Air System Sizing Summary for RTU-1

Project Name: 230515-F Okeechobee Shul Synagogue
Prepared by: Deltag

09/20/2023
04:44PM

Air System Information

Air System Name	**RTU-1**		Number of zones	**1**	
Equipment Class	**SPLT AHU**		Floor Area	**1693.0**	ft²
Air System Type	**CAV/RH**		Location	**Okeechobee, Florida**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone CFM Sizing	**Peak zone sensible load**
Sizing Data	**User-Modified**	Space CFM Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**10.2**	Tons	Load occurs at	**Jun 1800**	
Total coil load	**122.3**	MBH	OA DB / WB	**88.9 / 76.9**	°F
Sensible coil load	**83.5**	MBH	Entering DB / WB	**77.1 / 65.4**	°F
Coil CFM at Jun 1800	**3302**	CFM	Leaving DB / WB	**53.6 / 52.7**	°F
Max block CFM	**3302**	CFM	Coil ADP	**51.0**	°F
Sum of peak zone CFM	**3302**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.683**		Resulting RH	**49**	%
ft²/Ton	**166.2**		Design supply temp.	**55.0**	°F
BTU/(hr-ft²)	**72.2**		Zone T-stat Check	**1 of 1**	OK
Water flow @ 10.0 °F rise	**N/A**		Max zone temperature deviation	**0.0**	°F

Supply Fan Sizing Data

Actual max CFM	**3302**	CFM	Fan motor BHP	**1.81**	BHP
Standard CFM	**3298**	CFM	Fan motor kW	**1.43**	kW
Actual max CFM/ft²	**1.95**	CFM/ft²	Fan static	**2.00**	in wg

Outdoor Ventilation Air Data

Design airflow CFM	**800**	CFM	CFM/person	**26.67**	CFM/person
CFM/ft²	**0.47**	CFM/ft²			

Digitally signed by George SanJuan
Date: 2023.12.27 11:02:43 -05'00'

Zone Sizing Summary for RTU-1

Project Name: 230515-F Okeechobee Shul Synagogue
Prepared by: Deltag

09/20/2023
04:44PM

Air System Information

Air System Name **RTU-1**
Equipment Class ..... **SPLT AHU**
Air System Type ..... **CAV/RH**

Number of zones **1**
Floor Area ..... **1693.0** ft²
Location ..... **Okeechobee, Florida**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**

Zone CFM Sizing ..... **Peak zone sensible load**
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	3302	3302	1.95	70.3	-	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	71.2	Jun 1800	16.8	1693.0

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							
Mikvah	1	71.2	Jun 1800	3302	16.8	1693.0	1.95

Air System Design Load Summary for RTU-1

Project Name: 230515-F Okeechobee Shul Synagogue
Prepared by: Deltag

09/20/2023
04:44PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jun 1800 COOLING OA DB / WB 88.9 °F / 76.9 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 36.4 °F / 36.1 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	220 ft²	10034	-	220 ft²	-	-
Wall Transmission	770 ft²	4095	-	770 ft²	5630	-
Roof Transmission	1693 ft²	2360	-	1693 ft²	2748	-
Window Transmission	220 ft²	2650	-	220 ft²	7092	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	1693 ft²	0	-	1693 ft²	1374	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1693 W	4626	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	30	7350	6150	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	40125	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	**-**	**71239**	**6150**	**-**	**16844**	**0**
Zone Conditioning	-	65083	6150	-	16208	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	3302 CFM	0	-	3302 CFM	0	-
Ventilation Load	800 CFM	13499	32637	800 CFM	27804	0
Supply Fan Load	3302 CFM	4896	-	3302 CFM	-4896	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**83477**	**38787**	**-**	**39116**	**0**
Central Cooling Coil	-	83477	38787	-	-25601	0
Terminal Reheat Coils	-	0	-	-	64717	-
>> Total Conditioning	**-**	**83477**	**38787**	**-**	**39116**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for RTU-2

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 03:54PM

Air System Information

Air System Name	**RTU-2**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**4617.0**	ft²
Air System Type	**CAV/RH**		Location	**Okeechobee, Florida**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**		Zone CFM Sizing	**Peak zone sensible load**	
Sizing Data	**User-Modified**		Space CFM Sizing	**Individual peak space loads**	

Central Cooling Coil Sizing Data

Total coil load	**21.8**	Tons	Load occurs at	**Jul 1500**	
Total coil load	**261.5**	MBH	OA DB / WB	**93.4 / 77.8**	°F
Sensible coil load	**154.5**	MBH	Entering DB / WB	**78.2 / 67.4**	°F
Coil CFM at Jul 1500	**5388**	CFM	Leaving DB / WB	**51.6 / 50.9**	°F
Max block CFM	**5388**	CFM	Coil ADP	**48.7**	°F
Sum of peak zone CFM	**5388**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.591**		Resulting RH	**59**	%
ft²/Ton	**211.9**		Design supply temp.	**53.0**	°F
BTU/(hr-ft²)	**56.6**		Zone T-stat Check	**1 of 1**	OK
Water flow @ 10.0 °F rise	**N/A**		Max zone temperature deviation	**0.0**	°F

Supply Fan Sizing Data

Actual max CFM	**5388**	CFM	Fan motor BHP	**2.95**	BHP
Standard CFM	**5382**	CFM	Fan motor kW	**2.34**	kW
Actual max CFM/ft²	**1.17**	CFM/ft²	Fan static	**2.00**	in wg

Outdoor Ventilation Air Data

Design airflow CFM	**1750**	CFM	CFM/person	**8.18**	CFM/person
CFM/ft²	**0.38**	CFM/ft²			

Zone Sizing Summary for RTU-2

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 03:54PM

Air System Information

Air System Name **RTU-2**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **CAV/RH**

Number of zones **1**
Floor Area ..... **4617.0** ft²
Location ..... **Okeechobee, Florida**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**

Zone CFM Sizing ..... **Peak zone sensible load**
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	5388	5388	1.17	109.8	-	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	110.4	Jul 1800	22.7	4617.0

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							
2.-Bathroom	1	3.3	Jul 1400	154	0.3	168.0	0.91
2.-Bathroom(1)	1	3.9	Jul 1400	181	0.5	285.0	0.63
2.-boiler room	1	12.8	Jul 1800	597	0.2	122.0	4.89
2.-Cheder Limud	1	15.6	Jul 1800	729	7.1	704.0	1.04
2.-Coffee rm	1	7.3	Jul 1800	339	0.3	204.0	1.66
2.-Corridor	1	32.0	Jul 1400	1491	2.4	1490.0	1.00
2.-Electrical	1	2.3	Jul 1800	105	0.3	167.0	0.63
2.-Janitor and Storage	1	1.0	Jul 1400	46	0.2	146.0	0.31
2.-Kitchen rm	1	4.3	Jul 1800	201	0.2	100.0	2.01
2.-Main Entrance	1	11.0	Jun 1700	515	3.3	275.0	1.87
2.-Mikvah Office	1	1.5	Jul 1800	70	0.2	100.0	0.70
2.-Spk rm	1	0.8	Sep 1900	38	0.7	43.0	0.89
2.-Towel storage	1	1.3	Jul 1800	63	0.1	87.0	0.72
2.-Vestibule 122	1	4.1	Oct 1100	193	2.1	102.0	1.90
2.-W. Bathroom	1	4.1	Sep 1600	193	2.1	203.0	0.95
2.-WC 121	1	3.7	Jul 1400	174	0.4	254.0	0.68
2.-Women's entrance	1	6.4	Oct 1500	301	2.3	167.0	1.80

Air System Design Load Summary for RTU-2

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 03:54PM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 93.4 °F / 77.8 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 36.4 °F / 36.1 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	506 ft²	7195	-	506 ft²	-	-
Wall Transmission	694 ft²	2723	-	694 ft²	5074	-
Roof Transmission	4617 ft²	12171	-	4617 ft²	7495	-
Window Transmission	506 ft²	4156	-	506 ft²	8501	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	4617 ft²	0	-	4617 ft²	1589	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	3694 W	10498	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	401 W	1266	-	0	0	-
People	214	52884	44715	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	17360	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	**-**	**108253**	**44715**	**-**	**22658**	**0**
Zone Conditioning	-	104065	44715	-	21092	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	5388 CFM	0	-	5388 CFM	0	-
Ventilation Load	1750 CFM	42466	62234	1750 CFM	60162	0
Supply Fan Load	5388 CFM	7989	-	5388 CFM	-7989	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**154520**	**106949**	**-**	**73265**	**0**
Central Cooling Coil	-	154520	106960	-	-36579	0
Terminal Reheat Coils	-	0	-	-	109843	-
>> Total Conditioning	**-**	**154520**	**106960**	**-**	**73265**	**0**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for RTU-3

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL
Prepared by: Deltag

09/20/2023
10:58AM

Air System Information

Air System Name	**RTU-3**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**1492.0**	ft²
Air System Type	**VAV**		Location	**Okeechobee, Florida**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**		Zone CFM Sizing	**Peak zone sensible load**	
Sizing Data	**User-Modified**		Space CFM Sizing	**Individual peak space loads**	

Central Cooling Coil Sizing Data

Total coil load	**12.0**	Tons	Load occurs at	**Jul 1500**	
Total coil load	**143.5**	MBH	OA DB / WB	**93.4 / 77.8**	°F
Sensible coil load	**90.2**	MBH	Entering DB / WB	**74.4 / 64.5**	°F
Coil CFM at Jul 1500	**3554**	CFM	Leaving DB / WB	**50.9 / 50.2**	°F
Max block CFM	**4361**	CFM	Coil ADP	**48.3**	°F
Sum of peak zone CFM	**4361**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.629**		Resulting RH	**59**	%
ft²/Ton	**124.8**		Design supply temp.	**53.0**	°F
BTU/(hr-ft²)	**96.1**		Zone T-stat Check	**1 of 1**	OK
Water flow @ 10.0 °F rise	**N/A**		Max zone temperature deviation	**0.0**	°F

Preheat Coil Sizing Data

No heating coil loads occurred during this calculation.

Supply Fan Sizing Data

Actual max CFM	**4361**	CFM	Fan motor BHP	**3.58**	BHP
Standard CFM	**4356**	CFM	Fan motor kW	**2.84**	kW
Actual max CFM/ft²	**2.92**	CFM/ft²	Fan static	**3.00**	in wg

Outdoor Ventilation Air Data

Design airflow CFM	**1000**	CFM	CFM/person	**5.56**	CFM/person
CFM/ft²	**0.67**	CFM/ft²			

Zone Sizing Summary for RTU-3

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 10:58AM

Air System Information

Air System Name **RTU-3**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **1**
Floor Area ..... **1492.0** ft²
Location ..... **Okeechobee, Florida**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**

Zone CFM Sizing ..... **Peak zone sensible load**
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	4361	44	2.92	11.9	-	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	61.2	Jul 1400	11.9	1492.0

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							
NE Beis Medrash	1	61.2	Jul 1400	4361	11.9	1492.0	2.92

Air System Design Load Summary for RTU-3

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 10:58AM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 93.4 °F / 77.8 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 36.4 °F / 36.1 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	240 ft²	2838	-	240 ft²	-	-
Wall Transmission	804 ft²	5389	-	804 ft²	5178	-
Roof Transmission	1492 ft²	4366	-	1492 ft²	2134	-
Window Transmission	240 ft²	2691	-	240 ft²	3552	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	1492 ft²	0	-	1492 ft²	1037	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1194 W	3393	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	180	41399	21600	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	960	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	**-**	**61036**	**21600**	**-**	**11901**	**0**
Zone Conditioning	-	60592	21600	-	11349	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	3554 CFM	0	-	44 CFM	0	-
Ventilation Load	815 CFM	21625	31632	10 CFM	305	-160
Supply Fan Load	3554 CFM	8002	-	44 CFM	-2095	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**90219**	**53232**	**-**	**9560**	**-160**
Central Cooling Coil	-	90219	53233	-	-2341	-160
Preheat Coil	-	0	-	-	0	-
Terminal Reheat Coils	-	0	-	-	11901	-
>> Total Conditioning	**-**	**90219**	**53233**	**-**	**9560**	**-160**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for RTU-4

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 10:51AM

Air System Information

Air System Name	**RTU-4**		Number of zones	**1**
Equipment Class	**PKG ROOF**		Floor Area	**4537.0** ft²
Air System Type	**VAV**		Location	**Okeechobee, Florida**

Sizing Calculation Information

Calculation Months	**Jan to Dec**	Zone CFM Sizing	**Peak zone sensible load**
Sizing Data	**User-Modified**	Space CFM Sizing	**Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load	**34.4**	Tons	Load occurs at	**Aug 1500**	
Total coil load	**412.5**	MBH	OA DB / WB	**93.4 / 77.8**	°F
Sensible coil load	**253.8**	MBH	Entering DB / WB	**74.9 / 65.0**	°F
Coil CFM at Aug 1500	**9790**	CFM	Leaving DB / WB	**50.9 / 50.2**	°F
Max block CFM	**12007**	CFM	Coil ADP	**48.2**	°F
Sum of peak zone CFM	**12007**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.615**		Resulting RH	**60**	%
ft²/Ton	**132.0**		Design supply temp.	**53.0**	°F
BTU/(hr-ft²)	**90.9**		Zone T-stat Check	**1 of 1**	OK
Water flow @ 10.0 °F rise	**N/A**		Max zone temperature deviation	**0.0**	°F

Preheat Coil Sizing Data

No heating coil loads occurred during this calculation.

Supply Fan Sizing Data

Actual max CFM	**12007**	CFM	Fan motor BHP	**9.86**	BHP
Standard CFM	**11992**	CFM	Fan motor kW	**7.83**	kW
Actual max CFM/ft²	**2.65**	CFM/ft²	Fan static	**3.00**	in wg

Outdoor Ventilation Air Data

Design airflow CFM	**3000**	CFM	CFM/person	**5.50**	CFM/person
CFM/ft²	**0.66**	CFM/ft²			

Zone Sizing Summary for RTU-4

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 10:51AM

Air System Information

Air System Name **RTU-4**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **1**
Floor Area ..... **4537.0** ft²
Location ..... **Okeechobee, Florida**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**

Zone CFM Sizing ..... **Peak zone sensible load**
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	12007	120	2.65	21.2	-	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	168.4	Aug 1400	21.2	4537.0

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							
Beis Medrash main space	1	168.4	Aug 1400	12007	21.2	4537.0	2.65

Air System Design Load Summary for RTU-4

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 10:51AM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1500 COOLING OA DB / WB 93.4 °F / 77.8 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 36.4 °F / 36.1 °F		
ZONE LOADS	**Details**	**Sensible (BTU/hr)**	**Latent (BTU/hr)**	**Details**	**Sensible (BTU/hr)**	**Latent (BTU/hr)**
Window & Skylight Solar Loads	480 ft²	6259	-	480 ft²	-	-
Wall Transmission	920 ft²	6676	-	920 ft²	5925	-
Roof Transmission	4537 ft²	12863	-	4537 ft²	6489	-
Window Transmission	480 ft²	5382	-	480 ft²	7104	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	4537 ft²	0	-	4537 ft²	1724	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	3630 W	10317	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	545	125348	65400	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	960	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	**-**	**167806**	**65400**	**-**	**21242**	**0**
Zone Conditioning	-	166890	65400	-	19756	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	9790 CFM	0	-	120 CFM	0	-
Ventilation Load	2446 CFM	64901	93302	30 CFM	909	-479
Supply Fan Load	9790 CFM	22039	-	120 CFM	-5768	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**253831**	**158702**	**-**	**14897**	**-479**
Central Cooling Coil	-	253831	158700	-	-6345	-479
Preheat Coil	-	0	-	-	0	-
Terminal Reheat Coils	-	0	-	-	21242	-
>> Total Conditioning	**-**	**253831**	**158700**	**-**	**14897**	**-479**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		

Air System Sizing Summary for RTU-5

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL
Prepared by: Deltag

09/20/2023
11:04AM

Air System Information

Air System Name	**RTU-5**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**1492.0**	ft²
Air System Type	**VAV**		Location	**Okeechobee, Florida**	

Sizing Calculation Information

Calculation Months	**Jan to Dec**		Zone CFM Sizing	**Peak zone sensible load**	
Sizing Data	**User-Modified**		Space CFM Sizing	**Individual peak space loads**	

Central Cooling Coil Sizing Data

Total coil load	**12.0**	Tons	Load occurs at	**Aug 1600**	
Total coil load	**143.6**	MBH	OA DB / WB	**92.9 / 77.7**	°F
Sensible coil load	**90.5**	MBH	Entering DB / WB	**74.2 / 64.4**	°F
Coil CFM at Aug 1600	**3593**	CFM	Leaving DB / WB	**50.9 / 50.2**	°F
Max block CFM	**4423**	CFM	Coil ADP	**48.3**	°F
Sum of peak zone CFM	**4423**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.630**		Resulting RH	**59**	%
ft²/Ton	**124.6**		Design supply temp.	**53.0**	°F
BTU/(hr-ft²)	**96.3**		Zone T-stat Check	**1 of 1**	OK
Water flow @ 10.0 °F rise	**N/A**		Max zone temperature deviation	**0.0**	°F

Preheat Coil Sizing Data

No heating coil loads occurred during this calculation.

Supply Fan Sizing Data

Actual max CFM	**4423**	CFM	Fan motor BHP	**3.63**	BHP
Standard CFM	**4418**	CFM	Fan motor kW	**2.88**	kW
Actual max CFM/ft²	**2.96**	CFM/ft²	Fan static	**3.00**	in wg

Outdoor Ventilation Air Data

Design airflow CFM	**1000**	CFM	CFM/person	**5.56**	CFM/person
CFM/ft²	**0.67**	CFM/ft²			

Zone Sizing Summary for RTU-5

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 11:04AM

Air System Information

Air System Name **RTU-5**
Equipment Class ..... **PKG ROOF**
Air System Type ..... **VAV**

Number of zones **1**
Floor Area ..... **1492.0** ft²
Location ..... **Okeechobee, Florida**

Sizing Calculation Information

Calculation Months ..... **Jan to Dec**
Sizing Data ..... **User-Modified**

Zone CFM Sizing ..... **Peak zone sensible load**
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	4423	44	2.96	11.9	-	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	62.0	Sep 1600	11.9	1492.0

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							
SW Beis Medrash	1	62.0	Sep 1600	4423	11.9	1492.0	2.96

Air System Design Load Summary for RTU-5

Project Name: 230515-F Okeechobee Shul Synagogue-FINAL 09/20/2023
Prepared by: Deltag 11:04AM

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Aug 1600 COOLING OA DB / WB 92.9 °F / 77.7 °F			HEATING DATA AT DES HTG HEATING OA DB / WB 36.4 °F / 36.1 °F		
ZONE LOADS	Details	Sensible (BTU/hr)	Latent (BTU/hr)	Details	Sensible (BTU/hr)	Latent (BTU/hr)
Window & Skylight Solar Loads	240 ft²	4110	-	240 ft²	-	-
Wall Transmission	804 ft²	5341	-	804 ft²	5178	-
Roof Transmission	1492 ft²	3786	-	1492 ft²	2134	-
Window Transmission	240 ft²	2674	-	240 ft²	3552	-
Skylight Transmission	0 ft²	0	-	0 ft²	0	-
Door Loads	0 ft²	0	-	0 ft²	0	-
Floor Transmission	1492 ft²	0	-	1492 ft²	1037	-
Partitions	0 ft²	0	-	0 ft²	0	-
Ceiling	0 ft²	0	-	0 ft²	0	-
Overhead Lighting	1194 W	3437	-	0	0	-
Task Lighting	0 W	0	-	0	0	-
Electric Equipment	0 W	0	-	0	0	-
People	180	41399	21600	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	960	0	-	0	0
Safety Factor	0% / 0%	0	0	0%	0	0
>> Total Zone Loads	**-**	**61708**	**21600**	**-**	**11901**	**0**
Zone Conditioning	-	61246	21600	-	11342	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	3593 CFM	0	-	44 CFM	0	-
Ventilation Load	812 CFM	21123	31576	10 CFM	305	-160
Supply Fan Load	3593 CFM	8090	-	44 CFM	-2125	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	**-**	**90459**	**53176**	**-**	**9523**	**-160**
Central Cooling Coil	-	90459	53178	-	-2378	-160
Preheat Coil	-	0	-	-	0	-
Terminal Reheat Coils	-	0	-	-	11901	-
>> Total Conditioning	**-**	**90459**	**53178**	**-**	**9523**	**-160**
Key:	**Positive values are clg loads Negative values are htg loads**			**Positive values are htg loads Negative values are clg loads**		