Air System Sizing Summary for HVAC

Project Name: 93_tedntmt
Prepared by: D Lab

08/24/2024
07:42PM

Air System Information

Air System Name	**HVAC**		Number of zones	**1**	
Equipment Class	**SPLT AHU**		Floor Area	**1584.6**	ft²
Air System Type	**SZCAV**		Location	**BRIGANTINE, New Jersey**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**		Zone CFM Sizing	**Sum of space airflow rates**	
Sizing Data	**Calculated**		Space CFM Sizing	**Individual peak space loads**	

Central Cooling Coil Sizing Data

Total coil load	**5.0**	Tons	Load occurs at	**Aug 1400**	
Total coil load	**60.2**	MBH	OA DB / WB	**90.5 / 73.9**	°F
Sensible coil load	**52.9**	MBH	Entering DB / WB	**77.0 / 64.9**	°F
Coil CFM at Aug 1400	**2743**	CFM	Leaving DB / WB	**59.1 / 57.7**	°F
Max block CFM	**2743**	CFM	Coil ADP	**56.6**	°F
Sum of peak zone CFM	**2743**	CFM	Bypass Factor	**0.120**	
Sensible heat ratio	**0.880**		Resulting RH	**53**	%
CFM/Ton	**547.0**		Design supply temp.	**55.0**	°F
ft²/Ton	**316.0**		Zone T-stat Check	**1 of 1**	OK
BTU/(hr·ft²)	**38.0**		Max zone temperature deviation	**0.0**	°F
Water flow @ 10.0 °F rise	**N/A**				

Central Heating Coil Sizing Data

Max coil load	**57.5**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**2743**	CFM	BTU/(hr·ft²)	**36.3**	
Max coil CFM	**2743**	CFM	Ent. DB / Lvg DB	**65.7 / 85.1**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**2743**	CFM	Fan motor BHP	**0.00**	BHP
Standard CFM	**2737**	CFM	Fan motor kW	**0.00**	kW
Actual max CFM/ft²	**1.73**	CFM/ft²	Fan static	**0.00**	in wg

Outdoor Ventilation Air Data

Design airflow CFM	**156**	CFM	CFM/person	**7.78**	CFM/person
CFM/ft²	**0.10**	CFM/ft²			

Zone Sizing Summary for HVAC

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Air System Information

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

Number of zones **1**
Floor Area ..... **1584.6** ft²
Location ..... **BRIGANTINE, New Jersey**

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**

Zone Terminal Sizing Data

Zone Name	Design Supply Airflow (CFM)	Minimum Supply Airflow (CFM)	Zone CFM/ft²	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	2743	2743	1.73	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 (ft²)
Zone 1	54.4	Aug 1400	49.6	1584.6

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 (ft²)	Space CFM/ft²
Zone 1							
Existing Dining	1	3.9	Jul 1400	179	4.5	112.2	1.60
New Bath	1	1.9	Jul 1800	88	2.3	55.0	1.60
New Bedroom	1	4.1	Jul 1700	192	4.1	143.0	1.34
New Bedroom #4	1	5.6	Sep 1400	260	4.4	162.5	1.60
New Great Room	1	12.6	Sep 1400	587	9.0	361.0	1.63
New Kitchen	1	6.0	Jul 0900	277	3.8	100.1	2.77
New Owner's Bath	1	2.4	Jul 1700	114	2.8	88.0	1.29
New Owner's Suite	1	8.6	Sep 1400	401	6.1	203.0	1.98
New P.R.	1	1.6	Jul 1900	72	1.9	45.8	1.58
New Pant	1	1.9	Jul 1700	95	2.6	70.8	1.34
New Study	1	8.1	Jul 1700	374	5.5	183.2	2.04
W.I.C.	1	1.9	Jul 1600	104	2.8	60.0	1.73

Ventilation Sizing Summary for HVAC

Project Name: 93_tedntmt
Prepared by: D Lab

08/24/2024
07:42PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**
Design Ventilation Airflow Rate ..... **156** 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									
Existing Dining	1	112.2	2.0	179.0	7.50	0.18	0.0	0.0	35.2
New Bath	1	55.0	1.0	88.0	0.00	0.00	0.0	0.0	0.0
New Bedroom	1	143.0	2.0	191.8	5.00	0.06	0.0	0.0	18.6
New Bedroom #4	1	162.5	2.0	259.8	5.00	0.06	0.0	0.0	19.8
New Great Room	1	361.0	3.0	586.8	5.00	0.06	0.0	0.0	36.7
New Kitchen	1	100.1	1.0	277.3	7.50	0.12	0.0	0.0	19.5
New Owner's Bath	1	88.0	1.0	113.6	0.00	0.00	0.0	0.0	0.0
New Owner's Suite	1	203.0	3.0	401.3	0.00	0.00	0.0	0.0	0.0
New P.R.	1	45.8	1.0	72.1	0.00	0.00	0.0	0.0	0.0
New Pant	1	70.8	1.0	95.2	0.00	0.00	0.0	0.0	0.0
New Study	1	183.2	2.0	374.5	7.50	0.06	0.0	0.0	26.0
W.I.C.	1	60.0	1.0	104.0	0.00	0.00	0.0	0.0	0.0
Totals (incl. Space Multipliers)				**2743.3**					**155.7**

Air System Design Load Summary for HVAC

Project Name: 93_tedntmt
Prepared by: D Lab

08/24/2024
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	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1400 COOLING OA DB / WB 90.5 °F / 73.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F		
ZONE LOADS	**Details**	**Sensible (BTU/hr)**	**Latent (BTU/hr)**	**Details**	**Sensible (BTU/hr)**	**Latent (BTU/hr)**
Window & Skylight Solar Loads	342 ft²	14916	-	342 ft²	-	-
Wall Transmission	4632 ft²	6965	-	4632 ft²	26165	-
Roof Transmission	1585 ft²	2772	-	1585 ft²	3079	-
Window Transmission	342 ft²	2448	-	342 ft²	12468	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	426 ft²	1556	-	426 ft²	7924	-
Floor Transmission	873 ft²	0	-	873 ft²	0	-
Partitions	3113 ft²	0	-	3113 ft²	0	-
Ceiling	873 ft²	0	-	873 ft²	0	-
Overhead Lighting	1585 W	5205	-	0	0	-
Task Lighting	1585 W	5295	-	0	0	-
Electric Equipment	1110 W	3533	-	0	0	-
People	20	4645	4100	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	7100	205	0%	0	0
>> Total Zone Loads	**-**	**54435**	**4305**	**-**	**49636**	**0**
Zone Conditioning	-	50552	4305	-	47286	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	2743 CFM	0	-	2743 CFM	0	-
Ventilation Load	156 CFM	2393	2929	156 CFM	10255	0
Supply Fan Load	2743 CFM	0	-	2743 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**52945**	**7234**	**-**	**57541**	**0**
Central Cooling Coil	-	52945	7237	-	0	0
Central Heating Coil	-	0	-	-	57541	-
>> Total Conditioning	**-**	**52945**	**7237**	**-**	**57541**	**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

Project Name: 93_tedntmt
Prepared by: D Lab

08/24/2024
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Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1400 COOLING OA DB / WB 90.5 °F / 73.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °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	342 ft²	14916	-	342 ft²	-	-
Wall Transmission	4632 ft²	6965	-	4632 ft²	26165	-
Roof Transmission	1585 ft²	2772	-	1585 ft²	3079	-
Window Transmission	342 ft²	2448	-	342 ft²	12468	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	426 ft²	1556	-	426 ft²	7924	-
Floor Transmission	873 ft²	0	-	873 ft²	0	-
Partitions	3113 ft²	0	-	3113 ft²	0	-
Ceiling	873 ft²	0	-	873 ft²	0	-
Overhead Lighting	1585 W	5205	-	0	0	-
Task Lighting	1585 W	5295	-	0	0	-
Electric Equipment	1110 W	3533	-	0	0	-
People	20	4645	4100	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	7100	205	0%	0	0
>> Total Zone Loads	**-**	**54435**	**4305**	**-**	**49636**	**0**

TABLE 1.1.A. Component Loads For Space "Existing Dining" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1400 COOLING OA DB / WB 90.5 °F / 73.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	20 ft²	968	-	20 ft²	-	-
Wall Transmission	351 ft²	506	-	351 ft²	1980	-
Roof Transmission	112 ft²	212	-	112 ft²	218	-
Window Transmission	20 ft²	143	-	20 ft²	729	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	84 ft²	307	-	84 ft²	1562	-
Floor Transmission	112 ft²	0	-	112 ft²	0	-
Partitions	227 ft²	0	-	227 ft²	0	-
Ceiling	112 ft²	0	-	112 ft²	0	-
Overhead Lighting	112 W	276	-	0	0	-
Task Lighting	112 W	324	-	0	0	-
Electric Equipment	100 W	299	-	0	0	-
People	2	320	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	503	21	0%	0	0
>> Total Zone Loads	**-**	**3857**	**431**	**-**	**4490**	**0**

TABLE 1.1.B. Envelope Loads For Space "Existing Dining" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	107	0.091	-	112	-	603
DOOR	48	0.300	-	175	-	893
S EXPOSURE						
WALL	137	0.091	-	187	-	773
DOOR	18	0.300	-	66	-	335
E EXPOSURE						
WALL	53	0.091	-	115	-	297
WINDOW 1	20	0.588	0.811	143	968	729
W EXPOSURE						
WALL	55	0.091	-	92	-	308
DOOR	18	0.300	-	66	-	335
H EXPOSURE						
ROOF	112	0.031	-	212	-	218

TABLE 1.2.A. Component Loads For Space "New Bath" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 87.2 °F / 73.0 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	4 ft²	81	-	4 ft²	-	-
Wall Transmission	298 ft²	596	-	298 ft²	1683	-
Roof Transmission	55 ft²	98	-	55 ft²	107	-
Window Transmission	4 ft²	25	-	4 ft²	146	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	18 ft²	58	-	18 ft²	335	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	270 ft²	0	-	270 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	55 W	188	-	0	0	-
Task Lighting	55 W	188	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	1	245	205	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	247	10	0%	0	0
>> Total Zone Loads	**-**	**1897**	**215**	**-**	**2271**	**0**

TABLE 1.2.B. Envelope Loads For Space "New Bath" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	46	0.091	-	55	-	260
WINDOW 1	4	0.588	0.811	25	81	146
S EXPOSURE						
WALL	32	0.091	-	56	-	181
DOOR	18	0.300	-	58	-	335
E EXPOSURE						
WALL	110	0.091	-	269	-	621
W EXPOSURE						
WALL	110	0.091	-	215	-	621
H EXPOSURE						
ROOF	55	0.031	-	98	-	107

TABLE 1.3.A. Component Loads For Space "New Bedroom" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700 COOLING OA DB / WB 89.2 °F / 73.5 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	30 ft²	638	-	30 ft²	-	-
Wall Transmission	432 ft²	765	-	432 ft²	2440	-
Roof Transmission	143 ft²	279	-	143 ft²	278	-
Window Transmission	30 ft²	210	-	30 ft²	1094	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	18 ft²	64	-	18 ft²	335	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	240 ft²	0	-	240 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	143 W	488	-	0	0	-
Task Lighting	143 W	488	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	539	21	0%	0	0
>> Total Zone Loads	**-**	**4133**	**431**	**-**	**4146**	**0**

TABLE 1.3.B. Envelope Loads For Space "New Bedroom" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	100	0.091	-	115	-	565
WINDOW 1	30	0.588	0.811	210	638	1094
S EXPOSURE						
WALL	112	0.091	-	186	-	633
DOOR	18	0.300	-	64	-	335
E EXPOSURE						
WALL	110	0.091	-	265	-	621
W EXPOSURE						
WALL	110	0.091	-	200	-	621
H EXPOSURE						
ROOF	143	0.031	-	279	-	278

TABLE 1.4.A. Component Loads For Space "New Bedroom #4" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Sep 1400 COOLING OA DB / WB 85.9 °F / 71.2 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	30 ft²	2220	-	30 ft²	-	-
Wall Transmission	462 ft²	483	-	462 ft²	2610	-
Roof Transmission	163 ft²	221	-	163 ft²	316	-
Window Transmission	30 ft²	134	-	30 ft²	1094	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	18 ft²	41	-	18 ft²	335	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	255 ft²	0	-	255 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	163 W	554	-	0	0	-
Task Lighting	163 W	554	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	730	21	0%	0	0
>> Total Zone Loads	**-**	**5598**	**431**	**-**	**4354**	**0**

TABLE 1.4.B. Envelope Loads For Space "New Bedroom #4" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	107	0.091	-	30	-	604
DOOR	18	0.300	-	41	-	335
S EXPOSURE						
WALL	95	0.091	-	155	-	537
WINDOW 1	30	0.588	0.811	134	2220	1094
E EXPOSURE						
WALL	130	0.091	-	179	-	734
W EXPOSURE						
WALL	130	0.091	-	120	-	734
H EXPOSURE						
ROOF	163	0.031	-	221	-	316

TABLE 1.5.A. Component Loads For Space "New Great Room" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Sep 1400 COOLING OA DB / WB 85.9 °F / 71.2 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	90 ft²	5943	-	90 ft²	-	-
Wall Transmission	648 ft²	627	-	648 ft²	3660	-
Roof Transmission	361 ft²	491	-	361 ft²	701	-
Window Transmission	90 ft²	401	-	90 ft²	3281	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	72 ft²	164	-	72 ft²	1339	-
Floor Transmission	361 ft²	0	-	361 ft²	0	-
Partitions	273 ft²	0	-	273 ft²	0	-
Ceiling	361 ft²	0	-	361 ft²	0	-
Overhead Lighting	361 W	1232	-	0	0	-
Task Lighting	361 W	1232	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	3	735	615	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1649	31	0%	0	0
>> Total Zone Loads	**-**	**12644**	**646**	**-**	**8982**	**0**

TABLE 1.5.B. Envelope Loads For Space "New Great Room" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	237	0.091	-	66	-	1336
DOOR	36	0.300	-	82	-	670
S EXPOSURE						
WALL	185	0.091	-	300	-	1042
WINDOW 1	70	0.588	0.811	312	5179	2552
DOOR	18	0.300	-	41	-	335
E EXPOSURE						
WALL	113	0.091	-	155	-	635
WINDOW 1	20	0.588	0.811	89	765	729
W EXPOSURE						
WALL	115	0.091	-	105	-	647
DOOR	18	0.300	-	41	-	335
H EXPOSURE						
ROOF	361	0.031	-	491	-	701

TABLE 1.6.A. Component Loads For Space "New Kitchen" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 0900 COOLING OA DB / WB 78.1 °F / 70.4 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	35 ft²	2395	-	35 ft²	-	-
Wall Transmission	351 ft²	559	-	351 ft²	1981	-
Roof Transmission	100 ft²	56	-	100 ft²	194	-
Window Transmission	35 ft²	67	-	35 ft²	1276	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	18 ft²	18	-	18 ft²	335	-
Floor Transmission	100 ft²	0	-	100 ft²	0	-
Partitions	289 ft²	0	-	289 ft²	0	-
Ceiling	100 ft²	0	-	100 ft²	0	-
Overhead Lighting	100 W	228	-	0	0	-
Task Lighting	100 W	278	-	0	0	-
Electric Equipment	500 W	1452	-	0	0	-
People	1	143	205	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	779	10	0%	0	0
>> Total Zone Loads	**-**	**5976**	**215**	**-**	**3787**	**0**

TABLE 1.6.B. Envelope Loads For Space "New Kitchen" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	88	0.091	-	95	-	494
S EXPOSURE						
WALL	70	0.091	-	97	-	393
DOOR	18	0.300	-	18	-	335
E EXPOSURE						
WALL	79	0.091	-	137	-	448
WINDOW 1	35	0.588	0.811	67	2395	1276
W EXPOSURE						
WALL	114	0.091	-	229	-	646
H EXPOSURE						
ROOF	100	0.031	-	56	-	194

TABLE 1.7.A. Component Loads For Space "New Owner's Bath" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700 COOLING OA DB / WB 89.2 °F / 73.5 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	Details	(BTU/hr)	(BTU/hr)	Details	(BTU/hr)	(BTU/hr)
Window & Skylight Solar Loads	8 ft²	170	-	8 ft²	-	-
Wall Transmission	354 ft²	650	-	354 ft²	2000	-
Roof Transmission	88 ft²	172	-	88 ft²	171	-
Window Transmission	8 ft²	56	-	8 ft²	292	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	18 ft²	64	-	18 ft²	335	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	190 ft²	0	-	190 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	88 W	300	-	0	0	-
Task Lighting	88 W	300	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	1	245	205	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	319	10	0%	0	0
>> Total Zone Loads	-	2448	215	-	2797	0

TABLE 1.7.B. Envelope Loads For Space "New Owner's Bath" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	72	0.091	-	83	-	407
WINDOW 1	8	0.588	0.811	56	170	292
S EXPOSURE						
WALL	62	0.091	-	103	-	350
DOOR	18	0.300	-	64	-	335
E EXPOSURE						
WALL	110	0.091	-	265	-	621
W EXPOSURE						
WALL	110	0.091	-	200	-	621
H EXPOSURE						
ROOF	88	0.031	-	172	-	171

TABLE 1.8.A. Component Loads For Space "New Owner's Suite" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Sep 1400 COOLING OA DB / WB 85.9 °F / 71.2 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	65 ft²	4094	-	65 ft²	-	-
Wall Transmission	469 ft²	487	-	469 ft²	2649	-
Roof Transmission	203 ft²	276	-	203 ft²	394	-
Window Transmission	65 ft²	289	-	65 ft²	2370	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	36 ft²	82	-	36 ft²	670	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	283 ft²	0	-	283 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	203 W	693	-	0	0	-
Task Lighting	203 W	693	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	3	735	615	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1128	31	0%	0	0
>> Total Zone Loads	**-**	**8647**	**646**	**-**	**6083**	**0**

TABLE 1.8.B. Envelope Loads For Space "New Owner's Suite" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	109	0.091	-	31	-	616
DOOR	36	0.300	-	82	-	670
S EXPOSURE						
WALL	100	0.091	-	163	-	565
WINDOW 1	45	0.588	0.811	200	3329	1641
E EXPOSURE						
WALL	120	0.091	-	165	-	678
WINDOW 1	20	0.588	0.811	89	765	729
W EXPOSURE						
WALL	140	0.091	-	129	-	791
H EXPOSURE						
ROOF	203	0.031	-	276	-	394

TABLE 1.9.A. Component Loads For Space "New P.R." In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 84.8 °F / 72.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	255 ft²	504	-	255 ft²	1438	-
Roof Transmission	46 ft²	70	-	46 ft²	89	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	18 ft²	50	-	18 ft²	335	-
Floor Transmission	46 ft²	0	-	46 ft²	0	-
Partitions	273 ft²	0	-	273 ft²	0	-
Ceiling	46 ft²	0	-	46 ft²	0	-
Overhead Lighting	46 W	156	-	0	0	-
Task Lighting	46 W	156	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	1	245	205	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	203	10	0%	0	0
>> Total Zone Loads	**-**	**1555**	**215**	**-**	**1862**	**0**

TABLE 1.9.B. Envelope Loads For Space "New P.R." In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	60	0.091	-	75	-	339
S EXPOSURE						
WALL	42	0.091	-	77	-	237
DOOR	18	0.300	-	50	-	335
E EXPOSURE						
WALL	76	0.091	-	189	-	431
W EXPOSURE						
WALL	76	0.091	-	162	-	431
H EXPOSURE						
ROOF	46	0.031	-	70	-	89

TABLE 1.10.A. Component Loads For Space "New Pant" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700 COOLING OA DB / WB 89.2 °F / 73.5 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	311 ft²	527	-	311 ft²	1757	-
Roof Transmission	71 ft²	138	-	71 ft²	138	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	36 ft²	129	-	36 ft²	670	-
Floor Transmission	71 ft²	0	-	71 ft²	0	-
Partitions	281 ft²	0	-	281 ft²	0	-
Ceiling	71 ft²	0	-	71 ft²	0	-
Overhead Lighting	71 W	242	-	0	0	-
Task Lighting	71 W	242	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	1	245	205	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	254	10	0%	0	0
>> Total Zone Loads	**-**	**1947**	**215**	**-**	**2564**	**0**

TABLE 1.10.B. Envelope Loads For Space "New Pant" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	90	0.091	-	103	-	506
DOOR	18	0.300	-	64	-	335
S EXPOSURE						
WALL	108	0.091	-	178	-	607
E EXPOSURE						
WALL	66	0.091	-	159	-	373
W EXPOSURE						
WALL	48	0.091	-	87	-	271
DOOR	18	0.300	-	64	-	335
H EXPOSURE						
ROOF	71	0.031	-	138	-	138

TABLE 1.11.A. Component Loads For Space "New Study" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1700 COOLING OA DB / WB 89.2 °F / 73.5 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	60 ft²	3433	-	60 ft²	-	-
Wall Transmission	464 ft²	830	-	464 ft²	2623	-
Roof Transmission	183 ft²	357	-	183 ft²	356	-
Window Transmission	60 ft²	421	-	60 ft²	2187	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	18 ft²	64	-	18 ft²	335	-
Floor Transmission	183 ft²	0	-	183 ft²	0	-
Partitions	297 ft²	0	-	297 ft²	0	-
Ceiling	183 ft²	0	-	183 ft²	0	-
Overhead Lighting	183 W	625	-	0	0	-
Task Lighting	183 W	625	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1053	21	0%	0	0
>> Total Zone Loads	**-**	**8070**	**431**	**-**	**5501**	**0**

TABLE 1.11.B. Envelope Loads For Space "New Study" In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	87	0.091	-	101	-	493
WINDOW 1	20	0.588	0.811	140	425	729
S EXPOSURE						
WALL	160	0.091	-	265	-	904
E EXPOSURE						
WALL	120	0.091	-	288	-	675
DOOR	18	0.300	-	64	-	335
W EXPOSURE						
WALL	98	0.091	-	177	-	551
WINDOW 1	40	0.588	0.811	280	3008	1458
H EXPOSURE						
ROOF	183	0.031	-	357	-	356

TABLE 1.12.A. Component Loads For Space "W.I.C." In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1600 COOLING OA DB / WB 90.5 °F / 73.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 8.0 °F / 5.9 °F OCCUPIED T-STAT 70.0 °F		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	**Details**	**(BTU/hr)**	**(BTU/hr)**	**Details**	**(BTU/hr)**	**(BTU/hr)**
Window & Skylight Solar Loads	0 ft²	0	-	0 ft²	-	-
Wall Transmission	238 ft²	409	-	238 ft²	1344	-
Roof Transmission	60 ft²	122	-	60 ft²	117	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	72 ft²	272	-	72 ft²	1339	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	235 ft²	0	-	235 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	60 W	205	-	0	0	-
Task Lighting	60 W	205	-	0	0	-
Electric Equipment	60 W	205	-	0	0	-
People	1	245	205	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	249	10	0%	0	0
>> Total Zone Loads	**-**	**1911**	**215**	**-**	**2800**	**0**

TABLE 1.12.B. Envelope Loads For Space "W.I.C." In Zone "Zone 1"						
				COOLING	COOLING	HEATING
	Area	U-Value	Shade	TRANS	SOLAR	TRANS
	(ft²)	(BTU/(hr·ft²·°F))	Coeff.	(BTU/hr)	(BTU/hr)	(BTU/hr)
N EXPOSURE						
WALL	62	0.091	-	69	-	350
DOOR	18	0.300	-	68	-	335
S EXPOSURE						
WALL	62	0.091	-	96	-	350
DOOR	18	0.300	-	68	-	335
E EXPOSURE						
WALL	75	0.091	-	176	-	424
W EXPOSURE						
WALL	39	0.091	-	67	-	220
DOOR	36	0.300	-	136	-	670
H EXPOSURE						
ROOF	60	0.031	-	122	-	117

August DESIGN COOLING DAY, 1400

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	0.01417	156	400	2393	2929
Vent - Return Mixing	Outlet	77.0	0.01042	2743	1526	-	-
Central Cooling Coil	Outlet	59.1	0.00986	2743	1526	52945	7237
Central Heating Coil	Outlet	59.1	0.00986	2743	1526	0	-
Supply Fan	Outlet	59.1	0.00986	2743	1526	0	-
Cold Supply Duct	Outlet	59.1	0.00986	2743	1526	-	-
Zone Air	-	76.2	0.01019	2743	1594	50552	4305
Return Plenum	Outlet	76.2	0.01019	2743	1594	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.077 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4735.3 BTU/(hr-CFM)
Site Altitude = 66.0 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	54435	Cooling	50552	76.2	2743	1594	0	0

WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

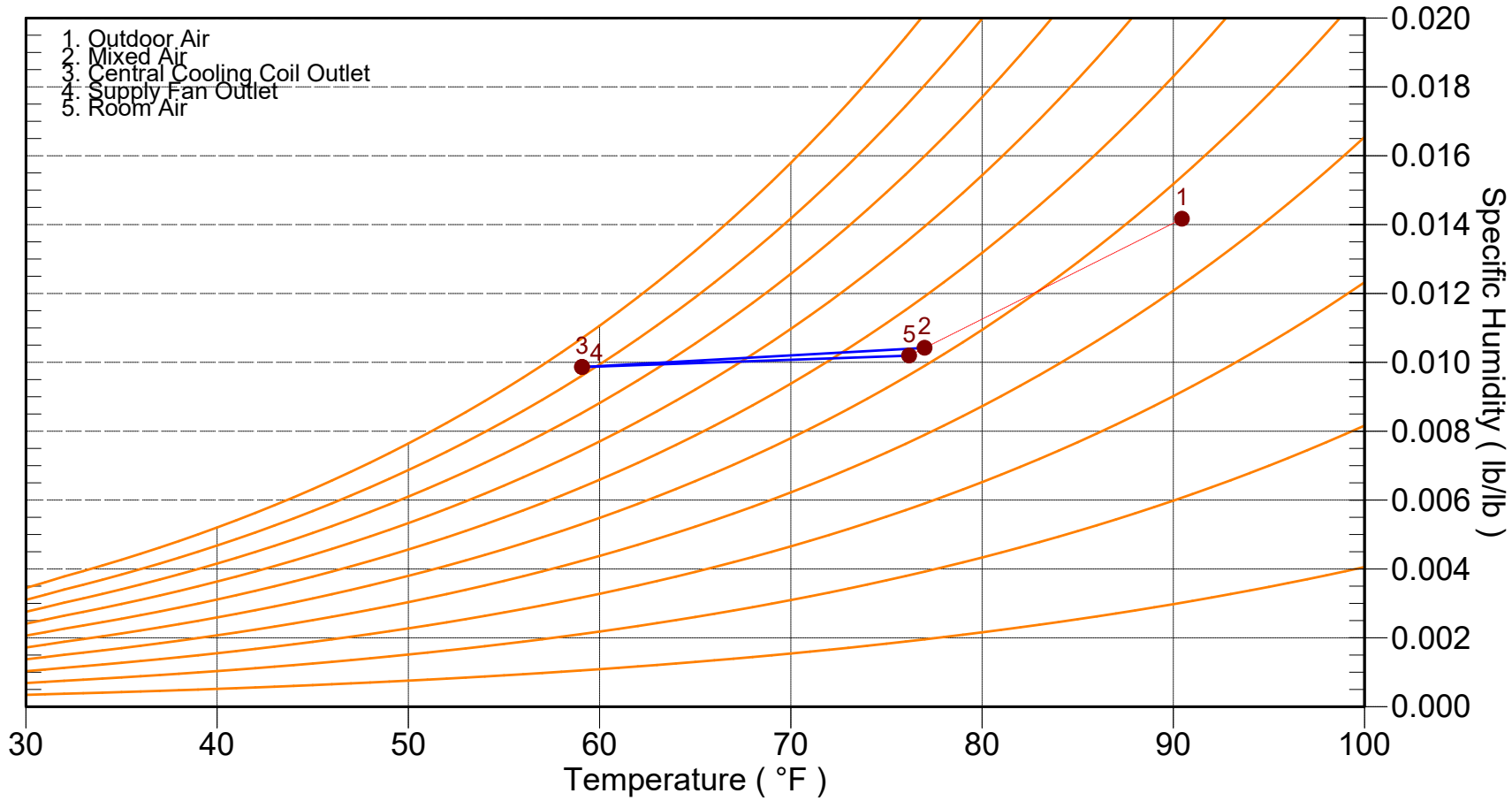
Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	8.0	0.00061	156	400	-10255	0
Vent - Return Mixing	Outlet	65.7	0.00061	2743	557	-	-
Central Cooling Coil	Outlet	65.7	0.00061	2743	557	0	0
Central Heating Coil	Outlet	85.1	0.00061	2743	557	57541	-
Supply Fan	Outlet	85.1	0.00061	2743	557	0	-
Cold Supply Duct	Outlet	85.1	0.00061	2743	557	-	-
Zone Air	-	69.1	0.00061	2743	567	-47286	0
Return Plenum	Outlet	69.1	0.00061	2743	567	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.077 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4735.3 BTU/(hr-CFM)
Site Altitude = 66.0 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	-49636	Heating	-47286	69.1	2743	567	0	0

Location: BRIGANTINE, New Jersey
Altitude: 66.0 ft.
Data for: August DESIGN COOLING DAY, 1400



Location: BRIGANTINE, New Jersey
Altitude: 66.0 ft.
Data for: WINTER DESIGN HEATING