Air System Sizing Summary for AHU CU-401

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Air System Information

Air System Name	**AHU CU-401**		Number of zones	**1**	
Equipment Class	**SPLT AHU**		Floor Area	**818.0**	ft²
Air System Type	**SZCAV**		Location	**Cole Bay, Sint Maart**	

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	**2.3**	Tons	Load occurs at	**Jul 1500**	
Total coil load	**28.2**	MBH	OA DB / WB	**92.0 / 77.0**	°F
Sensible coil load	**19.4**	MBH	Entering DB / WB	**79.1 / 67.0**	°F
Coil CFM at Jul 1500	**812**	CFM	Leaving DB / WB	**56.9 / 55.6**	°F
Max block CFM	**812**	CFM	Coil ADP	**53.9**	°F
Sum of peak zone CFM	**812**	CFM	Bypass Factor	**0.120**	
Sensible heat ratio	**0.689**		Resulting RH	**53**	%
CFM/Ton	**345.9**		Design supply temp.	**55.0**	°F
ft²/Ton	**348.4**		Zone T-stat Check	**1 of 1**	OK
BTU/(hr·ft²)	**34.4**		Max zone temperature deviation	**0.0**	°F
Water flow @ 10.0 °F rise	**N/A**				

Central Heating Coil Sizing Data

Max coil load	**0.2**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**812**	CFM	BTU/(hr·ft²)	**0.2**	
Max coil CFM	**812**	CFM	Ent. DB / Lvg DB	**69.8 / 70.0**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**812**	CFM	Fan motor BHP	**0.00**	BHP
Standard CFM	**810**	CFM	Fan motor kW	**0.00**	kW
Actual max CFM/ft²	**0.99**	CFM/ft²	Fan static	**0.00**	in wg

Outdoor Ventilation Air Data

Design airflow CFM	**149**	CFM	CFM/person	**7.45**	CFM/person
CFM/ft²	**0.18**	CFM/ft²			

Zone Sizing Summary for AHU CU-401

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Prepared by: EngrTeam

03/25/2025
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Air System Information

Air System Name ..... **AHU CU-401**
Equipment Class ..... **SPLT AHU**
Air System Type ..... **SZCAV**

Number of zones **1**
Floor Area ..... **818.0** ft²
Location ..... **Cole Bay, Sint Maart**

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	812	812	0.99	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	17.5	Jul 1800	0.1	818.0

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 (ft²)	Space CFM/ft²
Zone 1							
TASTING ROOM	1	9.5	Jul 1800	443	0.1	474.0	0.93
CONFERENCE ROOM-1	1	8.0	Jul 1900	370	0.0	344.0	1.07

Ventilation Sizing Summary for AHU CU-401

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**
Design Ventilation Airflow Rate ..... **149** 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									
TASTING ROOM	1	474.0	10.0	442.5	5.00	0.06	0.0	0.0	78.4
CONFERENCE ROOM-1	1	344.0	10.0	369.6	5.00	0.06	0.0	0.0	70.6
Totals (incl. Space Multipliers)				**812.1**					**149.1**

Air System Design Load Summary for AHU CU-401

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 92.0 °F / 77.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °F		
ZONE 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	1451 ft²	1872	-	1451 ft²	86	-
Roof Transmission	818 ft²	948	-	818 ft²	21	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	126 ft²	199	-	126 ft²	13	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	788 ft²	0	-	788 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	818 W	2791	-	0	0	-
Task Lighting	818 W	2791	-	0	0	-
Electric Equipment	400 W	1365	-	0	0	-
People	20	4900	4100	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	2230	205	0%	0	0
>> Total Zone Loads	**-**	**17096**	**4305**	**-**	**121**	**0**
Zone Conditioning	-	16858	4305	-	28	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	812 CFM	0	-	812 CFM	0	-
Ventilation Load	149 CFM	2547	4463	149 CFM	156	0
Supply Fan Load	812 CFM	0	-	812 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**19405**	**8768**	**-**	**185**	**0**
Central Cooling Coil	-	19405	8770	-	0	0
Central Heating Coil	-	0	-	-	185	-
>> Total Conditioning	**-**	**19405**	**8770**	**-**	**185**	**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 AHU CU-401

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 89.4 °F / 76.3 °F			HEATING OA DB / WB 69.0 °F / 57.6 °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	0 ft²	0	-	0 ft²	-	-
Wall Transmission	1451 ft²	2201	-	1451 ft²	86	-
Roof Transmission	818 ft²	983	-	818 ft²	21	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	126 ft²	181	-	126 ft²	13	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	788 ft²	0	-	788 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	818 W	2791	-	0	0	-
Task Lighting	818 W	2791	-	0	0	-
Electric Equipment	400 W	1365	-	0	0	-
People	20	4900	4100	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	2282	205	0%	0	0
>> Total Zone Loads	**-**	**17492**	**4305**	**-**	**121**	**0**

TABLE 1.1.A. Component Loads For Space "TASTING ROOM" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	790 ft²	1182	-	790 ft²	47	-
Roof Transmission	474 ft²	569	-	474 ft²	12	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	84 ft²	175	-	84 ft²	13	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	437 ft²	0	-	437 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	474 W	1617	-	0	0	-
Task Lighting	474 W	1617	-	0	0	-
Electric Equipment	200 W	682	-	0	0	-
People	10	2450	2050	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1244	103	0%	0	0
>> Total Zone Loads	**-**	**9537**	**2153**	**-**	**72**	**0**

TABLE 1.1.B. Envelope Loads For Space "TASTING 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	273	0.060	-	412	-	16
DOOR	42	0.010	-	6	-	0
S EXPOSURE						
WALL	294	0.060	-	336	-	18
DOOR	21	0.300	-	85	-	6
E EXPOSURE						
WALL	122	0.060	-	238	-	7
W EXPOSURE						
WALL	101	0.060	-	195	-	6
DOOR	21	0.300	-	85	-	6
H EXPOSURE						
ROOF	474	0.026	-	569	-	12

TABLE 1.2.A. Component Loads For Space "CONFERENCE ROOM-1" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	661 ft²	1061	-	661 ft²	39	-
Roof Transmission	344 ft²	380	-	344 ft²	9	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	5	-	42 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	351 ft²	0	-	351 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	344 W	1174	-	0	0	-
Task Lighting	344 W	1174	-	0	0	-
Electric Equipment	200 W	682	-	0	0	-
People	10	2450	2050	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1039	103	0%	0	0
>> Total Zone Loads	**-**	**7964**	**2153**	**-**	**49**	**0**

TABLE 1.2.B. Envelope Loads For Space "CONFERENCE ROOM-1" 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	188	0.060	-	295	-	11
DOOR	42	0.010	-	5	-	0
S EXPOSURE						
WALL	230	0.060	-	269	-	14
E EXPOSURE						
WALL	122	0.060	-	233	-	7
W EXPOSURE						
WALL	122	0.060	-	264	-	7
H EXPOSURE						
ROOF	344	0.026	-	380	-	9

July DESIGN COOLING DAY, 1500

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	92.0	0.01658	149	400	2547	4463
Vent - Return Mixing	Outlet	79.1	0.01142	812	1670	-	-
Central Cooling Coil	Outlet	56.9	0.00914	812	1670	19405	8770
Central Heating Coil	Outlet	56.9	0.00914	812	1670	0	-
Supply Fan	Outlet	56.9	0.00914	812	1670	0	-
Cold Supply Duct	Outlet	56.9	0.00914	812	1670	-	-
Zone Air	-	76.1	0.01026	812	1956	16858	4305
Return Plenum	Outlet	76.1	0.01026	812	1956	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 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	17096	Cooling	16858	76.1	812	1956	0	0

WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

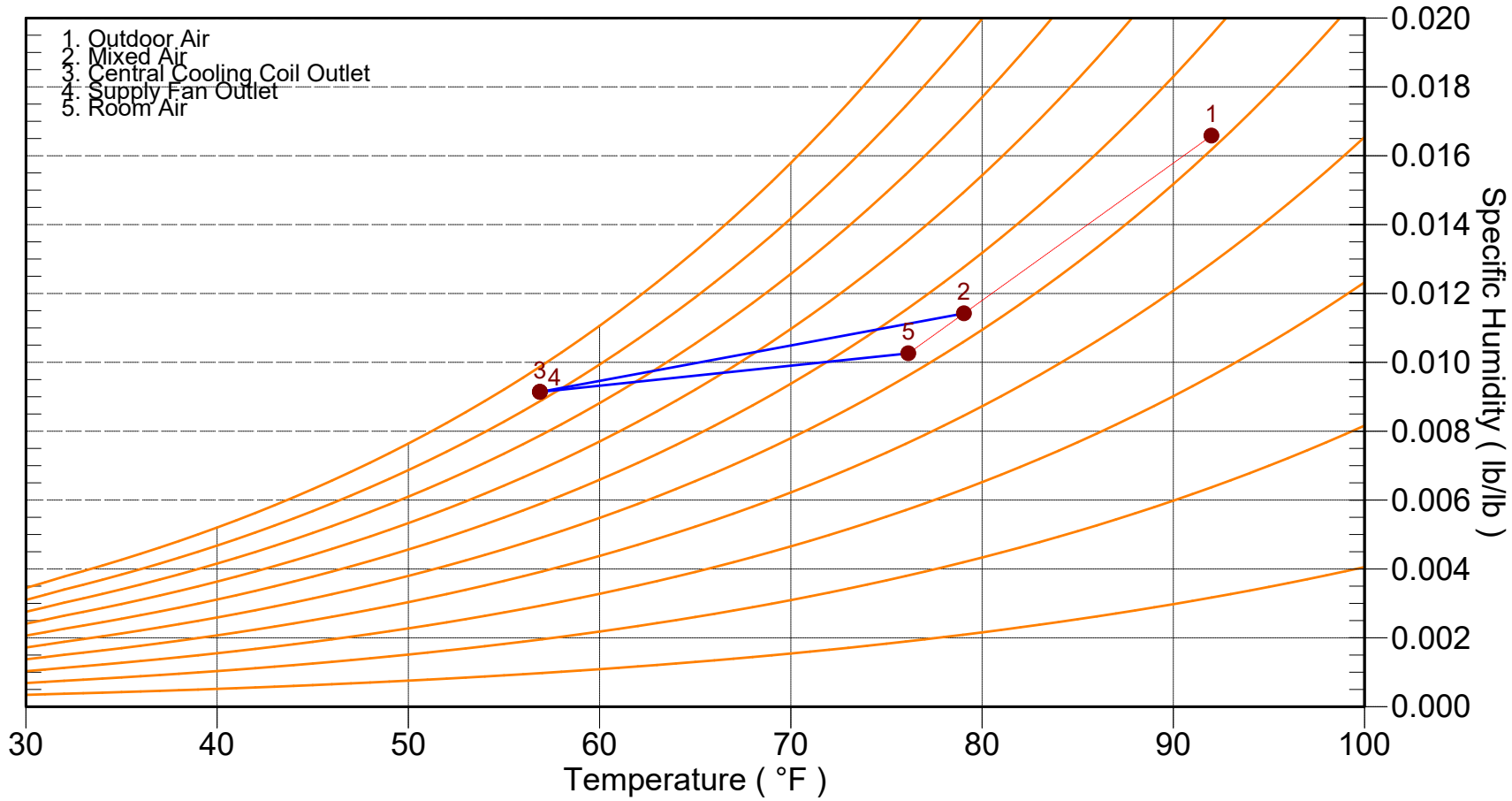
Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Ventilation Air	Inlet	69.0	0.00752	149	400	-156	0
Vent - Return Mixing	Outlet	69.8	0.00752	812	443	-	-
Central Cooling Coil	Outlet	69.8	0.00752	812	443	0	0
Central Heating Coil	Outlet	70.0	0.00752	812	443	185	-
Supply Fan	Outlet	70.0	0.00752	812	443	0	-
Cold Supply Duct	Outlet	70.0	0.00752	812	443	-	-
Zone Air	-	70.0	0.00752	812	453	-28	0
Return Plenum	Outlet	70.0	0.00752	812	453	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

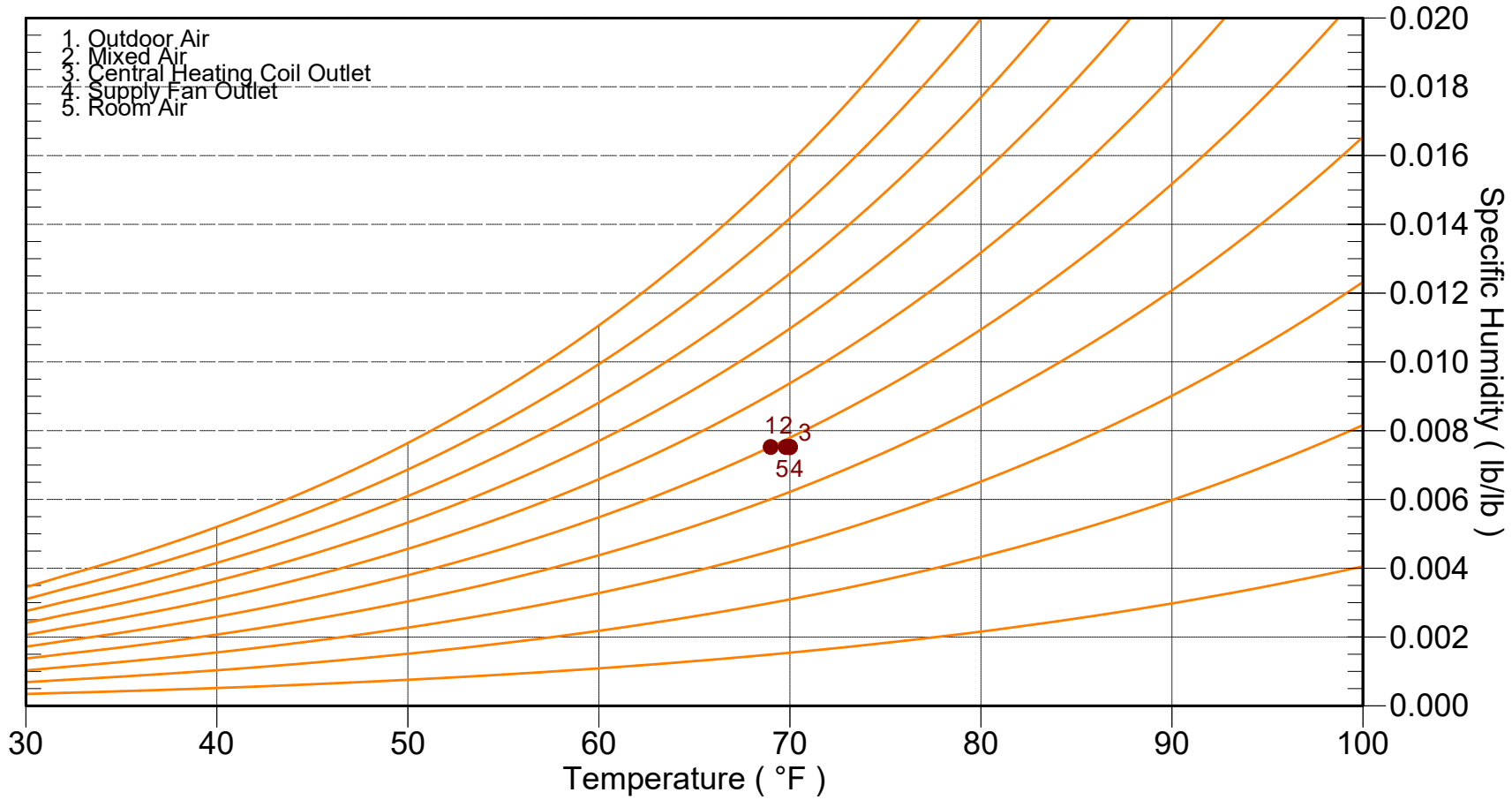
TABLE 2: ZONE DATA

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	-121	Heating	-28	70.0	812	453	0	0

Location: Cole Bay, Sint Maart
Altitude: 62.0 ft.
Data for: July DESIGN COOLING DAY, 1500



Location: Cole Bay, Sint Maart
Altitude: 62.0 ft.
Data for: WINTER DESIGN HEATING



Dedicated Outdoor Air System (DOAS) Sizing Summary for CU-101

Project Name: 155_armando_colon 03/25/2025
Prepared by: EngrTeam 11:49PM

Air System Information

Air System Name **CU-101**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **645.2** ft²
Location ..... **Cole Bay, Sint Maart**

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**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for CU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Air System Information

Air System Name **CU-101**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **645.2** ft²
Location ..... **Cole Bay, Sint Maart**

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**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (°F)	Coil Leaving DB / WB (°F)	Water Flow @ 10.0 °F (gpm)	Time of Peak Coil Load	Zone CFM/ft²
Zone 1	26.9	19.1	78.3 / 66.7	57.7 / 56.5	-	Jul 1600	1.34

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (°F)	Htg Coil Water Flow @20.0 °F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Zone 1	0.3	69.9 / 70.2	-	863	0.000	0.000	120

VRF Outdoor Unit Sizing Data

	Cooling [MBH]	Cooling [Tons]	Heating [MBH]
Peak Coincident Indoor Unit Loads	19.1	1.6	0.3
Estimated Piping / Line Losses	0.0	0.0	0.0
Total Required ODU Capacity	19.1	1.6	0.3

Note: VRF piping / line losses are based on typical loss factors for this class of equipment. Actual line loss varies widely from one product to another. Therefore, when selecting equipment it is critical to consult manufacturer's guidance to utilize actual line loss data.

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	18.6	Jul 1800	0.2	645.2

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							
BREAKROOM	1	4.7	Jul 1900	216	0.0	177.0	1.22
REST ROOM HALLWAY	1	1.7	Jul 1800	79	0.0	45.2	1.75
SHARED SPACE OFFICE	1	7.7	Jul 1900	359	0.1	306.0	1.17
REST ROOM URINAL	1	2.1	Jul 1900	99	0.0	57.4	1.73
REST ROOM W.I.C.-1	1	1.3	Jul 1900	62	0.0	38.5	1.60
REST ROOM W.I.C.-2	1	1.0	Jul 1800	49	0.0	21.1	2.30

Ventilation Sizing Summary for CU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: Zone 1

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									
BREAKROOM	1	177.0	6.0	215.9	5.00	0.12	0.0	0.0	51.2
REST ROOM HALLWAY	1	45.2	2.0	78.9	0.00	0.00	0.0	0.0	0.0
SHARED SPACE OFFICE	1	306.0	10.0	359.1	5.00	0.06	0.0	0.0	68.4
REST ROOM URINAL	1	57.4	3.0	99.5	0.00	0.00	0.0	0.0	0.0
REST ROOM W.I.C.-1	1	38.5	1.0	61.6	0.00	0.00	0.0	0.0	0.0
REST ROOM W.I.C.-2	1	21.1	1.0	48.5	0.00	0.00	0.0	0.0	0.0
Totals (incl. Space Multipliers)				**863.5**					**119.6**

Air System Design Load Summary for CU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1600 COOLING OA DB / WB 91.6 °F / 76.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °F		
ZONE 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	2174 ft²	2916	-	2174 ft²	130	-
Roof Transmission	645 ft²	792	-	645 ft²	17	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	168 ft²	741	-	168 ft²	50	-
Floor Transmission	645 ft²	0	-	645 ft²	0	-
Partitions	1022 ft²	0	-	1022 ft²	0	-
Ceiling	751 ft²	0	-	751 ft²	0	-
Overhead Lighting	645 W	2201	-	0	0	-
Task Lighting	645 W	2201	-	0	0	-
Electric Equipment	460 W	1570	-	0	0	-
People	23	5530	4120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	2393	206	0%	0	0
>> Total Zone Loads	**-**	**18344**	**4326**	**-**	**197**	**0**
Zone Conditioning	-	17129	4326	-	202	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	0 CFM	0	-	0 CFM	0	-
Ventilation Load	120 CFM	1997	3443	120 CFM	129	0
Ventilation Fan Load	0 CFM	0	-	0 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**19125**	**7769**	**-**	**331**	**0**
Terminal Unit Cooling	-	19125	7782	-	0	0
Terminal Unit Heating	-	0	-	-	331	-
>> Total Conditioning	**-**	**19125**	**7782**	**-**	**331**	**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 CU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	0 ft²	0	-	0 ft²	-	-
Wall Transmission	2174 ft²	3219	-	2174 ft²	130	-
Roof Transmission	645 ft²	775	-	645 ft²	17	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	168 ft²	677	-	168 ft²	50	-
Floor Transmission	645 ft²	0	-	645 ft²	0	-
Partitions	1022 ft²	0	-	1022 ft²	0	-
Ceiling	751 ft²	0	-	751 ft²	0	-
Overhead Lighting	645 W	2201	-	0	0	-
Task Lighting	645 W	2201	-	0	0	-
Electric Equipment	460 W	1570	-	0	0	-
People	23	5530	4120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	2426	206	0%	0	0
>> Total Zone Loads	**-**	**18599**	**4326**	**-**	**197**	**0**

TABLE 1.1.A. Component Loads For Space "BREAKROOM" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	483 ft²	754	-	483 ft²	29	-
Roof Transmission	177 ft²	196	-	177 ft²	5	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	78	-	21 ft²	6	-
Floor Transmission	177 ft²	0	-	177 ft²	0	-
Partitions	342 ft²	0	-	342 ft²	0	-
Ceiling	177 ft²	0	-	177 ft²	0	-
Overhead Lighting	177 W	604	-	0	0	-
Task Lighting	177 W	604	-	0	0	-
Electric Equipment	100 W	341	-	0	0	-
People	6	1470	1230	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	607	62	0%	0	0
>> Total Zone Loads	**-**	**4653**	**1292**	**-**	**40**	**0**

TABLE 1.1.B. Envelope Loads For Space "BREAKROOM" 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	171	0.060	-	269	-	10
S EXPOSURE						
WALL	171	0.060	-	200	-	10
E EXPOSURE						
WALL	81	0.060	-	155	-	5
W EXPOSURE						
WALL	60	0.060	-	130	-	4
DOOR	21	0.300	-	78	-	6
H EXPOSURE						
ROOF	177	0.026	-	196	-	5

TABLE 1.2.A. Component Loads For Space "REST ROOM HALLWAY" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	261 ft²	368	-	261 ft²	16	-
Roof Transmission	45 ft²	54	-	45 ft²	1	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	63 ft²	254	-	63 ft²	19	-
Floor Transmission	45 ft²	0	-	45 ft²	0	-
Partitions	162 ft²	0	-	162 ft²	0	-
Ceiling	45 ft²	0	-	45 ft²	0	-
Overhead Lighting	45 W	154	-	0	0	-
Task Lighting	45 W	154	-	0	0	-
Electric Equipment	10 W	34	-	0	0	-
People	2	460	240	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	222	12	0%	0	0
>> Total Zone Loads	**-**	**1701**	**252**	**-**	**36**	**0**

TABLE 1.2.B. Envelope Loads For Space "REST ROOM HALLWAY" 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	126	0.060	-	190	-	8
S EXPOSURE						
WALL	105	0.060	-	120	-	6
DOOR	21	0.300	-	85	-	6
E EXPOSURE						
WALL	15	0.060	-	29	-	1
DOOR	21	0.300	-	85	-	6
W EXPOSURE						
WALL	15	0.060	-	29	-	1
DOOR	21	0.300	-	85	-	6
H EXPOSURE						
ROOF	45	0.026	-	54	-	1

TABLE 1.3.A. Component Loads For Space "SHARED SPACE OFFICE" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	726 ft²	1093	-	726 ft²	43	-
Roof Transmission	306 ft²	338	-	306 ft²	8	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	78	-	21 ft²	6	-
Floor Transmission	306 ft²	0	-	306 ft²	0	-
Partitions	171 ft²	0	-	171 ft²	0	-
Ceiling	306 ft²	0	-	306 ft²	0	-
Overhead Lighting	306 W	1044	-	0	0	-
Task Lighting	306 W	1044	-	0	0	-
Electric Equipment	200 W	682	-	0	0	-
People	10	2450	2050	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1009	103	0%	0	0
>> Total Zone Loads	**-**	**7739**	**2153**	**-**	**57**	**0**

TABLE 1.3.B. Envelope Loads For Space "SHARED SPACE OFFICE" 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	288	0.060	-	453	-	17
S EXPOSURE						
WALL	288	0.060	-	337	-	17
E EXPOSURE						
WALL	86	0.060	-	163	-	5
W EXPOSURE						
WALL	65	0.060	-	140	-	4
DOOR	21	0.300	-	78	-	6
H EXPOSURE						
ROOF	306	0.026	-	338	-	8

TABLE 1.4.A. Component Loads For Space "REST ROOM URINAL" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	304 ft²	470	-	304 ft²	18	-
Roof Transmission	57 ft²	63	-	57 ft²	1	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	78	-	21 ft²	6	-
Floor Transmission	57 ft²	0	-	57 ft²	0	-
Partitions	126 ft²	0	-	126 ft²	0	-
Ceiling	163 ft²	0	-	163 ft²	0	-
Overhead Lighting	57 W	196	-	0	0	-
Task Lighting	57 W	196	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	3	690	360	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	280	18	0%	0	0
>> Total Zone Loads	**-**	**2143**	**378**	**-**	**26**	**0**

TABLE 1.4.B. Envelope Loads For Space "REST ROOM URINAL" 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	111	0.060	-	174	-	7
S EXPOSURE						
WALL	111	0.060	-	130	-	7
E EXPOSURE						
WALL	52	0.060	-	99	-	3
W EXPOSURE						
WALL	31	0.060	-	67	-	2
DOOR	21	0.300	-	78	-	6
H EXPOSURE						
ROOF	57	0.026	-	63	-	1

TABLE 1.5.A. Component Loads For Space "REST ROOM W.I.C.-1" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	231 ft²	369	-	231 ft²	14	-
Roof Transmission	39 ft²	43	-	39 ft²	1	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	78	-	21 ft²	6	-
Floor Transmission	39 ft²	0	-	39 ft²	0	-
Partitions	126 ft²	0	-	126 ft²	0	-
Ceiling	39 ft²	0	-	39 ft²	0	-
Overhead Lighting	39 W	131	-	0	0	-
Task Lighting	39 W	131	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	1	230	120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	173	6	0%	0	0
>> Total Zone Loads	**-**	**1327**	**126**	**-**	**21**	**0**

TABLE 1.5.B. Envelope Loads For Space "REST ROOM W.I.C.-1" 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	74	0.060	-	117	-	4
S EXPOSURE						
WALL	74	0.060	-	87	-	4
E EXPOSURE						
WALL	52	0.060	-	99	-	3
W EXPOSURE						
WALL	31	0.060	-	67	-	2
DOOR	21	0.300	-	78	-	6
H EXPOSURE						
ROOF	39	0.026	-	43	-	1

TABLE 1.6.A. Component Loads For Space "REST ROOM W.I.C.-2" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	168 ft²	255	-	168 ft²	10	-
Roof Transmission	21 ft²	25	-	21 ft²	1	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	85	-	21 ft²	6	-
Floor Transmission	21 ft²	0	-	21 ft²	0	-
Partitions	95 ft²	0	-	95 ft²	0	-
Ceiling	21 ft²	0	-	21 ft²	0	-
Overhead Lighting	21 W	72	-	0	0	-
Task Lighting	21 W	72	-	0	0	-
Electric Equipment	50 W	171	-	0	0	-
People	1	230	120	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	136	6	0%	0	0
>> Total Zone Loads	**-**	**1046**	**126**	**-**	**17**	**0**

TABLE 1.6.B. Envelope Loads For Space "REST ROOM W.I.C.-2" 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	59	0.060	-	89	-	4
S EXPOSURE						
WALL	59	0.060	-	67	-	4
E EXPOSURE						
WALL	36	0.060	-	70	-	2
W EXPOSURE						
WALL	15	0.060	-	29	-	1
DOOR	21	0.300	-	85	-	6
H EXPOSURE						
ROOF	21	0.026	-	25	-	1

July DESIGN COOLING DAY, 1600

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	91.6	0.01658	120	400	1997	3443
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	76.1	0.01050	863	298	17129	4326
Return Plenum	Outlet	0.0	0.01050	863	298	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Cooling)							
Ventilation Air	-	-	-	120	-	-	-
Cooling Coil Inlet	-	78.3	0.01135	863	0	-	-
Cooling Coil Outlet	-	57.7	0.00945	863	0	19125	7782
Heating Coil Inlet	-	57.7	0.00945	863	0	-	-
Heating Coil Outlet	-	57.7	0.00945	863	0	0	-
Zone Air	-	76.1	0.01050	863	0	17129	-

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	69.0	0.00752	120	400	-129	0
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	70.0	0.00752	863	0	-202	0
Return Plenum	Outlet	0.0	0.00752	863	0	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Deadband)							
Ventilation Air	-	-	-	120	-	-	-
Cooling Coil Inlet	-	69.9	0.00752	863	0	-	-
Cooling Coil Outlet	-	69.9	0.00752	863	0	0	0
Heating Coil Inlet	-	69.9	0.00752	863	0	-	-
Heating Coil Outlet	-	70.2	0.00752	863	0	331	-
Zone Air	-	70.0	0.00752	863	0	-202	-

The psychrometric graph cannot be generated for this type of system.

Dedicated Outdoor Air System (DOAS) Sizing Summary for CU-201

Project Name: 155_armando_colon 03/25/2025
Prepared by: EngrTeam 11:49PM

Air System Information

Air System Name **CU-201**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **1790.1** ft²
Location ..... **Cole Bay, Sint Maart**

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**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for CU-201

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Air System Information

Air System Name **CU-201**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **1790.1** ft²
Location ..... **Cole Bay, Sint Maart**

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**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (°F)	Coil Leaving DB / WB (°F)	Water Flow @ 10.0 °F (gpm)	Time of Peak Coil Load	Zone CFM/ft²
Zone 1	50.1	36.4	78.2 / 66.0	56.6 / 55.3	-	Jul 1800	0.88

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (°F)	Htg Coil Water Flow @20.0 °F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Zone 1	0.7	69.9 / 70.3	-	1570	0.000	0.000	244

VRF Outdoor Unit Sizing Data

	Cooling [MBH]	Cooling [Tons]	Heating [MBH]
Peak Coincident Indoor Unit Loads	36.4	3.0	0.7
Estimated Piping / Line Losses	0.0	0.0	0.0
Total Required ODU Capacity	36.4	3.0	0.7

Note: VRF piping / line losses are based on typical loss factors for this class of equipment. Actual line loss varies widely from one product to another. Therefore, when selecting equipment it is critical to consult manufacturer's guidance to utilize actual line loss data.

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	33.8	Jul 1800	0.4	1790.1

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							
HALL WAY-1	2	5.3	Jul 1800	244	0.1	283.0	0.86
W.I.C.-3	1	1.1	Jul 1900	52	0.0	26.0	1.98
MULTI-PURPOSE	1	17.0	Jul 1800	787	0.1	925.0	0.85
Reception Area-1	1	5.2	Jul 1800	243	0.1	273.1	0.89

Ventilation Sizing Summary for CU-201

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: Zone 1

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									
HALL WAY-1	2	283.0	2.0	244.4	5.00	0.06	0.0	0.0	27.0
W.I.C.-3	1	26.0	1.0	51.6	5.00	0.12	0.0	0.0	8.1
MULTI-PURPOSE	1	925.0	20.0	787.2	5.00	0.06	0.0	0.0	155.5
Reception Area-1	1	273.1	2.0	242.5	5.00	0.06	0.0	0.0	26.4
Totals (incl. Space Multipliers)				**1570.1**					**244.0**

Air System Design Load Summary for CU-201

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °F		
ZONE 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	3936 ft²	5695	-	3936 ft²	235	-
Roof Transmission	1790 ft²	2150	-	1790 ft²	46	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	462 ft²	1208	-	462 ft²	90	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	1542 ft²	0	-	1542 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1790 W	6108	-	0	0	-
Task Lighting	1790 W	6108	-	0	0	-
Electric Equipment	450 W	1535	-	0	0	-
People	27	6615	5535	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	4413	277	0%	0	0
>> Total Zone Loads	**-**	**33832**	**5812**	**-**	**371**	**0**
Zone Conditioning	-	32931	5812	-	435	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	0 CFM	0	-	0 CFM	0	-
Ventilation Load	244 CFM	3505	7823	244 CFM	270	0
Ventilation Fan Load	0 CFM	0	-	0 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**36436**	**13635**	**-**	**705**	**0**
Terminal Unit Cooling	-	36436	13661	-	0	0
Terminal Unit Heating	-	0	-	-	705	-
>> Total Conditioning	**-**	**36436**	**13661**	**-**	**705**	**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 CU-201

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	0 ft²	0	-	0 ft²	-	-
Wall Transmission	3936 ft²	5695	-	3936 ft²	235	-
Roof Transmission	1790 ft²	2150	-	1790 ft²	46	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	462 ft²	1208	-	462 ft²	90	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	1542 ft²	0	-	1542 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1790 W	6108	-	0	0	-
Task Lighting	1790 W	6108	-	0	0	-
Electric Equipment	450 W	1535	-	0	0	-
People	27	6615	5535	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	4413	277	0%	0	0
>> Total Zone Loads	**-**	**33832**	**5812**	**-**	**371**	**0**

TABLE 1.1.A. Component Loads For Space "HALL WAY-1" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	962 ft²	1304	-	962 ft²	57	-
Roof Transmission	283 ft²	340	-	283 ft²	7	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	126 ft²	344	-	126 ft²	26	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	499 ft²	0	-	499 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	283 W	966	-	0	0	-
Task Lighting	283 W	966	-	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%	687	21	0%	0	0
>> Total Zone Loads	**-**	**5267**	**431**	**-**	**90**	**0**

TABLE 1.1.B. Envelope Loads For Space "HALL WAY-1" 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	499	0.060	-	754	-	30
S EXPOSURE						
WALL	436	0.060	-	498	-	26
DOOR	63	0.300	-	254	-	19
E EXPOSURE						
WALL	3	0.060	-	6	-	0
DOOR	42	0.010	-	6	-	0
W EXPOSURE						
WALL	24	0.060	-	46	-	1
DOOR	21	0.300	-	85	-	6
H EXPOSURE						
ROOF	283	0.026	-	340	-	7

TABLE 1.2.A. Component Loads For Space "W.I.C.-3" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	159 ft²	267	-	159 ft²	9	-
Roof Transmission	26 ft²	29	-	26 ft²	1	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	78	-	21 ft²	6	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	45 ft²	0	-	45 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	26 W	89	-	0	0	-
Task Lighting	26 W	89	-	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%	145	10	0%	0	0
>> Total Zone Loads	**-**	**1112**	**215**	**-**	**16**	**0**

TABLE 1.2.B. Envelope Loads For Space "W.I.C.-3" 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	45	0.060	-	71	-	3
S EXPOSURE						
WALL	45	0.060	-	53	-	3
E EXPOSURE						
WALL	24	0.060	-	46	-	1
DOOR	21	0.300	-	78	-	6
W EXPOSURE						
WALL	45	0.060	-	97	-	3
H EXPOSURE						
ROOF	26	0.026	-	29	-	1

TABLE 1.3.A. Component Loads For Space "MULTI-PURPOSE" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	1173 ft²	1741	-	1173 ft²	70	-
Roof Transmission	925 ft²	1111	-	925 ft²	24	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	6	-	42 ft²	0	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	925 W	3156	-	0	0	-
Task Lighting	925 W	3156	-	0	0	-
Electric Equipment	200 W	682	-	0	0	-
People	20	4900	4100	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	2213	205	0%	0	0
>> Total Zone Loads	**-**	**16965**	**4305**	**-**	**94**	**0**

TABLE 1.3.B. Envelope Loads For Space "MULTI-PURPOSE" 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	437	0.060	-	659	-	26
S EXPOSURE						
WALL	437	0.060	-	499	-	26
E EXPOSURE						
WALL	171	0.060	-	334	-	10
W EXPOSURE						
WALL	129	0.060	-	249	-	8
DOOR	42	0.010	-	6	-	0
H EXPOSURE						
ROOF	925	0.026	-	1111	-	24

TABLE 1.4.A. Component Loads For Space "Reception Area-1" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	680 ft²	1093	-	680 ft²	41	-
Roof Transmission	273 ft²	328	-	273 ft²	7	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	147 ft²	429	-	147 ft²	32	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	499 ft²	0	-	499 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	273 W	932	-	0	0	-
Task Lighting	273 W	932	-	0	0	-
Electric Equipment	100 W	341	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	682	21	0%	0	0
>> Total Zone Loads	**-**	**5226**	**431**	**-**	**79**	**0**

TABLE 1.4.B. Envelope Loads For Space "Reception Area-1" 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	226	0.060	-	341	-	13
S EXPOSURE						
WALL	163	0.060	-	186	-	10
DOOR	63	0.300	-	254	-	19
E EXPOSURE						
WALL	146	0.060	-	284	-	9
DOOR	42	0.010	-	6	-	0
W EXPOSURE						
WALL	146	0.060	-	281	-	9
DOOR	42	0.300	-	169	-	13
H EXPOSURE						
ROOF	273	0.026	-	328	-	7

July DESIGN COOLING DAY, 1800

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	89.4	0.01658	244	400	3505	7823
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	76.1	0.00981	1570	206	32931	5812
Return Plenum	Outlet	0.0	0.00981	1570	206	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Cooling)							
Ventilation Air	-	-	-	244	-	-	-
Cooling Coil Inlet	-	78.2	0.01087	1570	0	-	-
Cooling Coil Outlet	-	56.6	0.00903	1570	0	36436	13661
Heating Coil Inlet	-	56.6	0.00903	1570	0	-	-
Heating Coil Outlet	-	56.6	0.00903	1570	0	0	-
Zone Air	-	76.1	0.00981	1570	0	32931	-

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	69.0	0.00752	244	400	-270	0
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	70.0	0.00752	1570	0	-435	0
Return Plenum	Outlet	0.0	0.00752	1570	0	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Deadband)							
Ventilation Air	-	-	-	244	-	-	-
Cooling Coil Inlet	-	69.9	0.00752	1570	0	-	-
Cooling Coil Outlet	-	69.9	0.00752	1570	0	0	0
Heating Coil Inlet	-	69.9	0.00752	1570	0	-	-
Heating Coil Outlet	-	70.3	0.00752	1570	0	705	-
Zone Air	-	70.0	0.00752	1570	0	-435	-

System Psychrometrics for CU-201

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
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The psychrometric graph cannot be generated for this type of system.

Dedicated Outdoor Air System (DOAS) Sizing Summary for CU-301

Project Name: 155_armando_colon 03/25/2025
Prepared by: EngrTeam 11:49PM

Air System Information

Air System Name **CU-301**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **1221.9** ft²
Location ..... **Cole Bay, Sint Maart**

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**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Air System Information

Air System Name **CU-301**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **1221.9** ft²
Location ..... **Cole Bay, Sint Maart**

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**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (°F)	Coil Leaving DB / WB (°F)	Water Flow @ 10.0 °F (gpm)	Time of Peak Coil Load	Zone CFM/ft²
Zone 1	37.5	29.3	77.7 / 65.5	57.7 / 56.3	-	Jun 1700	1.11

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (°F)	Htg Coil Water Flow @20.0 °F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Zone 1	0.5	69.9 / 70.3	-	1357	0.000	0.000	151

VRF Outdoor Unit Sizing Data

	Cooling [MBH]	Cooling [Tons]	Heating [MBH]
Peak Coincident Indoor Unit Loads	29.3	2.4	0.5
Estimated Piping / Line Losses	0.0	0.0	0.0
Total Required ODU Capacity	29.3	2.4	0.5

Note: VRF piping / line losses are based on typical loss factors for this class of equipment. Actual line loss varies widely from one product to another. Therefore, when selecting equipment it is critical to consult manufacturer's guidance to utilize actual line loss data.

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	29.0	Jun 1700	0.4	1221.9

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							
CONFERENCE ROOM-2	1	2.4	Jul 1900	112	0.0	82.0	1.36
HALL WAY-2	1	8.5	Jul 1800	393	0.1	582.0	0.67
IT ROOM	1	3.5	Jun 1700	162	0.0	81.0	2.00
JARED's OFFICIE	1	3.5	Jun 1700	162	0.0	81.0	2.00
OFFICE-2	1	3.5	Jun 1700	162	0.0	81.0	2.00
Room	1	2.6	Jul 1900	120	0.0	97.0	1.24
W.I.C.-4	1	1.3	Jul 1900	62	0.0	42.0	1.48
Reception Area-2	1	4.0	Jul 1800	185	0.1	175.9	1.05

Ventilation Sizing Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: Zone 1

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									
CONFERENCE ROOM-2	1	82.0	2.0	111.5	5.00	0.06	0.0	0.0	14.9
HALL WAY-2	1	582.0	2.0	392.8	5.00	0.06	0.0	0.0	44.9
IT ROOM	1	81.0	2.0	161.7	5.00	0.06	0.0	0.0	14.9
JARED's OFFICIE	1	81.0	2.0	161.7	5.00	0.06	0.0	0.0	14.9
OFFICE-2	1	81.0	2.0	161.7	5.00	0.06	0.0	0.0	14.9
Room	1	97.0	2.0	120.4	5.00	0.06	0.0	0.0	15.8
W.I.C.-4	1	42.0	1.0	62.1	5.00	0.12	0.0	0.0	10.0
Reception Area-2	1	175.9	2.0	185.0	5.00	0.06	0.0	0.0	20.6
Totals (incl. Space Multipliers)				**1356.9**					**150.8**

Air System Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700 COOLING OA DB / WB 89.8 °F / 76.7 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	75 ft²	2499	-	75 ft²	-	-
Wall Transmission	3274 ft²	4884	-	3274 ft²	195	-
Roof Transmission	1222 ft²	1492	-	1222 ft²	31	-
Window Transmission	75 ft²	584	-	75 ft²	44	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	420 ft²	1347	-	420 ft²	102	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	2178 ft²	0	-	2178 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1222 W	4169	-	0	0	-
Task Lighting	1222 W	4169	-	0	0	-
Electric Equipment	700 W	2388	-	0	0	-
People	15	3675	3075	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	3781	154	0%	0	0
>> Total Zone Loads	**-**	**28989**	**3229**	**-**	**372**	**0**
Zone Conditioning	-	27081	3229	-	376	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	0 CFM	0	-	0 CFM	0	-
Ventilation Load	151 CFM	2209	4964	151 CFM	163	0
Ventilation Fan Load	0 CFM	0	-	0 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**29290**	**8193**	**-**	**539**	**0**
Terminal Unit Cooling	-	29290	8230	-	0	0
Terminal Unit Heating	-	0	-	-	539	-
>> Total Conditioning	**-**	**29290**	**8230**	**-**	**539**	**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 CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700 COOLING OA DB / WB 89.8 °F / 76.7 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	75 ft²	2499	-	75 ft²	-	-
Wall Transmission	3274 ft²	4884	-	3274 ft²	195	-
Roof Transmission	1222 ft²	1492	-	1222 ft²	31	-
Window Transmission	75 ft²	584	-	75 ft²	44	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	420 ft²	1347	-	420 ft²	102	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	2178 ft²	0	-	2178 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1222 W	4169	-	0	0	-
Task Lighting	1222 W	4169	-	0	0	-
Electric Equipment	700 W	2388	-	0	0	-
People	15	3675	3075	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	3781	154	0%	0	0
>> Total Zone Loads	**-**	**28989**	**3229**	**-**	**372**	**0**

Space Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.1.A. Component Loads For Space "CONFERENCE ROOM-2" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	305 ft²	530	-	305 ft²	18	-
Roof Transmission	82 ft²	91	-	82 ft²	2	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	78	-	21 ft²	6	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	243 ft²	0	-	243 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	82 W	280	-	0	0	-
Task Lighting	82 W	280	-	0	0	-
Electric Equipment	100 W	341	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	314	21	0%	0	0
>> Total Zone Loads	**-**	**2404**	**431**	**-**	**27**	**0**

TABLE 1.1.B. Envelope Loads For Space "CONFERENCE ROOM-2" 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	82	0.060	-	129	-	5
S EXPOSURE						
WALL	61	0.060	-	71	-	4
DOOR	21	0.300	-	78	-	6
E EXPOSURE						
WALL	81	0.060	-	155	-	5
W EXPOSURE						
WALL	81	0.060	-	175	-	5
H EXPOSURE						
ROOF	82	0.026	-	91	-	2

Space Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.2.A. Component Loads For Space "HALL WAY-2" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	1101 ft²	1517	-	1101 ft²	66	-
Roof Transmission	582 ft²	699	-	582 ft²	15	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	168 ft²	514	-	168 ft²	38	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	500 ft²	0	-	500 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	582 W	1986	-	0	0	-
Task Lighting	582 W	1986	-	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%	1104	21	0%	0	0
>> Total Zone Loads	**-**	**8466**	**431**	**-**	**119**	**0**

TABLE 1.2.B. Envelope Loads For Space "HALL WAY-2" 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	423	0.060	-	639	-	25
DOOR	126	0.300	-	508	-	38
S EXPOSURE						
WALL	549	0.060	-	627	-	33
E EXPOSURE						
WALL	86	0.060	-	167	-	5
W EXPOSURE						
WALL	44	0.060	-	84	-	3
DOOR	42	0.010	-	6	-	0
H EXPOSURE						
ROOF	582	0.026	-	699	-	15

Space Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.3.A. Component Loads For Space "IT ROOM" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700 COOLING OA DB / WB 89.8 °F / 76.7 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	25 ft²	833	-	25 ft²	-	-
Wall Transmission	278 ft²	436	-	278 ft²	17	-
Roof Transmission	81 ft²	99	-	81 ft²	2	-
Window Transmission	25 ft²	195	-	25 ft²	15	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	83	-	21 ft²	6	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	243 ft²	0	-	243 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	81 W	276	-	0	0	-
Task Lighting	81 W	276	-	0	0	-
Electric Equipment	100 W	341	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	455	21	0%	0	0
>> Total Zone Loads	**-**	**3485**	**431**	**-**	**40**	**0**

TABLE 1.3.B. Envelope Loads For Space "IT 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	56	0.060	-	86	-	3
WINDOW 1	25	0.588	0.811	195	833	15
S EXPOSURE						
WALL	60	0.060	-	62	-	4
DOOR	21	0.300	-	83	-	6
E EXPOSURE						
WALL	81	0.060	-	156	-	5
W EXPOSURE						
WALL	81	0.060	-	132	-	5
H EXPOSURE						
ROOF	81	0.026	-	99	-	2

Space Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.4.A. Component Loads For Space "JARED's OFFICIE" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700 COOLING OA DB / WB 89.8 °F / 76.7 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	25 ft²	833	-	25 ft²	-	-
Wall Transmission	278 ft²	436	-	278 ft²	17	-
Roof Transmission	81 ft²	99	-	81 ft²	2	-
Window Transmission	25 ft²	195	-	25 ft²	15	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	83	-	21 ft²	6	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	162 ft²	0	-	162 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	81 W	276	-	0	0	-
Task Lighting	81 W	276	-	0	0	-
Electric Equipment	100 W	341	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	455	21	0%	0	0
>> Total Zone Loads	**-**	**3485**	**431**	**-**	**40**	**0**

TABLE 1.4.B. Envelope Loads For Space "JARED's OFFICIE" 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	56	0.060	-	86	-	3
WINDOW 1	25	0.588	0.811	195	833	15
S EXPOSURE						
WALL	60	0.060	-	62	-	4
DOOR	21	0.300	-	83	-	6
E EXPOSURE						
WALL	81	0.060	-	156	-	5
W EXPOSURE						
WALL	81	0.060	-	132	-	5
H EXPOSURE						
ROOF	81	0.026	-	99	-	2

Space Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.5.A. Component Loads For Space "OFFICE-2" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1700 COOLING OA DB / WB 89.8 °F / 76.7 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	25 ft²	833	-	25 ft²	-	-
Wall Transmission	278 ft²	436	-	278 ft²	17	-
Roof Transmission	81 ft²	99	-	81 ft²	2	-
Window Transmission	25 ft²	195	-	25 ft²	15	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	83	-	21 ft²	6	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	243 ft²	0	-	243 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	81 W	276	-	0	0	-
Task Lighting	81 W	276	-	0	0	-
Electric Equipment	100 W	341	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	455	21	0%	0	0
>> Total Zone Loads	**-**	**3485**	**431**	**-**	**40**	**0**

TABLE 1.5.B. Envelope Loads For Space "OFFICE-2" 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	56	0.060	-	86	-	3
WINDOW 1	25	0.588	0.811	195	833	15
S EXPOSURE						
WALL	60	0.060	-	62	-	4
DOOR	21	0.300	-	83	-	6
E EXPOSURE						
WALL	81	0.060	-	156	-	5
W EXPOSURE						
WALL	81	0.060	-	132	-	5
H EXPOSURE						
ROOF	81	0.026	-	99	-	2

Space Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.6.A. Component Loads For Space "Room" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	339 ft²	577	-	339 ft²	20	-
Roof Transmission	97 ft²	107	-	97 ft²	2	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	78	-	21 ft²	6	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	243 ft²	0	-	243 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	97 W	331	-	0	0	-
Task Lighting	97 W	331	-	0	0	-
Electric Equipment	100 W	341	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	338	21	0%	0	0
>> Total Zone Loads	**-**	**2594**	**431**	**-**	**29**	**0**

TABLE 1.6.B. Envelope Loads For Space "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	99	0.060	-	156	-	6
S EXPOSURE						
WALL	78	0.060	-	91	-	5
DOOR	21	0.300	-	78	-	6
E EXPOSURE						
WALL	81	0.060	-	155	-	5
W EXPOSURE						
WALL	81	0.060	-	175	-	5
H EXPOSURE						
ROOF	97	0.026	-	107	-	2

Space Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.7.A. Component Loads For Space "W.I.C.-4" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	186 ft²	337	-	186 ft²	11	-
Roof Transmission	42 ft²	46	-	42 ft²	1	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	21 ft²	78	-	21 ft²	6	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	45 ft²	0	-	45 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	42 W	143	-	0	0	-
Task Lighting	42 W	143	-	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%	175	10	0%	0	0
>> Total Zone Loads	**-**	**1339**	**215**	**-**	**18**	**0**

TABLE 1.7.B. Envelope Loads For Space "W.I.C.-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	45	0.060	-	71	-	3
S EXPOSURE						
WALL	24	0.060	-	28	-	1
DOOR	21	0.300	-	78	-	6
E EXPOSURE						
WALL	59	0.060	-	112	-	3
W EXPOSURE						
WALL	59	0.060	-	127	-	3
H EXPOSURE						
ROOF	42	0.026	-	46	-	1

Space Design Load Summary for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.8.A. Component Loads For Space "Reception Area-2" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	509 ft²	879	-	509 ft²	30	-
Roof Transmission	176 ft²	211	-	176 ft²	5	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	126 ft²	344	-	126 ft²	26	-
Floor Transmission	0 ft²	0	-	0 ft²	0	-
Partitions	499 ft²	0	-	499 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	176 W	600	-	0	0	-
Task Lighting	176 W	600	-	0	0	-
Electric Equipment	100 W	341	-	0	0	-
People	2	490	410	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	520	21	0%	0	0
>> Total Zone Loads	**-**	**3986**	**431**	**-**	**60**	**0**

TABLE 1.8.B. Envelope Loads For Space "Reception Area-2" 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	130	0.060	-	196	-	8
S EXPOSURE						
WALL	67	0.060	-	77	-	4
DOOR	63	0.300	-	254	-	19
E EXPOSURE						
WALL	146	0.060	-	284	-	9
DOOR	42	0.010	-	6	-	0
W EXPOSURE						
WALL	167	0.060	-	322	-	10
DOOR	21	0.300	-	85	-	6
H EXPOSURE						
ROOF	176	0.026	-	211	-	5

June 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	89.8	0.01682	151	400	2209	4964
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	76.2	0.00987	1357	133	27081	3229
Return Plenum	Outlet	0.0	0.00987	1357	133	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Cooling)							
Ventilation Air	-	-	-	151	-	-	-
Cooling Coil Inlet	-	77.7	0.01065	1357	0	-	-
Cooling Coil Outlet	-	57.7	0.00937	1357	0	29290	8230
Heating Coil Inlet	-	57.7	0.00937	1357	0	-	-
Heating Coil Outlet	-	57.7	0.00937	1357	0	0	-
Zone Air	-	76.2	0.00987	1357	0	27081	-

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	69.0	0.00752	151	400	-163	0
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	70.0	0.00752	1357	0	-376	0
Return Plenum	Outlet	0.0	0.00752	1357	0	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Deadband)							
Ventilation Air	-	-	-	151	-	-	-
Cooling Coil Inlet	-	69.9	0.00752	1357	0	-	-
Cooling Coil Outlet	-	69.9	0.00752	1357	0	0	0
Heating Coil Inlet	-	69.9	0.00752	1357	0	-	-
Heating Coil Outlet	-	70.3	0.00752	1357	0	539	-
Zone Air	-	70.0	0.00752	1357	0	-376	-

System Psychrometrics for CU-301

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

The psychrometric graph cannot be generated for this type of system.

Dedicated Outdoor Air System (DOAS) Sizing Summary for RCU-101

Project Name: 155_armando_colon 03/25/2025
Prepared by: EngrTeam 11:49PM

Air System Information

Air System Name **RCU-101**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **3296.0** ft²
Location ..... **Cole Bay, Sint Maart**

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**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Air System Information

Air System Name **RCU-101**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **3296.0** ft²
Location ..... **Cole Bay, Sint Maart**

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**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (°F)	Coil Leaving DB / WB (°F)	Water Flow @ 10.0 °F (gpm)	Time of Peak Coil Load	Zone CFM/ft²
Zone 1	50.5	41.3	77.7 / 65.2	57.9 / 56.5	-	Jul 1800	0.59

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (°F)	Htg Coil Water Flow @20.0 °F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Zone 1	0.4	69.9 / 70.0	-	1942	0.000	0.000	228

VRF Outdoor Unit Sizing Data

	Cooling [MBH]	Cooling [Tons]	Heating [MBH]
Peak Coincident Indoor Unit Loads	41.3	3.4	0.4
Estimated Piping / Line Losses	0.0	0.0	0.0
Total Required ODU Capacity	41.3	3.4	0.4

Note: VRF piping / line losses are based on typical loss factors for this class of equipment. Actual line loss varies widely from one product to another. Therefore, when selecting equipment it is critical to consult manufacturer's guidance to utilize actual line loss data.

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	41.8	Jul 1800	0.4	3296.0

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 (ft²)	Space CFM/ft²
Zone 1							
CASHIER ROOM	1	3.8	Jul 1800	177	0.0	224.0	0.79
WINE STORAGE-1	1	11.1	Jul 1800	514	0.1	932.0	0.55
WINE STORAGE-2	1	6.5	Jul 1900	300	0.1	455.0	0.66
WINE STORAGE-3	1	5.9	Jul 1900	275	0.1	410.0	0.67
WINE STORAGE-4	1	14.5	Jun 1800	675	0.1	1275.0	0.53

Ventilation Sizing Summary for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: Zone 1

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									
CASHIER ROOM	1	224.0	2.0	177.3	5.00	0.06	0.0	0.0	23.4
WINE STORAGE-1	1	932.0	1.0	514.4	5.00	0.06	0.0	0.0	60.9
WINE STORAGE-2	1	455.0	1.0	300.3	5.00	0.06	0.0	0.0	32.3
WINE STORAGE-3	1	410.0	1.0	275.0	5.00	0.06	0.0	0.0	29.6
WINE STORAGE-4	1	1275.0	1.0	675.1	5.00	0.06	0.0	0.0	81.5
Totals (incl. Space Multipliers)				**1942.1**					**227.8**

Air System Design Load Summary for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
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	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °F		
ZONE 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	4953 ft²	7221	-	4953 ft²	295	-
Roof Transmission	3296 ft²	3960	-	3296 ft²	85	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	315 ft²	124	-	315 ft²	9	-
Floor Transmission	3296 ft²	0	-	3296 ft²	0	-
Partitions	2469 ft²	0	-	2469 ft²	0	-
Ceiling	3296 ft²	0	-	3296 ft²	0	-
Overhead Lighting	3296 W	10908	-	0	0	-
Task Lighting	3296 W	11058	-	0	0	-
Electric Equipment	450 W	1516	-	0	0	-
People	6	1565	1490	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	5453	75	0%	0	0
>> Total Zone Loads	**-**	**41804**	**1565**	**-**	**389**	**0**
Zone Conditioning	-	38075	1565	-	122	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	0 CFM	0	-	0 CFM	0	-
Ventilation Load	228 CFM	3273	7544	228 CFM	240	0
Ventilation Fan Load	0 CFM	0	-	0 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**41348**	**9109**	**-**	**362**	**0**
Terminal Unit Cooling	-	41348	9131	-	0	0
Terminal Unit Heating	-	0	-	-	362	-
>> Total Conditioning	**-**	**41348**	**9131**	**-**	**362**	**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 RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	0 ft²	0	-	0 ft²	-	-
Wall Transmission	4953 ft²	7221	-	4953 ft²	295	-
Roof Transmission	3296 ft²	3960	-	3296 ft²	85	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	315 ft²	124	-	315 ft²	9	-
Floor Transmission	3296 ft²	0	-	3296 ft²	0	-
Partitions	2469 ft²	0	-	2469 ft²	0	-
Ceiling	3296 ft²	0	-	3296 ft²	0	-
Overhead Lighting	3296 W	10908	-	0	0	-
Task Lighting	3296 W	11058	-	0	0	-
Electric Equipment	450 W	1516	-	0	0	-
People	6	1565	1490	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	5453	75	0%	0	0
>> Total Zone Loads	**-**	**41804**	**1565**	**-**	**389**	**0**

Space Design Load Summary for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.1.A. Component Loads For Space "CASHIER ROOM" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	531 ft²	775	-	531 ft²	32	-
Roof Transmission	224 ft²	269	-	224 ft²	6	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	63 ft²	90	-	63 ft²	7	-
Floor Transmission	224 ft²	0	-	224 ft²	0	-
Partitions	378 ft²	0	-	378 ft²	0	-
Ceiling	224 ft²	0	-	224 ft²	0	-
Overhead Lighting	224 W	764	-	0	0	-
Task Lighting	224 W	764	-	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%	499	21	0%	0	0
>> Total Zone Loads	**-**	**3822**	**431**	**-**	**44**	**0**

TABLE 1.1.B. Envelope Loads For Space "CASHIER 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	195	0.060	-	295	-	12
DOOR	21	0.300	-	85	-	6
S EXPOSURE						
WALL	216	0.060	-	247	-	13
E EXPOSURE						
WALL	81	0.060	-	158	-	5
W EXPOSURE						
WALL	39	0.060	-	75	-	2
DOOR	42	0.010	-	6	-	0
H EXPOSURE						
ROOF	224	0.026	-	269	-	6

Space Design Load Summary for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.2.A. Component Loads For Space "WINE STORAGE-1" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	1140 ft²	1704	-	1140 ft²	68	-
Roof Transmission	932 ft²	1120	-	932 ft²	24	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	84 ft²	11	-	84 ft²	1	-
Floor Transmission	932 ft²	0	-	932 ft²	0	-
Partitions	612 ft²	0	-	612 ft²	0	-
Ceiling	932 ft²	0	-	932 ft²	0	-
Overhead Lighting	932 W	3077	-	0	0	-
Task Lighting	932 W	3123	-	0	0	-
Electric Equipment	100 W	336	-	0	0	-
People	1	269	270	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1446	14	0%	0	0
>> Total Zone Loads	**-**	**11086**	**284**	**-**	**93**	**0**

TABLE 1.2.B. Envelope Loads For Space "WINE STORAGE-1" 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	441	0.060	-	666	-	26
S EXPOSURE						
WALL	399	0.060	-	456	-	24
DOOR	42	0.010	-	6	-	0
E EXPOSURE						
WALL	129	0.060	-	252	-	8
DOOR	42	0.010	-	6	-	0
W EXPOSURE						
WALL	171	0.060	-	330	-	10
H EXPOSURE						
ROOF	932	0.026	-	1120	-	24

Space Design Load Summary for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.3.A. Component Loads For Space "WINE STORAGE-2" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	1006 ft²	1481	-	1006 ft²	60	-
Roof Transmission	455 ft²	503	-	455 ft²	12	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	5	-	42 ft²	0	-
Floor Transmission	455 ft²	0	-	455 ft²	0	-
Partitions	523 ft²	0	-	523 ft²	0	-
Ceiling	455 ft²	0	-	455 ft²	0	-
Overhead Lighting	455 W	1506	-	0	0	-
Task Lighting	455 W	1526	-	0	0	-
Electric Equipment	100 W	337	-	0	0	-
People	1	269	270	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	844	14	0%	0	0
>> Total Zone Loads	**-**	**6471**	**284**	**-**	**72**	**0**

TABLE 1.3.B. Envelope Loads For Space "WINE STORAGE-2" 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	399	0.060	-	628	-	24
DOOR	42	0.010	-	5	-	0
S EXPOSURE						
WALL	441	0.060	-	516	-	26
E EXPOSURE						
WALL	83	0.060	-	158	-	5
W EXPOSURE						
WALL	83	0.060	-	179	-	5
H EXPOSURE						
ROOF	455	0.026	-	503	-	12

Space Design Load Summary for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.4.A. Component Loads For Space "WINE STORAGE-3" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	916 ft²	1358	-	916 ft²	55	-
Roof Transmission	410 ft²	453	-	410 ft²	11	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	5	-	42 ft²	0	-
Floor Transmission	410 ft²	0	-	410 ft²	0	-
Partitions	478 ft²	0	-	478 ft²	0	-
Ceiling	410 ft²	0	-	410 ft²	0	-
Overhead Lighting	410 W	1357	-	0	0	-
Task Lighting	410 W	1375	-	0	0	-
Electric Equipment	100 W	337	-	0	0	-
People	1	269	270	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	773	14	0%	0	0
>> Total Zone Loads	**-**	**5927**	**284**	**-**	**66**	**0**

TABLE 1.4.B. Envelope Loads For Space "WINE STORAGE-3" 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	354	0.060	-	557	-	21
DOOR	42	0.010	-	5	-	0
S EXPOSURE						
WALL	396	0.060	-	463	-	24
E EXPOSURE						
WALL	83	0.060	-	158	-	5
W EXPOSURE						
WALL	83	0.060	-	179	-	5
H EXPOSURE						
ROOF	410	0.026	-	453	-	11

Space Design Load Summary for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

TABLE 1.5.A. Component Loads For Space "WINE STORAGE-4" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800 COOLING OA DB / WB 88.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	1361 ft²	2053	-	1361 ft²	81	-
Roof Transmission	1275 ft²	1501	-	1275 ft²	33	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	84 ft²	10	-	84 ft²	1	-
Floor Transmission	1275 ft²	0	-	1275 ft²	0	-
Partitions	478 ft²	0	-	478 ft²	0	-
Ceiling	1275 ft²	0	-	1275 ft²	0	-
Overhead Lighting	1275 W	4210	-	0	0	-
Task Lighting	1275 W	4272	-	0	0	-
Electric Equipment	100 W	336	-	0	0	-
People	1	269	270	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1898	14	0%	0	0
>> Total Zone Loads	**-**	**14549**	**284**	**-**	**115**	**0**

TABLE 1.5.B. Envelope Loads For Space "WINE STORAGE-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	747	0.060	-	1213	-	45
S EXPOSURE						
WALL	395	0.060	-	425	-	24
DOOR	42	0.010	-	5	-	0
E EXPOSURE						
WALL	171	0.060	-	324	-	10
W EXPOSURE						
WALL	48	0.060	-	90	-	3
DOOR	42	0.010	-	5	-	0
H EXPOSURE						
ROOF	1275	0.026	-	1501	-	33

July DESIGN COOLING DAY, 1800

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	89.4	0.01658	228	400	3273	7544
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	76.1	0.00959	1942	43	38075	1565
Return Plenum	Outlet	0.0	0.00959	1942	43	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Cooling)							
Ventilation Air	-	-	-	228	-	-	-
Cooling Coil Inlet	-	77.7	0.01041	1942	0	-	-
Cooling Coil Outlet	-	57.9	0.00942	1942	0	41348	9131
Heating Coil Inlet	-	57.9	0.00942	1942	0	-	-
Heating Coil Outlet	-	57.9	0.00942	1942	0	0	-
Zone Air	-	76.1	0.00959	1942	0	38075	-

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	69.0	0.00752	228	400	-240	0
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	70.0	0.00752	1942	0	-122	0
Return Plenum	Outlet	0.0	0.00752	1942	0	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Heating)							
Ventilation Air	-	-	-	228	-	-	-
Cooling Coil Inlet	-	69.9	0.00752	1942	0	-	-
Cooling Coil Outlet	-	69.9	0.00752	1942	0	0	0
Heating Coil Inlet	-	69.9	0.00752	1942	0	-	-
Heating Coil Outlet	-	70.0	0.00752	1942	0	362	-
Zone Air	-	70.0	0.00752	1942	0	-122	-

System Psychrometrics for RCU-101

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

The psychrometric graph cannot be generated for this type of system.

Dedicated Outdoor Air System (DOAS) Sizing Summary for RCU-102

Project Name: 155_armando_colon 03/25/2025
Prepared by: EngrTeam 11:49PM

Air System Information

Air System Name **RCU-102**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **1647.0** ft²
Location ..... **Cole Bay, Sint Maart**

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**

NOTE: No other data is applicable for a Terminal Units air system without a Dedicated Outdoor Air System (DOAS).

Zone Sizing Summary for RCU-102

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Air System Information

Air System Name **RCU-102**
Equipment Class ..... **TERM**
Air System Type ..... **VRF**

Number of zones **1**
Floor Area ..... **1647.0** ft²
Location ..... **Cole Bay, Sint Maart**

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**

Terminal Unit Sizing Data - Cooling

Zone Name	Total Coil Load (MBH)	Sens Coil Load (MBH)	Coil Entering DB / WB (°F)	Coil Leaving DB / WB (°F)	Water Flow @ 10.0 °F (gpm)	Time of Peak Coil Load	Zone CFM/ft²
Zone 1	24.2	20.1	77.9 / 65.3	58.4 / 57.0	-	Aug 1600	0.58

Terminal Unit Sizing Data - Heating, Fan, Ventilation

Zone Name	Heating Coil Load (MBH)	Heating Coil Ent/Lvg DB (°F)	Htg Coil Water Flow @20.0 °F (gpm)	Fan Design Airflow (CFM)	Fan Motor (BHP)	Fan Motor (kW)	OA Vent Design Airflow (CFM)
Zone 1	0.5	69.9 / 70.4	-	957	0.000	0.000	109

VRF Outdoor Unit Sizing Data

	Cooling [MBH]	Cooling [Tons]	Heating [MBH]
Peak Coincident Indoor Unit Loads	20.1	1.7	0.5
Estimated Piping / Line Losses	0.0	0.0	0.0
Total Required ODU Capacity	20.1	1.7	0.5

Note: VRF piping / line losses are based on typical loss factors for this class of equipment. Actual line loss varies widely from one product to another. Therefore, when selecting equipment it is critical to consult manufacturer's guidance to utilize actual line loss data.

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	20.6	Jul 1900	0.2	1647.0

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 (ft²)	Space CFM/ft²
Zone 1							
WINE STORAGE-5	1	12.9	Jul 1800	598	0.1	1087.0	0.55
WINE STORAGE-6	1	7.7	Jul 1900	359	0.1	560.0	0.64

Ventilation Sizing Summary for RCU-102

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

1. Summary

Ventilation Sizing Method ..... **Sum of Space OA Airflows**

2. Space Ventilation Analysis

2.1 Zone: Zone 1

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									
WINE STORAGE-5	1	1087.0	1.0	597.9	5.00	0.06	0.0	0.0	70.2
WINE STORAGE-6	1	560.0	1.0	358.9	5.00	0.06	0.0	0.0	38.6
Totals (incl. Space Multipliers)				**956.7**					**108.8**

Air System Design Load Summary for RCU-102

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1600 COOLING OA DB / WB 91.6 °F / 76.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °F		
ZONE 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	2619 ft²	3221	-	2619 ft²	156	-
Roof Transmission	1647 ft²	2013	-	1647 ft²	42	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	126 ft²	19	-	126 ft²	1	-
Floor Transmission	1647 ft²	0	-	1647 ft²	0	-
Partitions	882 ft²	0	-	882 ft²	0	-
Ceiling	1647 ft²	0	-	1647 ft²	0	-
Overhead Lighting	1647 W	5412	-	0	0	-
Task Lighting	1647 W	5504	-	0	0	-
Electric Equipment	200 W	671	-	0	0	-
People	2	534	540	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	2606	27	0%	0	0
>> Total Zone Loads	**-**	**19979**	**567**	**-**	**200**	**0**
Zone Conditioning	-	18229	567	-	359	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Exhaust Fan Load	0 CFM	0	-	0 CFM	0	-
Ventilation Load	109 CFM	1823	3537	109 CFM	122	0
Ventilation Fan Load	0 CFM	0	-	0 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**20052**	**4104**	**-**	**480**	**0**
Terminal Unit Cooling	-	20052	4109	-	0	0
Terminal Unit Heating	-	0	-	-	480	-
>> Total Conditioning	**-**	**20052**	**4109**	**-**	**480**	**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 RCU-102

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	0 ft²	0	-	0 ft²	-	-
Wall Transmission	2619 ft²	3899	-	2619 ft²	156	-
Roof Transmission	1647 ft²	1820	-	1647 ft²	42	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	126 ft²	16	-	126 ft²	1	-
Floor Transmission	1647 ft²	0	-	1647 ft²	0	-
Partitions	882 ft²	0	-	882 ft²	0	-
Ceiling	1647 ft²	0	-	1647 ft²	0	-
Overhead Lighting	1647 W	5450	-	0	0	-
Task Lighting	1647 W	5525	-	0	0	-
Electric Equipment	200 W	673	-	0	0	-
People	2	539	540	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	2688	27	0%	0	0
>> Total Zone Loads	**-**	**20610**	**567**	**-**	**200**	**0**

TABLE 1.1.A. Component Loads For Space "WINE STORAGE-5" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1800 COOLING OA DB / WB 89.4 °F / 76.3 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	1410 ft²	2051	-	1410 ft²	84	-
Roof Transmission	1087 ft²	1306	-	1087 ft²	28	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	84 ft²	11	-	84 ft²	1	-
Floor Transmission	1087 ft²	0	-	1087 ft²	0	-
Partitions	441 ft²	0	-	441 ft²	0	-
Ceiling	1087 ft²	0	-	1087 ft²	0	-
Overhead Lighting	1087 W	3589	-	0	0	-
Task Lighting	1087 W	3642	-	0	0	-
Electric Equipment	100 W	336	-	0	0	-
People	1	269	270	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1681	14	0%	0	0
>> Total Zone Loads	**-**	**12885**	**284**	**-**	**113**	**0**

TABLE 1.1.B. Envelope Loads For Space "WINE STORAGE-5" 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	585	0.060	-	884	-	35
S EXPOSURE						
WALL	543	0.060	-	620	-	32
DOOR	42	0.010	-	6	-	0
E EXPOSURE						
WALL	120	0.060	-	234	-	7
DOOR	42	0.010	-	6	-	0
W EXPOSURE						
WALL	162	0.060	-	313	-	10
H EXPOSURE						
ROOF	1087	0.026	-	1306	-	28

TABLE 1.2.A. Component Loads For Space "WINE STORAGE-6" In Zone "Zone 1"						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1900 COOLING OA DB / WB 87.9 °F / 75.9 °F OCCUPIED T-STAT 75.0 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 69.0 °F / 57.6 °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	1209 ft²	1764	-	1209 ft²	72	-
Roof Transmission	560 ft²	619	-	560 ft²	14	-
Window Transmission	0 ft²	0	-	0 ft²	0	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	42 ft²	5	-	42 ft²	0	-
Floor Transmission	560 ft²	0	-	560 ft²	0	-
Partitions	441 ft²	0	-	441 ft²	0	-
Ceiling	560 ft²	0	-	560 ft²	0	-
Overhead Lighting	560 W	1853	-	0	0	-
Task Lighting	560 W	1879	-	0	0	-
Electric Equipment	100 W	337	-	0	0	-
People	1	269	270	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	15% / 5%	1009	14	0%	0	0
>> Total Zone Loads	**-**	**7734**	**284**	**-**	**87**	**0**

TABLE 1.2.B. Envelope Loads For Space "WINE STORAGE-6" 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	498	0.060	-	783	-	30
DOOR	42	0.010	-	5	-	0
S EXPOSURE						
WALL	540	0.060	-	632	-	32
E EXPOSURE						
WALL	86	0.060	-	163	-	5
W EXPOSURE						
WALL	86	0.060	-	185	-	5
H EXPOSURE						
ROOF	560	0.026	-	619	-	14

System Psychrometrics for RCU-102

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

August DESIGN COOLING DAY, 1600

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	91.6	0.01658	109	400	1823	3537
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	76.1	0.00972	957	31	18229	567
Return Plenum	Outlet	0.0	0.00972	957	31	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Cooling)							
Ventilation Air	-	-	-	109	-	-	-
Cooling Coil Inlet	-	77.9	0.01050	957	0	-	-
Cooling Coil Outlet	-	58.4	0.00960	957	0	20052	4109
Heating Coil Inlet	-	58.4	0.00960	957	0	-	-
Heating Coil Outlet	-	58.4	0.00960	957	0	0	-
Zone Air	-	76.1	0.00972	957	0	18229	-

System Psychrometrics for RCU-102

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

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	69.0	0.00752	109	400	-122	0
Vent - Return Mixing	Outlet	0.0	0.00000	0	0	-	-
Ventilation Fan	Outlet	0.0	0.00000	0	0	0	-
Zone Air	-	70.0	0.00752	957	0	-359	0
Return Plenum	Outlet	0.0	0.00752	957	0	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1.080; At site altitude = 1.078 BTU/(hr-CFM-F)
Air Density x Heat of Vaporization x Conversion Factor: At sea level = 4746.6; At site altitude = 4736.0 BTU/(hr-CFM)
Site Altitude = 62.0 ft

TABLE 2: ZONE DATA

Component	Location	Dry-Bulb Temp (°F)	Specific Humidity (lb/lb)	Airflow (CFM)	CO2 Level (ppm)	Sensible Heat (BTU/hr)	Latent Heat (BTU/hr)
Zone 1 (Deadband)							
Ventilation Air	-	-	-	109	-	-	-
Cooling Coil Inlet	-	69.9	0.00752	957	0	-	-
Cooling Coil Outlet	-	69.9	0.00752	957	0	0	0
Heating Coil Inlet	-	69.9	0.00752	957	0	-	-
Heating Coil Outlet	-	70.4	0.00752	957	0	480	-
Zone Air	-	70.0	0.00752	957	0	-359	-

System Psychrometrics for RCU-102

Project Name: 155_armando_colon
Prepared by: EngrTeam

03/25/2025
11:49PM

The psychrometric graph cannot be generated for this type of system.