

Air System Sizing Summary for HVAC

Project Name: 108
Prepared by: E Lab

10/27/2024
10:58PM

Air System Information

Air System Name HVAC
Equipment Class SPLT AHU
Air System Type SZCAV

Number of zones 1
Floor Area 750.0 ft²
Location Daytona Beach, Florida

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Central Cooling Coil Sizing Data

Total coil load 2.9 Tons
Total coil load 34.3 MBH
Sensible coil load 27.2 MBH
Coil CFM at Jul 1700 1290 CFM
Max block CFM 1290 CFM
Sum of peak zone CFM 1290 CFM
Sensible heat ratio 0.791
CFM/Ton 451.0
ft²/Ton 262.1
BTU/(hr-ft²) 45.8
Water flow @ 10.0 °F rise N/A

Load occurs at Jul 1700
OA DB / WB 90.5 / 76.6 °F
Entering DB / WB 77.3 / 65.3 °F
Leaving DB / WB 57.8 / 56.5 °F
Coil ADP 55.1 °F
Bypass Factor 0.120
Resulting RH 52 %
Design supply temp. 55.0 °F
Zone T-stat Check 1 of 1 OK
Max zone temperature deviation 0.0 °F

Central Heating Coil Sizing Data

Max coil load 18.0 MBH
Coil CFM at Des Htg 1290 CFM
Max coil CFM 1290 CFM
Water flow @ 20.0 °F drop N/A

Load occurs at Des Htg
BTU/(hr-ft²) 24.0
Ent. DB / Lvg DB 66.3 / 79.3 °F

Supply Fan Sizing Data

Actual max CFM 1290 CFM
Standard CFM 1289 CFM
Actual max CFM/ft² 1.72 CFM/ft²

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 107 CFM
CFM/ft² 0.14 CFM/ft²

CFM/person 5.92 CFM/person

Zone Sizing Summary for HVAC

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Number of zones 1
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Calculation Months Jan to Dec
Sizing Data Calculated

Zone CFM Sizing Sum of space airflow rates
Space CFM Sizing Individual peak space loads

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft ²	Reheat Coil Load (MBH)	Reheat Coil Water gpm @ 20.0 °F	Zone Htg Unit Coil Load (MBH)	Zone Htg Unit Water gpm @ 20.0 °F	Mixing Box Fan Airflow (CFM)
Zone 1	1290	1290	1.72	0.0	-	0.0	-	0

Zone Peak Sensible Loads

Zone Name	Zone Cooling Sensible (MBH)	Time of Peak Sensible Cooling Load	Zone Heating Load (MBH)	Zone Floor Area (ft ²)
Zone 1	26.7	Jul 1700	15.0	750.0

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Peak Sensible Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft ²)	Space CFM/ft ²
Zone 1							
Bath	1	2.3	Jul 1000	105	1.5	40.0	2.62
BedRoom 1	1	4.2	Oct 1500	197	2.0	105.0	1.88
BedRoom 2	1	4.2	Oct 1500	194	1.9	100.0	1.94
Family	1	5.0	Jun 1700	232	3.0	120.0	1.93
M BedRoom	1	5.0	Jun 1700	230	2.5	185.0	1.24
M-Bath	1	2.0	Jul 2000	93	1.3	70.0	1.33
Kitchen	1	5.2	Aug 1700	240	2.9	130.0	1.85

Ventilation Sizing Summary for HVAC

Project Name: 108
Prepared by: E Lab

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1. Summary

Ventilation Sizing Method **Sum of Space OA Airflows**
Design Ventilation Airflow Rate **107** CFM

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Floor Area (ft²)	Maximum Occupants	Maximum Supply Air (CFM)	Required Outdoor Air (CFM/person)	Required Outdoor Air (CFM/ft²)	Required Outdoor Air (CFM)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (CFM)
Zone 1									
Bath	1	40.0	1.0	104.8	0.00	0.00	0.0	0.0	0.0
BedRoom 1	1	105.0	3.0	196.9	5.00	0.06	0.0	0.0	21.3
BedRoom 2	1	100.0	3.0	193.8	5.00	0.06	0.0	0.0	21.0
Family	1	120.0	4.0	231.8	0.00	0.00	0.0	0.0	0.0
M BedRoom	1	185.0	3.0	230.1	5.00	0.06	0.0	0.0	26.1
M-Bath	1	70.0	1.0	93.0	0.00	0.00	0.0	0.0	0.0
Kitchen	1	130.0	3.0	240.1	7.50	0.12	0.0	0.0	38.1
Totals (incl. Space Multipliers)				1290.5					106.5

Air System Design Load Summary for HVAC

Project Name: 108
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	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700 COOLING OA DB / WB 90.5 °F / 76.6 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 34.0 °F / 28.7 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	100 ft²	2241	-	100 ft²	-	-
Wall Transmission	2339 ft²	4092	-	2339 ft²	7671	-
Roof Transmission	750 ft²	1441	-	750 ft²	846	-
Window Transmission	100 ft²	796	-	100 ft²	2117	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	405 ft²	1644	-	405 ft²	4374	-
Floor Transmission	750 ft²	0	-	750 ft²	0	-
Partitions	1176 ft²	0	-	1176 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	750 W	2267	-	0	0	-
Task Lighting	750 W	2397	-	0	0	-
Electric Equipment	1400 W	4534	-	0	0	-
People	18	3783	3690	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	3479	185	0%	0	0
>> Total Zone Loads	-	26674	3875	-	15008	0
Zone Conditioning	-	25513	3875	-	13989	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	1290 CFM	0	-	1290 CFM	0	-
Ventilation Load	107 CFM	1649	3296	107 CFM	4046	0
Supply Fan Load	1290 CFM	0	-	1290 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	27162	7170	-	18035	0
Central Cooling Coil	-	27162	7171	-	0	0
Central Heating Coil	-	0	-	-	18035	-
>> Total Conditioning	-	27162	7171	-	18035	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Zone Design Load Summary for HVAC

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Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 90.5 °F / 76.6 °F			HEATING OA DB / WB 34.0 °F / 28.7 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	100 ft²	2241	-	100 ft²	-	-
Wall Transmission	2339 ft²	4092	-	2339 ft²	7671	-
Roof Transmission	750 ft²	1441	-	750 ft²	846	-
Window Transmission	100 ft²	796	-	100 ft²	2117	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	405 ft²	1644	-	405 ft²	4374	-
Floor Transmission	750 ft²	0	-	750 ft²	0	-
Partitions	1176 ft²	0	-	1176 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	750 W	2267	-	0	0	-
Task Lighting	750 W	2397	-	0	0	-
Electric Equipment	1400 W	4534	-	0	0	-
People	18	3783	3690	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	3479	185	0%	0	0
>> Total Zone Loads	-	26674	3875	-	15008	0

Space Design Load Summary for HVAC

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TABLE 1.1.A. Component Loads For Space "Bath" In Zone "Zone 1"

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1000			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 83.4 °F / 74.7 °F			HEATING OA DB / WB 34.0 °F / 28.7 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
SPACE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	15 ft²	873	-	15 ft²	-	-
Wall Transmission	195 ft²	286	-	195 ft²	640	-
Roof Transmission	40 ft²	29	-	40 ft²	45	-
Window Transmission	15 ft²	68	-	15 ft²	318	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	98	-	42 ft²	454	-
Floor Transmission	40 ft²	0	-	40 ft²	0	-
Partitions	126 ft²	0	-	126 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	40 W	119	-	0	0	-
Task Lighting	40 W	127	-	0	0	-
Electric Equipment	50 W	161	-	0	0	-
People	1	206	205	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	295	10	0%	0	0
>> Total Zone Loads	-	2261	215	-	1456	0

TABLE 1.1.B. Envelope Loads For Space "Bath" In Zone "Zone 1"

	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(ft²)	(BTU/(hr-ft²-°F))	Coeff.	TRANS	SOLAR	TRANS
				(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	52	0.091	-	66	-	171
DOOR	21	0.300	-	49	-	227
S EXPOSURE						
WALL	73	0.091	-	90	-	239
E EXPOSURE						
WALL	38	0.091	-	68	-	125
WINDOW 1	15	0.588	0.811	68	873	318
W EXPOSURE						
WALL	32	0.091	-	62	-	105
DOOR	21	0.300	-	49	-	227
H EXPOSURE						
ROOF	40	0.031	-	29	-	45

Space Design Load Summary for HVAC

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TABLE 1.2.A. Component Loads For Space "BedRoom 1" In Zone "Zone 1"

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Oct 1500 COOLING OA DB / WB 87.4 °F / 74.4 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 34.0 °F / 28.7 °F OCCUPIED T-STAT 70.0 °F		
		Sensible (BTU/hr)	Latent (BTU/hr)		Sensible (BTU/hr)	Latent (BTU/hr)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	15 ft²	1047	-	15 ft²	-	-
Wall Transmission	369 ft²	429	-	369 ft²	1210	-
Roof Transmission	105 ft²	144	-	105 ft²	118	-
Window Transmission	15 ft²	85	-	15 ft²	318	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	30 ft²	87	-	30 ft²	324	-
Floor Transmission	105 ft²	0	-	105 ft²	0	-
Partitions	107 ft²	0	-	107 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	105 W	312	-	0	0	-
Task Lighting	105 W	332	-	0	0	-
Electric Equipment	200 W	643	-	0	0	-
People	3	615	615	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	554	31	0%	0	0
>> Total Zone Loads	-	4248	646	-	1970	0

TABLE 1.2.B. Envelope Loads For Space "BedRoom 1" In Zone "Zone 1"

	Area (ft²)	U-Value (BTU/(hr-ft²-°F))	Shade Coeff.	COOLING TRANS (BTU/hr)	COOLING SOLAR (BTU/hr)	HEATING TRANS (BTU/hr)
N EXPOSURE						
WALL	100	0.091	-	49	-	328
S EXPOSURE						
WALL	85	0.091	-	162	-	279
WINDOW 1	15	0.588	0.811	85	1047	318
E EXPOSURE						
WALL	77	0.091	-	110	-	253
DOOR	30	0.300	-	87	-	324
W EXPOSURE						
WALL	107	0.091	-	108	-	351
H EXPOSURE						
ROOF	105	0.031	-	144	-	118

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TABLE 1.3.A. Component Loads For Space "BedRoom 2" In Zone "Zone 1"

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Oct 1500 COOLING OA DB / WB 87.4 °F / 74.4 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 34.0 °F / 28.7 °F OCCUPIED T-STAT 70.0 °F		
		Sensible (BTU/hr)	Latent (BTU/hr)		Sensible (BTU/hr)	Latent (BTU/hr)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	15 ft²	1047	-	15 ft²	-	-
Wall Transmission	364 ft²	434	-	364 ft²	1194	-
Roof Transmission	100 ft²	137	-	100 ft²	113	-
Window Transmission	15 ft²	85	-	15 ft²	318	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	61	-	21 ft²	227	-
Floor Transmission	100 ft²	0	-	100 ft²	0	-
Partitions	100 ft²	0	-	100 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	100 W	297	-	0	0	-
Task Lighting	100 W	316	-	0	0	-
Electric Equipment	200 W	643	-	0	0	-
People	3	615	615	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	545	31	0%	0	0
>> Total Zone Loads	-	4180	646	-	1851	0

TABLE 1.3.B. Envelope Loads For Space "BedRoom 2" In Zone "Zone 1"

				COOLING	COOLING	HEATING
	Area (ft²)	U-Value (BTU/(hr-ft²-°F))	Shade Coeff.	TRANS (BTU/hr)	SOLAR (BTU/hr)	TRANS (BTU/hr)
N EXPOSURE						
WALL	100	0.091	-	49	-	328
S EXPOSURE						
WALL	85	0.091	-	162	-	279
WINDOW 1	15	0.588	0.811	85	1047	318
E EXPOSURE						
WALL	100	0.091	-	143	-	328
W EXPOSURE						
WALL	79	0.091	-	80	-	259
DOOR	21	0.300	-	61	-	227
H EXPOSURE						
ROOF	100	0.031	-	137	-	113

Space Design Load Summary for HVAC

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TABLE 1.4.A. Component Loads For Space "Family" In Zone "Zone 1"

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 89.5 °F / 76.6 °F			HEATING OA DB / WB 34.0 °F / 28.7 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
SPACE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	35 ft²	835	-	35 ft²	-	-
Wall Transmission	305 ft²	577	-	305 ft²	1000	-
Roof Transmission	120 ft²	230	-	120 ft²	135	-
Window Transmission	35 ft²	258	-	35 ft²	741	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	100 ft²	376	-	100 ft²	1080	-
Floor Transmission	120 ft²	0	-	120 ft²	0	-
Partitions	120 ft²	0	-	120 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	120 W	363	-	0	0	-
Task Lighting	120 W	384	-	0	0	-
Electric Equipment	150 W	486	-	0	0	-
People	4	841	820	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	652	41	0%	0	0
>> Total Zone Loads	-	5001	861	-	2957	0

TABLE 1.4.B. Envelope Loads For Space "Family" In Zone "Zone 1"

	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(ft²)	(BTU/(hr-ft²-°F))	Coeff.	TRANS	SOLAR	TRANS
				(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	65	0.091	-	89	-	213
WINDOW 1	35	0.588	0.811	258	835	741
S EXPOSURE						
DOOR	100	0.300	-	376	-	1080
E EXPOSURE						
WALL	120	0.091	-	275	-	394
W EXPOSURE						
WALL	120	0.091	-	212	-	394
H EXPOSURE						
ROOF	120	0.031	-	230	-	135

Space Design Load Summary for HVAC

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TABLE 1.5.A. Component Loads For Space "M BedRoom" In Zone "Zone 1"

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700 COOLING OA DB / WB 89.5 °F / 76.6 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 34.0 °F / 28.7 °F OCCUPIED T-STAT 70.0 °F		
		Sensible (BTU/hr)	Latent (BTU/hr)		Sensible (BTU/hr)	Latent (BTU/hr)
SPACE LOADS	Details			Details		
Window & Skylight Solar Loads	20 ft²	477	-	20 ft²	-	-
Wall Transmission	505 ft²	830	-	505 ft²	1656	-
Roof Transmission	185 ft²	354	-	185 ft²	209	-
Window Transmission	20 ft²	147	-	20 ft²	423	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	79	-	21 ft²	227	-
Floor Transmission	185 ft²	0	-	185 ft²	0	-
Partitions	273 ft²	0	-	273 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	185 W	559	-	0	0	-
Task Lighting	185 W	591	-	0	0	-
Electric Equipment	200 W	648	-	0	0	-
People	3	630	615	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	647	31	0%	0	0
>> Total Zone Loads	-	4963	646	-	2515	0

TABLE 1.5.B. Envelope Loads For Space "M BedRoom" In Zone "Zone 1"

	Area (ft²)	U-Value (BTU/(hr-ft²-°F))	Shade Coeff.	COOLING TRANS (BTU/hr)	COOLING SOLAR (BTU/hr)	HEATING TRANS (BTU/hr)
N EXPOSURE						
WALL	133	0.091	-	182	-	436
WINDOW 1	20	0.588	0.811	147	477	423
S EXPOSURE						
WALL	132	0.091	-	160	-	433
DOOR	21	0.300	-	79	-	227
E EXPOSURE						
WALL	120	0.091	-	275	-	394
W EXPOSURE						
WALL	120	0.091	-	212	-	394
H EXPOSURE						
ROOF	185	0.031	-	354	-	209

Space Design Load Summary for HVAC

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TABLE 1.6.A. Component Loads For Space "M-Bath" In Zone "Zone 1"

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 2000			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 84.8 °F / 75.1 °F			HEATING OA DB / WB 34.0 °F / 28.7 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
SPACE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	311 ft²	605	-	311 ft²	1020	-
Roof Transmission	70 ft²	90	-	70 ft²	79	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	62	-	21 ft²	227	-
Floor Transmission	70 ft²	0	-	70 ft²	0	-
Partitions	150 ft²	0	-	150 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	70 W	217	-	0	0	-
Task Lighting	70 W	227	-	0	0	-
Electric Equipment	100 W	327	-	0	0	-
People	1	217	205	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	262	10	0%	0	0
>> Total Zone Loads	-	2006	215	-	1326	0

TABLE 1.6.B. Envelope Loads For Space "M-Bath" In Zone "Zone 1"

	Area (ft²)	U-Value (BTU/(hr-ft²-°F))	Shade Coeff.	COOLING	COOLING	HEATING
				TRANS	SOLAR	TRANS
				(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	68	0.091	-	103	-	223
DOOR	21	0.300	-	62	-	227
S EXPOSURE						
WALL	89	0.091	-	139	-	292
E EXPOSURE						
WALL	77	0.091	-	189	-	253
W EXPOSURE						
WALL	77	0.091	-	173	-	253
H EXPOSURE						
ROOF	70	0.031	-	90	-	79

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TABLE 1.7.A. Component Loads For Space "Kitchen" In Zone "Zone 1"

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1700			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 90.5 °F / 76.6 °F			HEATING OA DB / WB 34.0 °F / 28.7 °F		
	OCCUPIED T-STAT 75.0 °F			OCCUPIED T-STAT 70.0 °F		
SPACE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	290 ft²	518	-	290 ft²	951	-
Roof Transmission	130 ft²	238	-	130 ft²	147	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	170 ft²	690	-	170 ft²	1836	-
Floor Transmission	130 ft²	0	-	130 ft²	0	-
Partitions	300 ft²	0	-	300 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	130 W	393	-	0	0	-
Task Lighting	130 W	415	-	0	0	-
Electric Equipment	500 W	1619	-	0	0	-
People	3	630	615	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	676	31	0%	0	0
>> Total Zone Loads	-	5180	646	-	2934	0

TABLE 1.7.B. Envelope Loads For Space "Kitchen" In Zone "Zone 1"

	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(ft²)	(BTU/(hr-ft²-°F))	Coeff.	TRANS	SOLAR	TRANS
				(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	30	0.091	-	35	-	98
DOOR	70	0.300	-	284	-	756
S EXPOSURE						
WALL	100	0.091	-	168	-	328
E EXPOSURE						
WALL	60	0.091	-	137	-	197
DOOR	70	0.300	-	284	-	756
W EXPOSURE						
WALL	100	0.091	-	177	-	328
DOOR	30	0.300	-	122	-	324
H EXPOSURE						
ROOF	130	0.031	-	238	-	147

System Psychrometrics for HVAC

Project Name: 108
Prepared by: E Lab

10/27/2024
10:58PM

July DESIGN COOLING DAY, 1700

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	90.5	0.01656	107	400	1649	3296
Vent - Return Mixing	Outlet	77.3	0.01057	1290	2000	-	-
Central Cooling Coil	Outlet	57.8	0.00940	1290	2000	27162	7171
Central Heating Coil	Outlet	57.8	0.00940	1290	2000	0	-
Supply Fan	Outlet	57.8	0.00940	1290	2000	0	-
Cold Supply Duct	Outlet	57.8	0.00940	1290	2000	-	-
Zone Air	-	76.1	0.01003	1290	2143	25513	3875
Return Plenum	Outlet	76.1	0.01003	1290	2143	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.079 BTU/(hr-CFM-F)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4740.4 BTU/(hr-CFM)

Site Altitude = 36.0 ft

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (BTU/hr)	T-stat Mode	Zone Cond (BTU/hr)	Zone Temp (°F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	26674	Cooling	25513	76.1	1290	2143	0	0

System Psychrometrics for HVAC

Project Name: 108
Prepared by: E Lab

10/27/2024
10:58PM

WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	34.0	0.00206	107	400	-4046	0
Vent - Return Mixing	Outlet	66.3	0.00206	1290	510	-	-
Central Cooling Coil	Outlet	66.3	0.00206	1290	510	0	0
Central Heating Coil	Outlet	79.3	0.00206	1290	510	18035	-
Supply Fan	Outlet	79.3	0.00206	1290	510	0	-
Cold Supply Duct	Outlet	79.3	0.00206	1290	510	-	-
Zone Air	-	69.2	0.00206	1290	520	-13989	0
Return Plenum	Outlet	69.2	0.00206	1290	520	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.079 BTU/(hr-CFM-F)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4740.4 BTU/(hr-CFM)

Site Altitude = 36.0 ft

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (BTU/hr)	T-stat Mode	Zone Cond (BTU/hr)	Zone Temp (°F)	Zone Airflow (CFM)	CO2 Level (ppm)	Terminal Heating Coil (BTU/hr)	Zone Heating Unit (BTU/hr)
Zone 1	-15008	Heating	-13989	69.2	1290	520	0	0

System Psychrometrics for HVAC

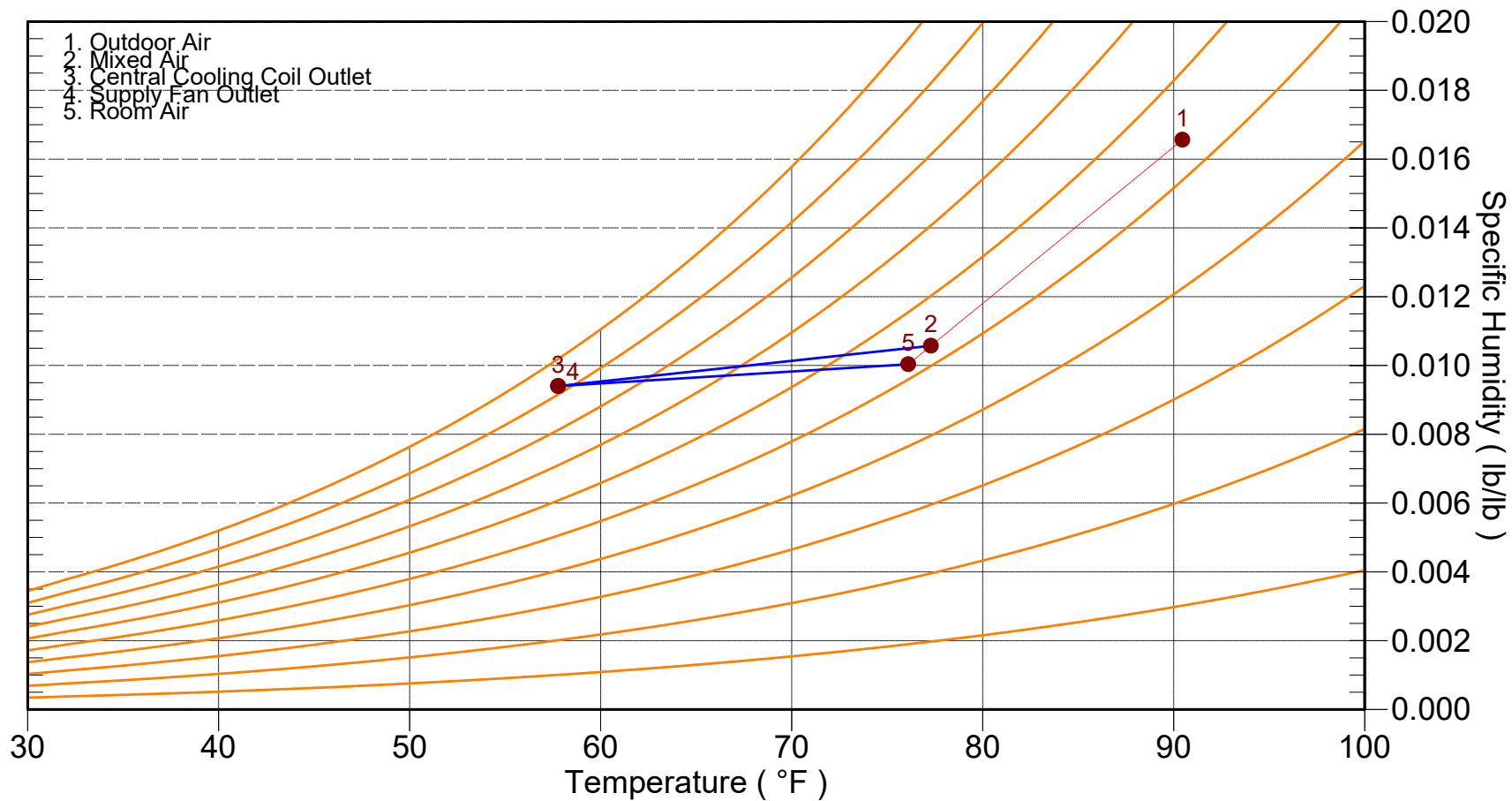
Project Name: 108
Prepared by: E Lab

10/27/2024
10:58PM

Location: Daytona Beach, Florida

Altitude: 36.0 ft.

Data for: July DESIGN COOLING DAY, 1700



System Psychrometrics for HVAC

Project Name: 108
Prepared by: E Lab

10/27/2024
10:58PM

Location: Daytona Beach, Florida
Altitude: 36.0 ft.
Data for: WINTER DESIGN HEATING

