

Air System Sizing Summary for RTU-1 (OFFICE)

Project Name: 19146 Denison Daycare
 Prepared by: RDZ Engineers Ltd.

11-04-2020
 03:57PM

Air System Information

Air System Name RTU-1 (OFFICE)	Number of zones 1
Equipment Class PKG ROOF	Floor Area 759.9 ft ²
Air System Type SZCAV	Location Newmarket, Ontario

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 2.6 Tons	Load occurs at Aug 1400
Total coil load 31.7 MBH	OA DB / WB 85.4 / 73.2 °F
Sensible coil load 27.5 MBH	Entering DB / WB 75.7 / 64.6 °F
Coil CFM at Aug 1400 1543 CFM	Leaving DB / WB 58.8 / 57.7 °F
Max block CFM 1543 CFM	Coil ADP 56.9 °F
Sum of peak zone CFM 1543 CFM	Bypass Factor 0.100
Sensible heat ratio 0.868	Resulting RH 55 %
ft ² /Ton 287.7	Design supply temp. 58.0 °F
BTU/(hr-ft ²) 41.7	Zone T-stat Check 1 of 1 OK
Water flow @ 10.0 °F rise N/A	Max zone temperature deviation 0.0 °F

Central Heating Coil Sizing Data

Max coil load 43.0 MBH	Load occurs at Des Htg
Coil CFM at Des Htg 1543 CFM	BTU/(hr-ft ²) 56.6
Max coil CFM 1543 CFM	Ent. DB / Lvg DB 64.6 / 91.2 °F
Water flow @ 20.0 °F drop N/A	

Supply Fan Sizing Data

Actual max CFM 1543 CFM	Fan motor BHP 0.00 BHP
Standard CFM 1500 CFM	Fan motor kW 0.00 kW
Actual max CFM/ft ² 2.03 CFM/ft ²	Fan static 0.00 in wg

Outdoor Ventilation Air Data

Design airflow CFM 105 CFM	CFM/person 11.64 CFM/person
CFM/ft ² 0.14 CFM/ft ²	



Zone Sizing Summary for RTU-1 (OFFICE)

Project Name: 19146 Denison Daycare
 Prepared by: RDZ Engineers Ltd.

11-04-2020
 03:57PM

Air System Information

Air System Name **RTU-1 (OFFICE)**
 Equipment Class **PKG ROOF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **759.9** ft²
 Location **Newmarket, Ontario**

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 Sizing Data

Zone Name	Maximum Cooling Sensible (MBH)	Design Airflow (CFM)	Minimum Airflow (CFM)	Time of Peak Load	Maximum Heating Load (MBH)	Zone Floor Area (ft ²)	Zone CFM/ft ²
Zone 1	24.3	1543	1543	Sep 1400	33.6	759.9	2.03

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft ²)	Space CFM/ft ²
Zone 1							
04 Kitchen	2	3.5	Sep 1400	207	5.4	94.7	2.19
02 Laundry/Mech./Jan.	1	2.2	Oct 1400	133	3.5	79.7	1.67
05 Corridor A	1	2.8	Sep 1400	159	2.5	290.6	0.55
06 Staff Room	1	10.5	Sep 1400	590	10.3	108.7	5.43
08 Office	1	2.8	Jun 1500	247	6.5	91.5	2.69

Ventilation Sizing Summary for RTU-1 (OFFICE)

Project Name: 19146 Denison Daycare
 Prepared by: RDZ Engineers Ltd.

11-04-2020
 03:57PM

1. Summary

Ventilation Sizing Method **ASHRAE Std 62.1-2007**
 Design Condition **Heating operation**
 Occupant Diversity (D) **1.000**
 Uncorrected Outdoor Air Intake (Vou) **97** CFM
 System Ventilation Efficiency (Ev) **0.928**
 Outdoor Air Intake (Vot) **105** CFM

2. Space Ventilation Analysis Table

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft ²) (Az)	Area Outdoor Air Rate (CFM/ft ²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
Zone 1										
04 Kitchen	2	207	94.7	0.06	2.0	5.30	0.80	20	16	0.965
02 Laundry/Mech./Jan.	1	133	79.7	0.12	0.0	0.00	0.80	12	9	0.974
05 Corridor A	1	159	290.6	0.06	0.0	0.00	0.80	21	17	0.928
06 Staff Room	1	590	108.7	0.06	4.0	5.30	0.80	35	28	1.005
08 Office	1	247	91.5	0.06	1.0	5.30	0.80	13	11	1.009
Totals (incl. Space Multipliers)		1543							97	0.928

Air System Design Load Summary for RTU-1 (OFFICE)

Project Name: 19146 Denison Daycare
Prepared by: RDZ Engineers Ltd.

11-04-2020
03:57PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1400			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 85.4 °F / 73.2 °F			HEATING OA DB / WB -11.2 °F / -11.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	312 ft²	14394	-	312 ft²	-	-
Wall Transmission	901 ft²	570	-	901 ft²	2421	-
Roof Transmission	760 ft²	1357	-	760 ft²	2405	-
Window Transmission	312 ft²	1202	-	312 ft²	14904	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	24 ft²	1134	-	24 ft²	887	-
Floor Transmission	760 ft²	0	-	760 ft²	2056	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	847 W	2250	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	300 W	933	-	0	0	-
People	9	1554	1845	0	0	0
Infiltration	-	0	0	-	7875	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	10%	3055	0
>> Total Zone Loads	-	23393	1845	-	33603	0
Zone Conditioning	-	26372	1845	-	34070	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	1543 CFM	0	-	1543 CFM	0	-
Ventilation Load	105 CFM	1136	2343	105 CFM	8950	0
Supply Fan Load	1543 CFM	0	-	1543 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	27508	4188	-	43020	0
Central Cooling Coil	-	27508	4191	-	0	0
Central Heating Coil	-	0	-	-	43020	-
>> Total Conditioning	-	27508	4191	-	43020	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 RTU-1 (OFFICE)

Project Name: 19146 Denison Daycare
Prepared by: RDZ Engineers Ltd.

11-04-2020
03:57PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Sep 1400			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 79.4 °F / 70.2 °F			HEATING OA DB / WB -11.2 °F / -11.2 °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	312 ft²	16559	-	312 ft²	-	-
Wall Transmission	901 ft²	433	-	901 ft²	2421	-
Roof Transmission	760 ft²	1038	-	760 ft²	2405	-
Window Transmission	312 ft²	100	-	312 ft²	14904	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	24 ft²	1405	-	24 ft²	887	-
Floor Transmission	760 ft²	0	-	760 ft²	2056	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	847 W	2250	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	300 W	933	-	0	0	-
People	9	1554	1845	0	0	0
Infiltration	-	0	0	-	7875	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	10%	3055	0
>> Total Zone Loads	-	24272	1845	-	33603	0

Air System Sizing Summary for RTU-2 (INFANT)

Project Name: 19146 Denison Daycare
 Prepared by: RDZ Engineers Ltd.

11-04-2020
 03:57PM

Air System Information

Air System Name RTU-2 (INFANT)	Number of zones 1
Equipment Class PKG ROOF	Floor Area 1525.2 ft ²
Air System Type SZCAV	Location Newmarket, Ontario

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 9.2 Tons	Load occurs at Aug 1500
Total coil load 110.3 MBH	OA DB / WB 86.0 / 73.4 °F
Sensible coil load 80.3 MBH	Entering DB / WB 77.9 / 66.4 °F
Coil CFM at Aug 1500 3847 CFM	Leaving DB / WB 58.0 / 57.0 °F
Max block CFM 3847 CFM	Coil ADP 55.8 °F
Sum of peak zone CFM 3847 CFM	Bypass Factor 0.100
Sensible heat ratio 0.728	Resulting RH 54 %
ft ² /Ton 165.9	Design supply temp. 58.0 °F
BTU/(hr-ft ²) 72.3	Zone T-stat Check 0 of 1 OK
Water flow @ 10.0 °F rise N/A	Max zone temperature deviation 0.0 °F

Central Heating Coil Sizing Data

Max coil load 150.2 MBH	Load occurs at Des Htg
Coil CFM at Des Htg 3847 CFM	BTU/(hr-ft ²) 98.4
Max coil CFM 3847 CFM	Ent. DB / Lvg DB 49.6 / 86.8 °F
Water flow @ 20.0 °F drop N/A	

Supply Fan Sizing Data

Actual max CFM 3847 CFM	Fan motor BHP 0.00 BHP
Standard CFM 3740 CFM	Fan motor kW 0.00 kW
Actual max CFM/ft ² 2.52 CFM/ft ²	Fan static 0.00 in wg

Outdoor Ventilation Air Data

Design airflow CFM 976 CFM	CFM/person 22.69 CFM/person
CFM/ft ² 0.64 CFM/ft ²	

Zone Sizing Summary for RTU-2 (INFANT)

Project Name: 19146 Denison Daycare
Prepared by: RDZ Engineers Ltd.

11-04-2020
03:57PM

Air System Information

Air System Name **RTU-2 (INFANT)**
Equipment Class **PKG ROOF**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **1525.2** ft²
Location **Newmarket, Ontario**

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 Sizing Data

Zone Name	Maximum Cooling Sensible (MBH)	Design Airflow (CFM)	Minimum Airflow (CFM)	Time of Peak Load	Maximum Heating Load (MBH)	Zone Floor Area (ft ²)	Zone CFM/ft ²
Zone 1	63.1	3847	3847	Sep 1500	65.9	1525.2	2.52

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft ²)	Space CFM/ft ²
Zone 1							
04 Kitchen	1	3.5	Sep 1400	193	4.9	94.7	2.04
09 Sleeping Room	1	7.6	Sep 1500	423	9.5	237.9	1.78
10 Diaper Change	1	0.3	Jul 1200	15	0.2	51.7	0.29
11 Infant	1	13.6	Jul 1700	764	14.5	333.7	2.29
13 Toddler	1	17.2	Jul 1500	966	19.1	462.8	2.09
05 Corridor B	1	26.5	Oct 1400	1485	17.8	344.4	4.31

Ventilation Sizing Summary for RTU-2 (INFANT)

Project Name: 19146 Denison Daycare
 Prepared by: RDZ Engineers Ltd.

11-04-2020
 03:57PM

1. Summary

Ventilation Sizing Method **ASHRAE Std 62.1-2007**
 Design Condition **Heating operation**
 Occupant Diversity (D) **1.000**
 Uncorrected Outdoor Air Intake (Vou) **654** CFM
 System Ventilation Efficiency (Ev) **0.670**
 Outdoor Air Intake (Vot) **976** CFM

2. Space Ventilation Analysis Table

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft ²) (Az)	Area Outdoor Air Rate (CFM/ft ²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
Zone 1										
04 Kitchen	1	193	94.7	0.06	2.0	5.30	0.80	20	16	1.065
09 Sleeping Room	1	423	237.9	0.18	12.0	10.59	0.80	212	169	0.670
10 Diaper Change	1	15	51.7	0.00	0.0	0.00	0.80	0	0	1.170
11 Infant	1	764	333.7	0.18	12.0	10.59	0.80	233	186	0.865
13 Toddler	1	966	462.8	0.18	17.0	10.59	0.80	328	262	0.831
05 Corridor B	1	1485	344.4	0.06	0.0	0.00	0.80	25	20	1.153
Totals (incl. Space Multipliers)		3847							654	0.670

Air System Design Load Summary for RTU-2 (INFANT)

Project Name: 19146 Denison Daycare
Prepared by: RDZ Engineers Ltd.

11-04-2020
03:57PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 86.0 °F / 73.4 °F			HEATING OA DB / WB -11.2 °F / -11.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	710 ft²	41414	-	710 ft²	-	-
Wall Transmission	1048 ft²	586	-	1048 ft²	2817	-
Roof Transmission	1673 ft²	3364	-	1673 ft²	5688	-
Window Transmission	710 ft²	3019	-	710 ft²	33919	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	24 ft²	1070	-	24 ft²	887	-
Floor Transmission	1379 ft²	0	-	1379 ft²	3680	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1316 W	3499	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	300 W	939	-	0	0	-
People	43	7497	7798	0	0	0
Infiltration	-	0	0	-	18946	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	61389	7798	-	65938	0
Zone Conditioning	-	69164	7798	-	66713	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	3847 CFM	0	-	3847 CFM	0	-
Ventilation Load	976 CFM	11141	22236	976 CFM	83444	0
Supply Fan Load	3847 CFM	0	-	3847 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	80305	30034	-	150157	0
Central Cooling Coil	-	80305	30036	-	0	0
Central Heating Coil	-	0	-	-	150157	-
>> Total Conditioning	-	80305	30036	-	150157	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 RTU-2 (INFANT)

Project Name: 19146 Denison Daycare
Prepared by: RDZ Engineers Ltd.

11-04-2020
03:57PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Sep 1500			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 80.0 °F / 70.4 °F			HEATING OA DB / WB -11.2 °F / -11.2 °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	710 ft²	46497	-	710 ft²	-	-
Wall Transmission	1048 ft²	419	-	1048 ft²	2817	-
Roof Transmission	1673 ft²	2442	-	1673 ft²	5688	-
Window Transmission	710 ft²	513	-	710 ft²	33919	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	24 ft²	1330	-	24 ft²	887	-
Floor Transmission	1379 ft²	0	-	1379 ft²	3680	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1316 W	3499	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	300 W	939	-	0	0	-
People	43	7497	7798	0	0	0
Infiltration	-	0	0	-	18946	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	-	63137	7798	-	65938	0

Air System Sizing Summary for RTU-3 (PRESCHOOL)

Project Name: 19146 Denison Daycare
 Prepared by: RDZ Engineers Ltd.

11-04-2020
 03:58PM

Air System Information

Air System Name RTU-3 (PRESCHOOL)	Number of zones 1
Equipment Class PKG ROOF	Floor Area 2151.7 ft ²
Air System Type SZCAV	Location Newmarket, Ontario

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 10.1 Tons	Load occurs at Jul 1500
Total coil load 120.8 MBH	OA DB / WB 86.0 / 73.4 °F
Sensible coil load 88.7 MBH	Entering DB / WB 78.0 / 66.3 °F
Coil CFM at Jul 1500 4236 CFM	Leaving DB / WB 58.0 / 57.0 °F
Max block CFM 4236 CFM	Coil ADP 55.8 °F
Sum of peak zone CFM 4236 CFM	Bypass Factor 0.100
Sensible heat ratio 0.735	Resulting RH 54 %
ft ² /Ton 213.8	Design supply temp. 58.0 °F
BTU/(hr-ft ²) 56.1	Zone T-stat Check 0 of 1 OK
Water flow @ 10.0 °F rise N/A	Max zone temperature deviation 0.0 °F

Central Heating Coil Sizing Data

Max coil load 183.8 MBH	Load occurs at Des Htg
Coil CFM at Des Htg 4236 CFM	BTU/(hr-ft ²) 85.4
Max coil CFM 4236 CFM	Ent. DB / Lvg DB 48.7 / 90.0 °F
Water flow @ 20.0 °F drop N/A	

Supply Fan Sizing Data

Actual max CFM 4236 CFM	Fan motor BHP 0.00 BHP
Standard CFM 4117 CFM	Fan motor kW 0.00 kW
Actual max CFM/ft ² 1.97 CFM/ft ²	Fan static 0.00 in wg

Outdoor Ventilation Air Data

Design airflow CFM 1103 CFM	CFM/person 21.21 CFM/person
CFM/ft ² 0.51 CFM/ft ²	

Zone Sizing Summary for RTU-3 (PRESCHOOL)

Project Name: 19146 Denison Daycare
 Prepared by: RDZ Engineers Ltd.

11-04-2020
 03:58PM

Air System Information

Air System Name **RTU-3 (PRESCHOOL)**
 Equipment Class **PKG ROOF**
 Air System Type **SZCAV**

Number of zones **1**
 Floor Area **2151.7** ft²
 Location **Newmarket, Ontario**

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 Sizing Data

Zone Name	Maximum Cooling Sensible (MBH)	Design Airflow (CFM)	Minimum Airflow (CFM)	Time of Peak Load	Maximum Heating Load (MBH)	Zone Floor Area (ft ²)	Zone CFM/ft ²
Zone 1	66.4	4236	4236	Jul 1500	90.3	2151.7	1.97

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (MBH)	Time of Load	Air Flow (CFM)	Heating Load (MBH)	Floor Area (ft ²)	Space CFM/ft ²
Zone 1							
16 Cot Storage	1	0.5	Jul 1500	34	0.9	79.7	0.42
17 Pre-School	1	23.0	Jul 1500	1376	36.1	735.2	1.87
18 Pre-School	1	18.6	Jul 1000	1181	31.0	731.9	1.61
19 Mud Room	1	1.4	Jul 0900	100	2.6	66.7	1.49
05 Corridor C	1	27.6	Jul 1700	1545	19.7	538.2	2.87

Ventilation Sizing Summary for RTU-3 (PRESCHOOL)

Project Name: 19146 Denison Daycare
 Prepared by: RDZ Engineers Ltd.

11-04-2020
 03:58PM

1. Summary

Ventilation Sizing Method **ASHRAE Std 62.1-2007**
 Design Condition **Heating operation**
 Occupant Diversity (D) **1.000**
 Uncorrected Outdoor Air Intake (Vou) **852** CFM
 System Ventilation Efficiency (Ev) **0.772**
 Outdoor Air Intake (Vot) **1103** CFM

2. Space Ventilation Analysis Table

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft ²) (Az)	Area Outdoor Air Rate (CFM/ft ²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
Zone 1										
16 Cot Storage	1	34	79.7	0.12	0.0	0.00	0.80	12	9	0.851
17 Pre-School	1	1376	735.2	0.18	26.0	10.59	0.80	507	406	0.833
18 Pre-School	1	1181	731.9	0.18	26.0	10.59	0.80	506	405	0.772
19 Mud Room	1	100	66.7	0.00	0.0	0.00	0.80	0	0	1.201
05 Corridor C	1	1545	538.2	0.06	0.0	0.00	0.80	40	32	1.175
Totals (incl. Space Multipliers)		4236							852	0.772

Air System Design Load Summary for RTU-3 (PRESCHOOL)

Project Name: 19146 Denison Daycare
Prepared by: RDZ Engineers Ltd.

11-04-2020
03:58PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 86.0 °F / 73.4 °F			HEATING OA DB / WB -11.2 °F / -11.2 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	797 ft²	40053	-	797 ft²	-	-
Wall Transmission	1454 ft²	658	-	1454 ft²	3908	-
Roof Transmission	2153 ft²	4164	-	2153 ft²	7272	-
Window Transmission	797 ft²	3385	-	797 ft²	38031	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	47 ft²	2075	-	47 ft²	1774	-
Floor Transmission	2152 ft²	0	-	2152 ft²	5758	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	2399 W	6450	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	300 W	939	-	0	0	-
People	52	8659	6246	0	0	0
Infiltration	-	0	0	-	25364	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	10%	8211	0
>> Total Zone Loads	-	66385	6246	-	90317	0
Zone Conditioning	-	76120	6246	-	90120	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	4236 CFM	0	-	4236 CFM	0	-
Ventilation Load	1103 CFM	12599	25785	1103 CFM	93723	0
Supply Fan Load	4236 CFM	0	-	4236 CFM	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	88719	32031	-	183843	0
Central Cooling Coil	-	88719	32035	-	0	0
Central Heating Coil	-	0	-	-	183843	-
>> Total Conditioning	-	88719	32035	-	183843	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 RTU-3 (PRESCHOOL)

Project Name: 19146 Denison Daycare
Prepared by: RDZ Engineers Ltd.

11-04-2020
03:58PM

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 86.0 °F / 73.4 °F			HEATING OA DB / WB -11.2 °F / -11.2 °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	797 ft²	40053	-	797 ft²	-	-
Wall Transmission	1454 ft²	658	-	1454 ft²	3908	-
Roof Transmission	2153 ft²	4164	-	2153 ft²	7272	-
Window Transmission	797 ft²	3385	-	797 ft²	38031	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	47 ft²	2075	-	47 ft²	1774	-
Floor Transmission	2152 ft²	0	-	2152 ft²	5758	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	2399 W	6450	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	300 W	939	-	0	0	-
People	52	8659	6246	0	0	0
Infiltration	-	0	0	-	25364	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	0% / 0%	0	0	10%	8211	0
>> Total Zone Loads	-	66385	6246	-	90317	0