

1946 TABERNACLE BAPTIST

Location
Building owner
Program user
Company
Comments

LAKE CITY FLORIDA

RE COBURN
COBURN AND ASSOCIATES INC

By
Dataset name

COBURN AND ASSOCIATES, INC
C:\Users\recob\OneDrive\Documents\TRACE 700
Projects\1946.trc

Calculation time
TRACE® 700 version

12:23 PM on 01/16/2021
6.3.4

Location
Latitude
Longitude
Time Zone
Elevation
Barometric pressure

Jacksonville, Florida
30.0 deg
81.0 deg
5
24 ft
29.9 in. Hg

Air density
Air specific heat
Density-specific heat product
Latent heat factor
Enthalpy factor

0.0760 lb/cu ft
0.2444 Btu/lb·°F
1.1144 Btu/h·cfm·°F
4,905.3 Btu·min/h·cu ft
4.5588 lb·min/hr·cu ft

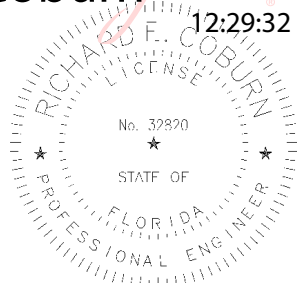
Summer design dry bulb
Summer design wet bulb
Winter design dry bulb
Summer clearness number
Winter clearness number
Summer ground reflectance
Winter ground reflectance
Carbon Dioxide Level

97.3 °F
76.5 °F
32.0 °F
0.95
0.95
0.20
0.20
400 ppm

Design simulation period
Cooling load methodology
Heating load methodology

January - December
TETD-TA1
UATD

Digitally signed
by Richard E
Coburn
Date: 2021.01.16
12:29:32 -05'00'



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TRACE₇₀₀
comprehensive building analysis
software from Trane

Design Cooling Load Summary

By COBURN AND ASSOCIATES, INC
1946 TABERNACLE BAPTIST
LAKE CITY FLORIDA

System - System - 001

Type - Rooftop Multizone

Coil Location - System

Coil Peak Calculation Time: August, hour 17

Ambient DB/WB/HR: 93 / 78 / 119

COOLING COIL LOAD INFORMATION

COOLING COIL SELECTION

Load Component	Sensible Btu/h	Latent Btu/h	Total Btu/h	Percent of Total
Solar Gain	0		0	0.0%
Glass Transmission	77		77	0.2%
Wall Transmission	1,966		1,966	3.9%
Roof Transmission	0		0	0.0%
Floor Transmission	0		0	0.0%
Adj Floor Transmission	0		0.00	0.0%
Partition Transmission	0		0	0.0%
Net Ceiling Load	0		0	0.0%
Lighting	1,988		1,988	3.9%
People	1,250	1,250	2,500	4.9%
Misc. Equipment Loads	29,300	0	29,300	57.4%
Cooling Infiltration	0	0	0	0.0%
Sub-Total ==>	34,581	1,250	35,831	70.2%
Ventilation Load	3,900	7,595	11,495	22.5%
Exhaust Heat	-362	0	-362	-0.7%
Supply Fan Load	0		0	0.0%
Return Fan Load	0		0	0.0%
Net Duct Heat Pickup	0		0	0.0%
Wall Load to Plenum	491		491	1.0%
Roof Load to Plenum	3,084		3,084	6.0%
Adj Floor to Plenum	0		0	0.0%
Lighting Load to Plenum	497		497	1.0%
Misc. Equip. Load to Plenum	0	0	0	0.0%
Glass Transmission to Plenum	0		0	0.0%
Glass Solar to Plenum	0		0	0.0%
Over/Under Sizing	0		0	0.0%
Reheat at Design	0	0	0	0.0%
Underfloor Sup Heat Pickup	0		0	0.0%
Supply Air Leakage	0	0	0	0.0%
Total Cooling Loads	42,191	8,845	51,036	100.0 %

Coil Selection Parameters

Coil Entering Air (DB / WB)	78.2 / 64.8 °F
Coil Entering Humidity Ratio	70.28 gr/lb
Coil Leaving Air (DB / WB)	59.1 / 56.5 °F
Coil Leaving Humidity Ratio	64.00 gr/lb
Coil Sensible Load	42.19 MBh
Coil Total Load	51.04 MBh
Cooling Supply Air Temperature	59.08 °F
Total Cooling Airflow	1,978.57 cfm
Resulting Room Relative Humidity	49.87 %

General Engineering Checks

Total Cooling Load	4.3 ton
Area / Load	225.72 ft²/ton
Total Floor Area	960 ft²
Cooling Airflow	2.06 cfm/ft²
Airflow / Load	465.21 cfm/ton
Percent Outdoor Air	10.1 %
Cooling Load Methodology	TETD-TA1

PEAK COOLING LOADS

MAIN SYSTEM

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			SPACE									COIL								
System	Zone	Room	Floor Area ft²	Peak Time Mo/Hr	OA		Room Dry Bulb °F	Supply Dry Bulb °F	Space Air Flow cfm	Space Sensible Load Btu/h	Space Latent Load Btu/h	Peak Time Mo/Hr	OA		Supply Dry Bulb °F	Coil Airflow cfm	Coil Sensible Load Btu/h	Coil Latent Load Btu/h		
					Condition	DB							WB	Condition					DB	WB
Alternative 1																				
		KITCHEN	Peak	960	6 /17	96	76	75.0	59.1	1,979	35,110	1,250	8 /17	93	78	59.1	1,979	42,191	8,845	
System - 001			Peak	960		96	76	75.0	59.1	1,979	35,110	1,250		93	78	59.1	1,979	42,191	8,845	
System - 001			Block	960	6 /17	96	76	75.0	59.1	1,979	35,110	1,250	8 /17	93	78	59.1	1,979	42,191	8,845	

TABERNACLE BAPTIST CHURCH

KITCHEN EQUIPMENT LOAD CALCULATIONS FOR HVAC

MARK	DESCRIPTION	KW INPUT	GAS INPUT	DIVERSITY	CALC BTU SENS	HOOD Y/N)	FROM TABLES	
							SENSIBLE	LATENT
NA	3 COMP FRYER		0	75000	10	7500 Y		
NA	FLAT TOP GRIDDLE			90000	10	9000 Y		
NA	4 BURNER STOVE			48000	10	4800 Y		
NA	OVEN		0	80000	10	8000		
TOTAL SENSIBLE LOAD FROM KITCHEN EQUIP					29300			

NOTE: CALCULATED KITCHEN LOADS ARE ADDED INTO THE LOAD CALCULATION AS A LINE ITEM