing Method: Sum of space airflow rates
 Zone CFM: 895
 Space CFM: 0.24
 Calculation Months: Jan to Dec
 Sizing Data: Calculated

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (MBH)	Design Air Flow (CFM)	Minimum Air Flow (CFM)	Time of Peak Load (hr)	Maximum Heating Load (MBH)	Zone Floor Area (ft²)	Zone CFM/ft²
Zone 1	118.5	5751	5751	Jul 1600	97.9	3743.0	1.54

Zone Terminal Sizing Data
 No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft²)	Space CFM/ft²
Zone 1							
1. SALES AREA	1	71.8	Jul 1600	3506	63.0	1519.0	2.31
10. MEZZANINE STORAGE#2	1	7.3	Sep 1500	355	4.4	693.0	0.61
2. FITTING AREA	1	6.9	Aug 1700	363	10.5	472.0	0.77
3. STOCK AREA	1	19.2	Aug 1600	939	11.5	562.0	1.67
4. JANITORS	1	0.1	Jul 1500	5	0.1	6.0	0.83
5. TOILET #1	1	0.5	Jul 1500	35	1.0	57.0	0.62
6. TOILET #2	1	0.5	Jul 1500	33	1.0	54.0	0.62
7. CORRIDOR #1	1	0.6	Jul 1500	30	0.9	48.0	0.62
8. CORRIDOR #2	1	1.2	Jul 1600	58	0.7	41.0	1.42
9. MEZZANINE STORAGE#1	1	2.2	Sep 1500	106	1.2	173.0	0.61
11. CASHWRAP	1	6.6	Aug 1700	321	3.5	118.0	2.72

AIR SYSTEM DESIGN LOAD SUMMARY FOR BLOCK LOAD

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1600 COOLING OA DB / WB	Sensible (BTU/hr)	Latent (BTU/hr)	HEATING DATA AT DES Htg HEATING OA DB / WB	Sensible (BTU/hr)	Latent (BTU/hr)
ZONE LOADS						
Window & Skylight Solar Loads	845 ft²	48559	-	845 ft²	-11341	-
Wall Transmission	1576 ft²	5375	-	1576 ft²	11341	-
Roof Transmission	0 ft²	0	-	0 ft²	0	-
Window Transmission	845 ft²	4182	-	845 ft²	34815	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	2877 ft²	10058	-	2877 ft²	51786	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	0 W	0	-	0	0	-
Task Lighting	3919 W	12274	-	0	0	-
Electric Equipment	5061 W	17085	-	0	0	-
People	36	6626	7079	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 0%	10504	0	0%	0	0
>> Total Zone Loads	-	115547	7079	-	97942	0
Zone Conditioning	-	111198	7079	-	97962	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	5751 CFM	0	-	5751 CFM	0	-
Ventilation Load	895 CFM	10251	14414	895 CFM	68156	0
Supply Fan Load	5751 CFM	0	-	5751 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	121448	21492	-	166147	0
Central Cooling Coil	-	121448	21492	-	166148	0
Central Heating Coil	-	0	-	-	166148	-
>> Total Conditioning	-	121448	21492	-	166148	0

Key:
 Positive values are clg loads
 Negative values are htg loads

AIR SYSTEM SIZING SUMMARY FOR AHU-1

Air System Information
 Air System Name: HP-1
 Equipment Class: SPLIT AHU
 Air System Type: SZCAV
 Number of zones: 1
 Floor Area: 1637.0 ft²
 Location: Portland, Maine

Sizing Calculation Information
 Zone and Space Sizing Method: Sum of space airflow rates
 Zone CFM: 3827
 Space CFM: 2.34
 Calculation Months: Jan to Dec
 Sizing Data: Calculated

Central Cooling Coil Sizing Data
 Total coil load: 7.8 Tons
 Total coil load: 93.7 MBH
 Sensible coil load: 80.6 MBH
 Coil CFM at Jul 1700: 3827 CFM
 Max block CFM: 3827 CFM
 Sum of peak zone CFM: 3827 CFM
 Sensible heat ratio: 0.860
 RT/Ton: 209.7
 BTU/(hr-ft²): 57.2
 Water flow @ 10.0 °F rise: N/A

Central Heating Coil Sizing Data
 Max coil load: 103.9 MBH
 Coil CFM at Des Htg: 3827 CFM
 Max coil CFM: 3827 CFM
 Water flow @ 20.0 °F drop: N/A

Supply Fan Sizing Data
 Actual max CFM: 3827 CFM
 Standard CFM: 3819 CFM
 Actual max CFM/R²: 2.34 CFM/R²
 Fan motor BHP: 0.00 BHP
 Fan motor kW: 0.00 kW
 Fan static: 0.00 In wg

Outdoor Ventilation Air Data
 Design airflow CFM: 895 CFM
 CFM/person: 21.72 CFM/person
 CFM/R²: 0.31 CFM/R²

AIR SYSTEM SIZING SUMMARY FOR AHU-2

Air System Information
 Air System Name: HP-2
 Equipment Class: SPLIT AHU
 Air System Type: SZCAV
 Number of zones: 1
 Floor Area: 2106.0 ft²
 Location: Portland, Maine

Sizing Calculation Information
 Zone and Space Sizing Method: Sum of space airflow rates
 Zone CFM: 1924
 Space CFM: 0.91
 Calculation Months: Jan to Dec
 Sizing Data: Calculated

Central Cooling Coil Sizing Data
 Total coil load: 4.1 Tons
 Total coil load: 49.2 MBH
 Sensible coil load: 40.8 MBH
 Coil CFM at Aug 1600: 1924 CFM
 Max block CFM: 1924 CFM
 Sum of peak zone CFM: 1924 CFM
 Sensible heat ratio: 0.830
 RT/Ton: 514.0
 BTU/(hr-ft²): 23.3
 Water flow @ 10.0 °F rise: N/A

Central Heating Coil Sizing Data
 Max coil load: 60.2 MBH
 Coil CFM at Des Htg: 1924 CFM
 Max coil CFM: 1924 CFM
 Water flow @ 20.0 °F drop: N/A

Supply Fan Sizing Data
 Actual max CFM: 1924 CFM
 Standard CFM: 1919 CFM
 Actual max CFM/R²: 0.91 CFM/R²
 Fan motor BHP: 0.00 BHP
 Fan motor kW: 0.00 kW
 Fan static: 0.00 In wg

Outdoor Ventilation Air Data
 Design airflow CFM: 390 CFM
 CFM/person: 32.13 CFM/person
 CFM/R²: 0.19 CFM/R²

DESIGN WEATHER PARAMETERS

City Name: Portland
 Location: Maine
 Latitude: 43.7 Deg.
 Longitude: 70.3 Deg.
 Elevation: 62.0 ft
 Summer Design Dry-Bulb: 86.0 °F
 Summer Coincident Wet-Bulb: 71.0 °F
 Summer Daily Range: 18.7 °F
 Winter Design Dry-Bulb: -3.0 °F
 Winter Design Wet-Bulb: -4.3 °F
 Atmospheric Clearness Number: 1.05
 Average Ground Reflectance: 0.20
 Soil Conductivity: 0.800 STU/(hr-ft²-F)
 Local Time Zone (GMT +/- N hours): 5.0 hours
 Consider Daylight Saving Time: No
 Simulation Weather Data: none/NIA
 Current Data is: 2001 ASHRAE Handbook
 Design Cooling Months: January to December

NEW STORE



GAP INC.
 CORPORATE ARCHITECTURE
 1 HARRISON STREET
 SAN FRANCISCO, CA 94105

STORE NO.: 7641

STORE NAME:
 PORTLAND

STORE LOCATION:
 152 MIDDLE STREET
 PORTLAND, ME 04101

PROJ. I.D.: 0000053405

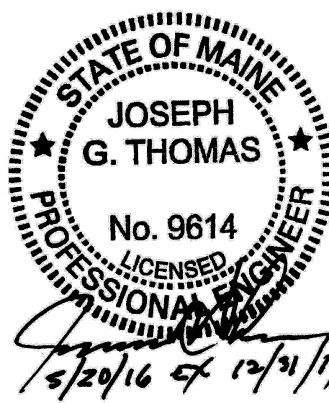
PROTOTYPE DATE: 09/4/15
 PROTOTYPE VERSION 4.1

CONSULTANT INFO:



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PROFESSIONAL STAMP:



ARCHITECT INFO:



HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED BY MY OFFICE AND UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAME COMPLY WITH ALL LAWS, RULES, REGULATIONS AND ORDINANCES OF PORTLAND, ME RELATING TO STRUCTURES AND BUILDINGS.

ISSUE TYPE:
 100% CD CHECKSET 5/20/16
 PERMIT / BID
 LL APPROVAL

DRAWN BY: DG
 A&E JOB NO.: 16-5433

SHEET TITLE:
 MECHANICAL LOAD
 CALCULATIONS

SHEET NUMBER:

M4-2