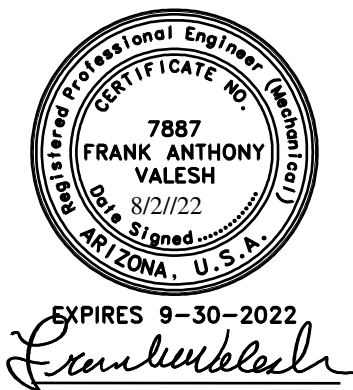


THERMAL LOAD CALCULATIONS FOR
CUSTOM RESIDENCE
THE ENCLAVES LOT 20
9796 EAST MIRAMONTE DRIVES
APN: 113-36-020
LAKE HAVASU, AZ 86406
USING SOFTWARE CARRIER HOURLY ANALYSIS VERSION 4.4
WHICH UTILIZES THE PROCEDURES DESCRIBED IN THE ASHRAE
FUNDAMENTALS HANDBOOK
IN LIEU OF MANUAL J



Air System Sizing Summary for ZONE 1

Project Name: 22036-LAKE HAVASU RESIDENCE
Prepared by:

07/24/2022
05:28PM

Air System Information

Air System Name **ZONE 1**
Equipment Class **SPLT AHU**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **1045.0** ft²
Location **LAKE HAVASU CITY, Arizona**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM **Sum of space airflow rates**
Space CFM **Individual peak space loads**

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

Central Cooling Coil Sizing Data

Total coil load **1.9** Tons
Total coil load **23.3** MBH
Sensible coil load **22.5** MBH
Coil CFM at Jul 1700 **1020** CFM
Max block CFM **1020** CFM
Sum of peak zone CFM **1020** CFM
Sensible heat ratio **0.963**
ft²/Ton **537.2**
BTU/(hr-ft²) **22.3**
Water flow @ 10.0 °F rise **N/A**

Load occurs at **Jul 1700**
OA DB / WB **122.6 / 71.3** °F
Entering DB / WB **75.0 / 61.2** °F
Leaving DB / WB **54.3 / 53.0** °F
Coil ADP **52.0** °F
Bypass Factor **0.100**
Resulting RH **45** %
Design supply temp. **55.0** °F
Zone T-stat Check **0 of 1** OK
Max zone temperature deviation **1.9** °F

Central Heating Coil Sizing Data

Max coil load **3.9** MBH
Coil CFM at Des Htg **1020** CFM
Max coil CFM **1020** CFM
Water flow @ 20.0 °F drop **N/A**

Load occurs at **Des Htg**
BTU/(hr-ft²) **3.7**
Ent. DB / Lvg DB **70.1 / 73.6** °F

Supply Fan Sizing Data

Actual max CFM **1020** CFM
Standard CFM **1004** CFM
Actual max CFM/ft² **0.98** CFM/ft²

Fan motor BHP **0.12** BHP
Fan motor kW **0.09** kW
Fan static **0.40** in wg

Outdoor Ventilation Air Data

Design airflow CFM **0** CFM
CFM/ft² **0.00** CFM/ft²

CFM/person **0.00** CFM/person

Air Conditioning Contractors of America

Manual S (Residential Equipment Selection)



Project Information

Name:

City:

State: Altitude: Altitude Adjustment:

Cooling Design Information

Outdoor Design Temp: °F db Summer

Outdoor Design Temp: °F db Winter

Indoor Design Temp: °F db %RH °F wb

Manual J Load Calculations

Total Load	Sensible	Latent	SHR	Heat Loss
<input type="text" value="23.3"/>	<input type="text" value="22.5"/>	<input type="text" value="0.8"/>	<input type="text" value="0.966"/>	<input type="text" value="0.7"/>

Airflow Calculations

Design TD for Airflow

Design Sensible CFM

OEM Information

Manufacturer: Furnace Model #:

Coil or Fan-Coil Model #: Condenser Model #: AFUE:

SEER: HSPF:

(A) Manufacturer's Cooling Performance Data

	Lower CFM	Return Air (F wb)	Total BTUH	Sensible BTUH	Outdoor Temperature = <input type="text" value="125"/> (F db)	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)							
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="23"/>	<input type="text" value="18"/>	<input type="text" value="5"/>	<input type="text" value="0.7918"/>	
Rated CFM @ Design RA Temperature	<input type="text" value="875"/>	<input type="text" value="63"/>	<input type="text" value="22"/>	<input type="text" value="21"/>	<input type="text" value="1"/>	<input type="text" value="0.956"/>	
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="21"/>	<input type="text" value="21"/>		<input type="text" value="1"/>	

(B) Manufacturer's Cooling Performance Data

	Higher CFM	Return Air (F wb)	Total BTUH	Sensible BTUH	Outdoor Temperature = <input type="text" value="125"/> (F db)	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)							
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="23"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="0.8783"/>	
Rated CFM @ Design RA Temperature	<input type="text" value="1125"/>	<input type="text" value="63"/>	<input type="text" value="23"/>	<input type="text" value="22"/>	<input type="text" value="1"/>	<input type="text" value="0.975"/>	
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="23"/>	<input type="text" value="23"/>		<input type="text" value="1"/>	

Manufacturer's Cooling Performance Data (Interpolated)

	Design CFM	Return Air (F wb)	Total BTUH	Sensible BTUH	Outdoor Temperature = 95 (F db)	Latent BTUH	SHR
Excess Latent Capacity Calculation				<input type="text" value="15"/>	<input type="text" value="2"/>	<input type="text" value="0.8694"/>	
Capacity @ Design CFM / RA (F wb)	<input type="text" value="1.2032"/>	<input type="text" value="63"/>	<input type="text" value="18"/>	<input type="text" value="16"/>	<input type="text" value="2"/>	<input type="text" value="0.912"/>	
Equipment Capacity as a % of Design			<input type="text" value="75.14%"/>	<input type="text" value="70.96%"/>	<input type="text" value="192.95%"/>		

Manufacturer's Heat Pump Data

Capacity @ 47 °F db	Capacity @ 17 °F db	Balance Point	Supplemental Heat Required
<input type="text" value="29"/>	<input type="text" value="17"/>	<input type="text" value="-22.9"/>	<input type="text" value="-0.01"/>

Manufacturer's Furnace Data

Input Capacity	Output Capacity	AFUE	Desired Temp. Rise	Calculated Airflow
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Air System Sizing Summary for ZONE 2

Project Name: 22036-LAKE HAVASU RESIDENCE
Prepared by:

07/24/2022
05:25PM

Air System Information

Air System Name **ZONE 2**
Equipment Class **PKG VERT**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **1596.0** ft²
Location **LAKE HAVASU CITY, Arizona**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM **Sum of space airflow rates**
Space CFM **Individual peak space loads**

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

Central Cooling Coil Sizing Data

Total coil load **3.6** Tons
Total coil load **43.2** MBH
Sensible coil load **41.1** MBH
Coil CFM at Jul 1700 **1224** CFM
Max block CFM **1224** CFM
Sum of peak zone CFM **1224** CFM
Sensible heat ratio **0.950**
ft²/Ton **443.1**
BTU/(hr-ft²) **27.1**
Water flow @ 10.0 °F rise **N/A**

Load occurs at **Jul 1700**
OA DB / WB **122.6 / 71.3** °F
Entering DB / WB **85.5 / 64.4** °F
Leaving DB / WB **54.0 / 52.0** °F
Coil ADP **50.4** °F
Bypass Factor **0.100**
Resulting RH **31** %
Design supply temp. **55.0** °F
Zone T-stat Check **0 of 1** OK
Max zone temperature deviation **12.7** °F

Central Heating Coil Sizing Data

Max coil load **7.8** MBH
Coil CFM at Des Htg **1224** CFM
Max coil CFM **1224** CFM
Water flow @ 20.0 °F drop **N/A**

Load occurs at **Des Htg**
BTU/(hr-ft²) **4.9**
Ent. DB / Lvg DB **69.7 / 75.7** °F

Supply Fan Sizing Data

Actual max CFM **1224** CFM
Standard CFM **1205** CFM
Actual max CFM/ft² **0.77** CFM/ft²

Fan motor BHP **0.14** BHP
Fan motor kW **0.11** kW
Fan static **0.40** in wg

Outdoor Ventilation Air Data

Design airflow CFM **0** CFM
CFM/ft² **0.00** CFM/ft²

CFM/person **0.00** CFM/person

Air Conditioning Contractors of America

Manual S (Residential Equipment Selection)



Project Information

Name:

City:

State: Altitude: Altitude Adjustment:

Cooling Design Information

Outdoor Design Temp: °F db Summer

Outdoor Design Temp: °F db Winter

Indoor Design Temp: °F db %RH °F wb

Manual J Load Calculations

Total Load	Sensible	Latent	SHR	Heat Loss
43.2	41.1	2.1	0.951	0.7

Airflow Calculations

Design TD for Airflow	17
Design Sensible CFM	2

OEM Information

Manufacturer: Furnace Model #:

Coil or Fan-Coil Model #: Condenser Model #: SEER: HSPF:

(A) Manufacturer's Cooling Performance Data

	Lower CFM	Return Air (F wb)	Outdoor Temperature = <input type="text" value="125"/> (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)						
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="44"/>	<input type="text" value="38"/>	<input type="text" value="6"/>	<input type="text" value="0.8717"/>
Rated CFM @ Design RA Temperature	<input type="text" value="1750"/>	<input type="text" value="63"/>	<input type="text" value="42"/>	<input type="text" value="41"/>	<input type="text" value="1"/>	<input type="text" value="0.9729"/>
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="41"/>	<input type="text" value="41"/>		<input type="text" value="1"/>

(B) Manufacturer's Cooling Performance Data

	Higher CFM	Return Air (F wb)	Outdoor Temperature = <input type="text" value="125"/> (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)						
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="45"/>	<input type="text" value="44"/>	<input type="text" value="1"/>	<input type="text" value="0.9714"/>
Rated CFM @ Design RA Temperature	<input type="text" value="2250"/>	<input type="text" value="63"/>	<input type="text" value="44"/>	<input type="text" value="44"/>	<input type="text" value="0"/>	<input type="text" value="0.9941"/>
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="44"/>	<input type="text" value="44"/>		<input type="text" value="1"/>

Manufacturer's Cooling Performance Data (Interpolated)

	Design CFM	Return Air (F wb)	Outdoor Temperature = 95 (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
Excess Latent Capacity Calculation				<input type="text" value="30"/>	<input type="text" value="4"/>	<input type="text" value="0.8779"/>
				+ <input type="text" value="1"/>	- <input type="text" value="1"/>	
Capacity @ Design CFM / RA (F wb)	<input type="text" value="2.1979"/>	<input type="text" value="63"/>	<input type="text" value="34"/>	<input type="text" value="31"/>	<input type="text" value="3"/>	<input type="text" value="0.908"/>
Equipment Capacity as a % of Design			<input type="text" value="79.39%"/>	<input type="text" value="75.80%"/>	<input type="text" value="149.69%"/>	

Manufacturer's Heat Pump Data

Capacity @ 47 °F db	Capacity @ 17 °F db	Balance Point	Supplemental Heat Required
<input type="text" value="56"/>	<input type="text" value="33"/>	<input type="text" value="-25.0"/>	<input type="text" value="-0.01"/>

Manufacturer's Furnace Data

Input Capacity	Output Capacity	AFUE	Desired Temp. Rise	Calculated Airflow
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Air System Sizing Summary for ZONE 3

Project Name: 22036-LAKE HAVASU RESIDENCE
Prepared by:

07/24/2022
05:23PM

Air System Information

Air System Name **ZONE 3**
Equipment Class **SPLT AHU**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **1176.0** ft²
Location **LAKE HAVASU CITY, Arizona**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM **Sum of space airflow rates**
Space CFM **Individual peak space loads**

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

Central Cooling Coil Sizing Data

Total coil load **3.0** Tons
Total coil load **35.9** MBH
Sensible coil load **35.0** MBH
Coil CFM at Jul 1700 **816** CFM
Max block CFM **816** CFM
Sum of peak zone CFM **816** CFM
Sensible heat ratio **0.976**
ft²/Ton **393.1**
BTU/(hr-ft²) **30.5**
Water flow @ 10.0 °F rise **N/A**

Load occurs at **Jul 1700**
OA DB / WB **122.6 / 71.3** °F
Entering DB / WB **94.0 / 66.4** °F
Leaving DB / WB **53.6 / 51.2** °F
Coil ADP **49.1** °F
Bypass Factor **0.100**
Resulting RH **22** %
Design supply temp. **55.0** °F
Zone T-stat Check **0 of 1** OK
Max zone temperature deviation **21.3** °F

Central Heating Coil Sizing Data

Max coil load **9.8** MBH
Coil CFM at Des Htg **816** CFM
Max coil CFM **816** CFM
Water flow @ 20.0 °F drop **N/A**

Load occurs at **Des Htg**
BTU/(hr-ft²) **8.3**
Ent. DB / Lvg DB **69.7 / 81.0** °F

Supply Fan Sizing Data

Actual max CFM **816** CFM
Standard CFM **803** CFM
Actual max CFM/ft² **0.69** CFM/ft²

Fan motor BHP **0.10** BHP
Fan motor kW **0.07** kW
Fan static **0.40** in wg

Outdoor Ventilation Air Data

Design airflow CFM **0** CFM
CFM/ft² **0.00** CFM/ft²

CFM/person **0.00** CFM/person

Air Conditioning Contractors of America

Manual S (Residential Equipment Selection)



Project Information

Name:

City:

State: Altitude: Altitude Adjustment:

Cooling Design Information

Outdoor Design Temp: °F db Summer

Outdoor Design Temp: °F db Winter

Indoor Design Temp: °F db %RH °F wb

Manual J Load Calculations

Total Load	Sensible	Latent	SHR	Heat Loss
<input type="text" value="35.9"/>	<input type="text" value="35"/>	<input type="text" value="0.9"/>	<input type="text" value="0.975"/>	<input type="text" value="0.7"/>

Airflow Calculations

Design TD for Airflow

Design Sensible CFM

OEM Information

Manufacturer: Furnace Model #:

Coil or Fan-Coil Model #: Condenser Model #: SEER: HSPF:

(A) Manufacturer's Cooling Performance Data

	Lower CFM	Return Air (F wb)	Total BTUH	Sensible BTUH	Outdoor Temperature = <input type="text" value="125"/> (F db)	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)							
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="36"/>	<input type="text" value="29"/>	<input type="text" value="7"/>	<input type="text" value="0.8089"/>	
Rated CFM @ Design RA Temperature	<input type="text" value="1400"/>	<input type="text" value="63"/>	<input type="text" value="34"/>	<input type="text" value="33"/>	<input type="text" value="1"/>	<input type="text" value="0.9606"/>	
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="34"/>	<input type="text" value="34"/>		<input type="text" value="1"/>	

(B) Manufacturer's Cooling Performance Data

	Higher CFM	Return Air (F wb)	Total BTUH	Sensible BTUH	Outdoor Temperature = <input type="text" value="125"/> (F db)	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)							
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="37"/>	<input type="text" value="32"/>	<input type="text" value="5"/>	<input type="text" value="0.8587"/>	
Rated CFM @ Design RA Temperature	<input type="text" value="1800"/>	<input type="text" value="63"/>	<input type="text" value="36"/>	<input type="text" value="35"/>	<input type="text" value="1"/>	<input type="text" value="0.971"/>	
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="36"/>	<input type="text" value="36"/>		<input type="text" value="1"/>	

Manufacturer's Cooling Performance Data (Interpolated)

	Design CFM	Return Air (F wb)	Total BTUH	Sensible BTUH	Outdoor Temperature = 95 (F db)	Latent BTUH	SHR
Excess Latent Capacity Calculation				<input type="text" value="25"/>	<input type="text" value="2"/>	<input type="text" value="0.9127"/>	
Capacity @ Design CFM / RA (F wb)	<input type="text" value="1.8717"/>	<input type="text" value="63"/>	<input type="text" value="28"/>	<input type="text" value="26"/>	<input type="text" value="2"/>	<input type="text" value="0.940"/>	
Equipment Capacity as a % of Design			<input type="text" value="77.39%"/>	<input type="text" value="74.63%"/>	<input type="text" value="184.74%"/>		

Manufacturer's Heat Pump Data

Capacity @ 47 °F db	Capacity @ 17 °F db	Balance Point	Supplemental Heat Required
<input type="text" value="46"/>	<input type="text" value="27"/>	<input type="text" value="-22.1"/>	<input type="text" value="-0.01"/>

Manufacturer's Furnace Data

Input Capacity	Output Capacity	AFUE	Desired Temp. Rise	Calculated Airflow
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Air System Sizing Summary for ZONE 4

Project Name: 22036-LAKE HAVASU RESIDENCE
Prepared by:

07/24/2022
05:31PM

Air System Information

Air System Name **ZONE 4**
Equipment Class **SPLT AHU**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **451.0** ft²
Location **LAKE HAVASU CITY, Arizona**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM **Sum of space airflow rates**
Space CFM **Individual peak space loads**

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

Central Cooling Coil Sizing Data

Total coil load **1.8** Tons
Total coil load **21.8** MBH
Sensible coil load **19.7** MBH
Coil CFM at Sep 1600 **408** CFM
Max block CFM **408** CFM
Sum of peak zone CFM **408** CFM
Sensible heat ratio **0.901**
ft²/Ton **248.0**
BTU/(hr-ft²) **48.4**
Water flow @ 10.0 °F rise **N/A**

Load occurs at **Sep 1600**
OA DB / WB **119.3 / 68.8** °F
Entering DB / WB **98.8 / 69.0** °F
Leaving DB / WB **53.4 / 50.9** °F
Coil ADP **48.4** °F
Bypass Factor **0.100**
Resulting RH **21** %
Design supply temp. **55.0** °F
Zone T-stat Check **0 of 1** OK
Max zone temperature deviation **26.2** °F

Central Heating Coil Sizing Data

Max coil load **5.4** MBH
Coil CFM at Des Htg **408** CFM
Max coil CFM **408** CFM
Water flow @ 20.0 °F drop **N/A**

Load occurs at **Des Htg**
BTU/(hr-ft²) **11.9**
Ent. DB / Lvg DB **69.8 / 82.1** °F

Supply Fan Sizing Data

Actual max CFM **408** CFM
Standard CFM **402** CFM
Actual max CFM/ft² **0.91** CFM/ft²

Fan motor BHP **0.05** BHP
Fan motor kW **0.04** kW
Fan static **0.40** in wg

Outdoor Ventilation Air Data

Design airflow CFM **0** CFM
CFM/ft² **0.00** CFM/ft²

CFM/person **0.00** CFM/person

Air Conditioning Contractors of America

Manual S (Residential Equipment Selection)



Project Information

Name:

City:

State: Altitude: Altitude Adjustment:

Cooling Design Information

Outdoor Design Temp: °F db Summer

Outdoor Design Temp: °F db Winter

Indoor Design Temp: °F db %RH °F wb

Manual J Load Calculations

Total Load	Sensible	Latent	SHR	Heat Loss
<input type="text" value="21.8"/>	<input type="text" value="19.7"/>	<input type="text" value="2.1"/>	<input type="text" value="0.904"/>	<input type="text" value="0.7"/>

Airflow Calculations

Design TD for Airflow

Design Sensible CFM

OEM Information

Manufacturer: Furnace Model #:

Coil or Fan-Coil Model #: Condenser Model #: SEER: HSPF:

(A) Manufacturer's Cooling Performance Data

	Lower CFM	Return Air (F wb)	Outdoor Temperature = <input type="text" value="125"/> (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)						
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="23"/>	<input type="text" value="18"/>	<input type="text" value="5"/>	<input type="text" value="0.7918"/>
Rated CFM @ Design RA Temperature	<input type="text" value="700"/>	<input type="text" value="63"/>	<input type="text" value="22"/>	<input type="text" value="21"/>	<input type="text" value="1"/>	<input type="text" value="0.956"/>
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="21"/>	<input type="text" value="21"/>	<input type="text"/>	<input type="text" value="1"/>

(B) Manufacturer's Cooling Performance Data

	Higher CFM	Return Air (F wb)	Outdoor Temperature = <input type="text" value="125"/> (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)						
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="23"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="0.8783"/>
Rated CFM @ Design RA Temperature	<input type="text" value="900"/>	<input type="text" value="63"/>	<input type="text" value="23"/>	<input type="text" value="22"/>	<input type="text" value="1"/>	<input type="text" value="0.975"/>
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="23"/>	<input type="text" value="23"/>	<input type="text"/>	<input type="text" value="1"/>

Manufacturer's Cooling Performance Data (Interpolated)

	Design CFM	Return Air (F wb)	Outdoor Temperature = 95 (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
				<input type="text" value="15"/>	<input type="text" value="2"/>	<input type="text" value="0.8694"/>
Excess Latent Capacity Calculation				+ <input type="text" value="0"/>	- <input type="text" value="0"/>	
Capacity @ Design CFM / RA (F wb)	<input type="text" value="1.0535"/>	<input type="text" value="63"/>	<input type="text" value="18"/>	<input type="text" value="15"/>	<input type="text" value="2"/>	<input type="text" value="0.875"/>
Equipment Capacity as a % of Design			<input type="text" value="80.32%"/>	<input type="text" value="77.74%"/>	<input type="text" value="104.45%"/>	

Manufacturer's Heat Pump Data

Capacity @ 47 °F db	Capacity @ 17 °F db	Balance Point	Supplemental Heat Required
<input type="text" value="22"/>	<input type="text" value="13"/>	<input type="text" value="-20.1"/>	<input type="text" value="-0.01"/>

Manufacturer's Furnace Data

Input Capacity	Output Capacity	AFUE	Desired Temp. Rise	Calculated Airflow
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Air System Sizing Summary for ZONE 5

Project Name: 22036-LAKE HAVASU RESIDENCE
Prepared by:

07/24/2022
05:55PM

Air System Information

Air System Name **ZONE 5**
Equipment Class **SPLT AHU**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **3513.0** ft²
Location **LAKE HAVASU CITY, Arizona**

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM **Sum of space airflow rates**
Space CFM **Individual peak space loads**

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Central Cooling Coil Sizing Data

Total coil load **3.6** Tons
Total coil load **43.6** MBH
Sensible coil load **42.5** MBH
Coil CFM at Jul 1800 **1619** CFM
Max block CFM **1619** CFM
Sum of peak zone CFM **1619** CFM
Sensible heat ratio **0.975**
ft²/Ton **966.1**
BTU/(hr-ft²) **12.4**
Water flow @ 10.0 °F rise **N/A**

Load occurs at **Jul 1800**
OA DB / WB **120.0 / 70.6** °F
Entering DB / WB **80.7 / 63.7** °F
Leaving DB / WB **56.0 / 54.4** °F
Coil ADP **53.2** °F
Bypass Factor **0.100**
Resulting RH **39** %
Design supply temp. **55.0** °F
Zone T-stat Check **1 of 1** OK
Max zone temperature deviation **0.0** °F

Central Heating Coil Sizing Data

Max coil load **5.8** MBH
Coil CFM at Des Htg **1619** CFM
Max coil CFM **1619** CFM
Water flow @ 20.0 °F drop **N/A**

Load occurs at **Des Htg**
BTU/(hr-ft²) **1.7**
Ent. DB / Lvg DB **70.0 / 73.4** °F

Supply Fan Sizing Data

Actual max CFM **1619** CFM
Standard CFM **1593** CFM
Actual max CFM/ft² **0.46** CFM/ft²

Fan motor BHP **0.19** BHP
Fan motor kW **0.14** kW
Fan static **0.40** in wg

Outdoor Ventilation Air Data

Design airflow CFM **0** CFM
CFM/ft² **0.00** CFM/ft²

CFM/person **0.00** CFM/person

Air Conditioning Contractors of America

Manual S (Residential Equipment Selection)



Project Information

Name:

City:

State: Altitude: Altitude Adjustment:

Cooling Design Information

Outdoor Design Temp: °F db Summer

Outdoor Design Temp: °F db Winter

Indoor Design Temp: °F db %RH °F wb

Manual J Load Calculations

Total Load	Sensible	Latent	SHR	Heat Loss
43.6	42.5	1.1	0.975	0.7

Airflow Calculations

Design TD for Airflow	17
Design Sensible CFM	2

OEM Information

Manufacturer: Furnace Model #:

Coil or Fan-Coil Model #: Condenser Model #: SEER: HSPF:

(A) Manufacturer's Cooling Performance Data

	Lower CFM	Return Air (F wb)	Outdoor Temperature = <input type="text" value="125"/> (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)						
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="44"/>	<input type="text" value="38"/>	<input type="text" value="6"/>	<input type="text" value="0.8717"/>
Rated CFM @ Design RA Temperature	<input type="text" value="1750"/>	<input type="text" value="63"/>	<input type="text" value="42"/>	<input type="text" value="41"/>	<input type="text" value="1"/>	<input type="text" value="0.9729"/>
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="41"/>	<input type="text" value="41"/>		<input type="text" value="1"/>

(B) Manufacturer's Cooling Performance Data

	Higher CFM	Return Air (F wb)	Outdoor Temperature = <input type="text" value="125"/> (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
Entering Coil Temperature = 75 (F db)						
Rated CFM @ Rated RA Temperature		<input type="text" value="67"/>	<input type="text" value="45"/>	<input type="text" value="43"/>	<input type="text" value="2"/>	<input type="text" value="0.9566"/>
Rated CFM @ Design RA Temperature	<input type="text" value="2250"/>	<input type="text" value="63"/>	<input type="text" value="44"/>	<input type="text" value="43"/>	<input type="text" value="1"/>	<input type="text" value="0.9808"/>
Rated CFM @ Rated RA Temperature		<input type="text" value="62"/>	<input type="text" value="44"/>	<input type="text" value="43"/>	<input type="text" value="1"/>	<input type="text" value="0.987"/>

Manufacturer's Cooling Performance Data (Interpolated)

	Design CFM	Return Air (F wb)	Outdoor Temperature = 95 (F db)			
			Total BTUH	Sensible BTUH	Latent BTUH	SHR
Excess Latent Capacity Calculation				<input type="text" value="32"/>	<input type="text" value="2"/>	<input type="text" value="0.9377"/>
				+ <input type="text" value="1"/>	- <input type="text" value="1"/>	
Capacity @ Design CFM / RA (F wb)	<input type="text" value="2.2727"/>	<input type="text" value="63"/>	<input type="text" value="34"/>	<input type="text" value="33"/>	<input type="text" value="2"/>	<input type="text" value="0.953"/>
Equipment Capacity as a % of Design			<input type="text" value="78.67%"/>	<input type="text" value="76.90%"/>	<input type="text" value="147.09%"/>	

Manufacturer's Heat Pump Data

Capacity @ 47 °F db	Capacity @ 17 °F db	Balance Point	Supplemental Heat Required
<input type="text" value="56"/>	<input type="text" value="33"/>	<input type="text" value="-25.0"/>	<input type="text" value="-0.01"/>

Manufacturer's Furnace Data

Input Capacity	Output Capacity	AFUE	Desired Temp. Rise	Calculated Airflow
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>