Air System Sizing Summary for AHU01 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU01 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**1008.2**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**21.4**	Tons	Load occurs at	**Jul 1400**	
Total coil load	**257.4**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**215.5**	MBH	Entering DB / WB	**79.7 / 61.7**	°F
Coil CFM at Jul 1400	**6138**	CFM	Leaving DB / WB	**47.2 / 45.7**	°F
Max block CFM	**6138**	CFM	Coil ADP	**43.6**	°F
Sum of peak zone CFM	**6077**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.837**		Resulting RH	**42**	%
ft²/Ton	**47.0**		Design supply temp.	**47.0**	°F
BTU/(hr-ft²)	**255.3**		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	**13.3**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**6138**	CFM	BTU/(hr-ft²)	**13.2**	
Max coil CFM	**6138**	CFM	Ent. DB / Lvg DB	**66.4 / 68.4**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**6138**	CFM	Fan motor BHP	**20.00**	BHP
Standard CFM	**6131**	CFM	Fan motor kW	**14.91**	kW
Actual max CFM/ft²	**6.09**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**1000**	CFM	CFM/person	**200.00**	CFM/person
CFM/ft²	**0.99**	CFM/ft²			

Air System Sizing Summary for AHU02 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU02 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**2888.2**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**85.6**	Tons	Load occurs at	**Jul 1600**	
Total coil load	**1027.1**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**569.5**	MBH	Entering DB / WB	**91.3 / 74.7**	°F
Coil CFM at Jul 1600	**12313**	CFM	Leaving DB / WB	**48.4 / 47.7**	°F
Max block CFM	**12313**	CFM	Coil ADP	**43.6**	°F
Sum of peak zone CFM	**12190**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.554**		Resulting RH	**44**	%
ft²/Ton	**33.7**		Design supply temp.	**48.3**	°F
BTU/(hr-ft²)	**355.6**		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	**708.8**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**12313**	CFM	BTU/(hr-ft²)	**245.4**	
Max coil CFM	**12313**	CFM	Ent. DB / Lvg DB	**11.6 / 64.9**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**12313**	CFM	Fan motor BHP	**20.00**	BHP
Standard CFM	**12300**	CFM	Fan motor kW	**14.91**	kW
Actual max CFM/ft²	**4.26**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**12190**	CFM	CFM/person	**641.58**	CFM/person
CFM/ft²	**4.22**	CFM/ft²			

Air System Sizing Summary for AHU03 Sys

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Air System Information

Air System Name	**AHU03 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**1177.0**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**31.7**	Tons	Load occurs at	**Aug 1500**	
Total coil load	**380.1**	MBH	OA DB / WB	**92.0 / 75.0**	°F
Sensible coil load	**224.6**	MBH	Entering DB / WB	**88.5 / 72.6**	°F
Coil CFM at Aug 1500	**5796**	CFM	Leaving DB / WB	**52.6 / 51.6**	°F
Max block CFM	**5796**	CFM	Coil ADP	**48.6**	°F
Sum of peak zone CFM	**5738**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.591**		Resulting RH	**46**	%
ft²/Ton	**37.2**		Design supply temp.	**46.9**	°F
BTU/(hr-ft²)	**322.9**		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	**275.8**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**5796**	CFM	BTU/(hr-ft²)	**234.3**	
Max coil CFM	**5796**	CFM	Ent. DB / Lvg DB	**22.1 / 66.2**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**5796**	CFM	Fan motor BHP	**15.00**	BHP
Standard CFM	**5790**	CFM	Fan motor kW	**11.19**	kW
Actual max CFM/ft²	**4.92**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**4740**	CFM	CFM/person	**592.50**	CFM/person
CFM/ft²	**4.03**	CFM/ft²			

Air System Sizing Summary for AHU04 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU04 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**1135.3**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**31.1**	Tons	Load occurs at	**Jul 1600**	
Total coil load	**372.6**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**221.9**	MBH	Entering DB / WB	**86.8 / 71.3**	°F
Coil CFM at Jul 1600	**5589**	CFM	Leaving DB / WB	**50.0 / 49.1**	°F
Max block CFM	**5589**	CFM	Coil ADP	**45.9**	°F
Sum of peak zone CFM	**5533**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.595**		Resulting RH	**42**	%
ft²/Ton	**36.6**		Design supply temp.	**47.2**	°F
BTU/(hr-ft²)	**328.2**		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	**237.8**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**5589**	CFM	BTU/(hr-ft²)	**209.5**	
Max coil CFM	**5589**	CFM	Ent. DB / Lvg DB	**26.4 / 65.9**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**5589**	CFM	Fan motor BHP	**15.00**	BHP
Standard CFM	**5583**	CFM	Fan motor kW	**11.19**	kW
Actual max CFM/ft²	**4.92**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**4170**	CFM	CFM/person	**521.25**	CFM/person
CFM/ft²	**3.67**	CFM/ft²			

Air System Sizing Summary for AHU05 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU05 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**869.2**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**13.1**	Tons	Load occurs at	**Jul 1500**	
Total coil load	**157.6**	MBH	OA DB / WB	**92.0 / 75.0**	°F
Sensible coil load	**98.8**	MBH	Entering DB / WB	**84.7 / 69.3**	°F
Coil CFM at Jul 1500	**2633**	CFM	Leaving DB / WB	**50.0 / 48.9**	°F
Max block CFM	**2633**	CFM	Coil ADP	**46.1**	°F
Sum of peak zone CFM	**2607**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.627**		Resulting RH	**41**	%
ft²/Ton	**66.2**		Design supply temp.	**47.3**	°F
BTU/(hr-ft²)	**181.3**		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	**87.9**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**2633**	CFM	BTU/(hr-ft²)	**101.1**	
Max coil CFM	**2633**	CFM	Ent. DB / Lvg DB	**34.8 / 65.7**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**2633**	CFM	Fan motor BHP	**7.50**	BHP
Standard CFM	**2630**	CFM	Fan motor kW	**5.59**	kW
Actual max CFM/ft²	**3.03**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**1600**	CFM	CFM/person	**228.57**	CFM/person
CFM/ft²	**1.84**	CFM/ft²			

Air System Sizing Summary for AHU06 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU06 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**807.9**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**17.9**	Tons	Load occurs at	**Aug 1600**	
Total coil load	**214.9**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**118.4**	MBH	Entering DB / WB	**91.5 / 74.9**	°F
Coil CFM at Aug 1600	**2424**	CFM	Leaving DB / WB	**46.2 / 45.7**	°F
Max block CFM	**2424**	CFM	Coil ADP	**41.2**	°F
Sum of peak zone CFM	**2399**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.551**		Resulting RH	**41**	%
ft²/Ton	**45.1**		Design supply temp.	**47.4**	°F
BTU/(hr-ft²)	**266.0**		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	**133.3**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**2424**	CFM	BTU/(hr-ft²)	**164.9**	
Max coil CFM	**2424**	CFM	Ent. DB / Lvg DB	**11.0 / 62.0**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**2424**	CFM	Fan motor BHP	**7.50**	BHP
Standard CFM	**2421**	CFM	Fan motor kW	**5.59**	kW
Actual max CFM/ft²	**3.00**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**2424**	CFM	CFM/person	**346.24**	CFM/person
CFM/ft²	**3.00**	CFM/ft²			

Air System Sizing Summary for AHU07 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU07 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**2004.4**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**61.3**	Tons	Load occurs at	**Jul 1400**	
Total coil load	**735.8**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**430.1**	MBH	Entering DB / WB	**91.2 / 74.7**	°F
Coil CFM at Jul 1400	**11616**	CFM	Leaving DB / WB	**56.8 / 55.7**	°F
Max block CFM	**11616**	CFM	Coil ADP	**53.0**	°F
Sum of peak zone CFM	**11500**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.585**		Resulting RH	**56**	%
ft²/Ton	**32.7**		Design supply temp.	**49.0**	°F
BTU/(hr-ft²)	**367.1**		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	**692.1**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**11616**	CFM	BTU/(hr-ft²)	**345.3**	
Max coil CFM	**11616**	CFM	Ent. DB / Lvg DB	**11.6 / 66.8**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**11616**	CFM	Fan motor BHP	**20.00**	BHP
Standard CFM	**11604**	CFM	Fan motor kW	**14.91**	kW
Actual max CFM/ft²	**5.80**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**11500**	CFM	CFM/person	**605.26**	CFM/person
CFM/ft²	**5.74**	CFM/ft²			

Air System Sizing Summary for AHU08 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU08 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**2296.3**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**30.0**	Tons	Load occurs at	**Jul 1400**	
Total coil load	**360.4**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**227.3**	MBH	Entering DB / WB	**82.7 / 68.8**	°F
Coil CFM at Jul 1400	**6964**	CFM	Leaving DB / WB	**52.4 / 51.4**	°F
Max block CFM	**6964**	CFM	Coil ADP	**49.1**	°F
Sum of peak zone CFM	**6894**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.631**		Resulting RH	**49**	%
ft²/Ton	**76.5**		Design supply temp.	**47.1**	°F
BTU/(hr-ft²)	**157.0**		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	**219.9**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**6964**	CFM	BTU/(hr-ft²)	**95.8**	
Max coil CFM	**6964**	CFM	Ent. DB / Lvg DB	**35.7 / 65.0**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**6964**	CFM	Fan motor BHP	**20.00**	BHP
Standard CFM	**6956**	CFM	Fan motor kW	**14.91**	kW
Actual max CFM/ft²	**3.03**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**4000**	CFM	CFM/person	**285.71**	CFM/person
CFM/ft²	**1.74**	CFM/ft²			

Air System Sizing Summary for AHU09 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU09 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**2228.2**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**14.5**	Tons	Load occurs at	**Jul 1600**	
Total coil load	**174.4**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**128.0**	MBH	Entering DB / WB	**76.7 / 66.5**	°F
Coil CFM at Jul 1600	**6752**	CFM	Leaving DB / WB	**59.1 / 58.2**	°F
Max block CFM	**6752**	CFM	Coil ADP	**57.2**	°F
Sum of peak zone CFM	**6685**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.734**		Resulting RH	**64**	%
ft²/Ton	**153.3**		Design supply temp.	**47.2**	°F
BTU/(hr-ft²)	**78.3**		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	**94.5**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**6752**	CFM	BTU/(hr-ft²)	**42.4**	
Max coil CFM	**6752**	CFM	Ent. DB / Lvg DB	**52.3 / 65.3**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**6752**	CFM	Fan motor BHP	**15.00**	BHP
Standard CFM	**6745**	CFM	Fan motor kW	**11.19**	kW
Actual max CFM/ft²	**3.03**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**2000**	CFM	CFM/person	**133.33**	CFM/person
CFM/ft²	**0.90**	CFM/ft²			

Air System Sizing Summary for AHU10 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU10 Sys**		Number of zones	**14**	
Equipment Class	**PKG ROOF**		Floor Area	**12246.6**	ft²
Air System Type	**VAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

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

Central Cooling Coil Sizing Data

Total coil load	**64.1**	Tons	Load occurs at	**Jul 1600**	
Total coil load	**769.4**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**578.7**	MBH	Entering DB / WB	**82.6 / 65.2**	°F
Coil CFM at Jul 1600	**16212**	CFM	Leaving DB / WB	**49.5 / 48.1**	°F
Max block CFM at Jul 1600	**17743**	CFM	Coil ADP	**45.8**	°F
Sum of peak zone CFM	**16877**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.752**		Resulting RH	**37**	%
ft²/Ton	**191.0**		Design supply temp.	**54.0**	°F
BTU/(hr-ft²)	**62.8**		Zone T-stat Check	**14 of 14**	OK
Water flow @ 10.0 °F rise	**N/A**		Max zone temperature deviation	**0.0**	°F

Supply Fan Sizing Data

Actual max CFM at Jul 1600	**17743**	CFM	Fan motor BHP	**40.00**	BHP
Standard CFM	**17724**	CFM	Fan motor kW	**29.83**	kW
Actual max CFM/ft²	**1.45**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**4680**	CFM	CFM/person	**25.57**	CFM/person
CFM/ft²	**0.38**	CFM/ft²			

Air System Sizing Summary for AHU11 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU11 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**1619.6**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**31.1**	Tons	Load occurs at	**Aug 1500**	
Total coil load	**373.7**	MBH	OA DB / WB	**92.0 / 75.0**	°F
Sensible coil load	**216.3**	MBH	Entering DB / WB	**89.4 / 73.5**	°F
Coil CFM at Aug 1500	**5622**	CFM	Leaving DB / WB	**53.7 / 52.7**	°F
Max block CFM	**5622**	CFM	Coil ADP	**49.7**	°F
Sum of peak zone CFM	**5060**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.579**		Resulting RH	**47**	%
ft²/Ton	**52.0**		Design supply temp.	**51.0**	°F
BTU/(hr-ft²)	**230.7**		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	**307.4**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**5622**	CFM	BTU/(hr-ft²)	**189.8**	
Max coil CFM	**5622**	CFM	Ent. DB / Lvg DB	**17.0 / 67.7**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**5622**	CFM	Fan motor BHP	**10.00**	BHP
Standard CFM	**5616**	CFM	Fan motor kW	**7.46**	kW
Actual max CFM/ft²	**3.47**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**5060**	CFM	CFM/person	**506.00**	CFM/person
CFM/ft²	**3.12**	CFM/ft²			

Air System Sizing Summary for AHU12 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

Appendix C - HAP Output

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Air System Information

Air System Name	**AHU12 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**8044.3**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**80.3**	Tons	Load occurs at	**Jul 1500**	
Total coil load	**963.3**	MBH	OA DB / WB	**92.0 / 75.0**	°F
Sensible coil load	**611.3**	MBH	Entering DB / WB	**82.9 / 67.5**	°F
Coil CFM at Jul 1500	**14865**	CFM	Leaving DB / WB	**44.8 / 43.9**	°F
Max block CFM	**14865**	CFM	Coil ADP	**40.5**	°F
Sum of peak zone CFM	**14122**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.635**		Resulting RH	**35**	%
ft²/Ton	**100.2**		Design supply temp.	**50.8**	°F
BTU/(hr-ft²)	**119.7**		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	**447.4**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**14865**	CFM	BTU/(hr-ft²)	**55.6**	
Max coil CFM	**14865**	CFM	Ent. DB / Lvg DB	**37.7 / 65.6**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**14865**	CFM	Fan motor BHP	**40.00**	BHP
Standard CFM	**14849**	CFM	Fan motor kW	**29.83**	kW
Actual max CFM/ft²	**1.85**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**8250**	CFM	CFM/person	**222.97**	CFM/person
CFM/ft²	**1.03**	CFM/ft²			

Air System Sizing Summary for AHU13 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

Appendix C - HAP Output

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Air System Information

Air System Name	**AHU13 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**6541.9**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**58.7**	Tons	Load occurs at	**Jul 1600**	
Total coil load	**704.9**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**454.5**	MBH	Entering DB / WB	**81.8 / 66.8**	°F
Coil CFM at Jul 1600	**11613**	CFM	Leaving DB / WB	**45.6 / 44.7**	°F
Max block CFM	**11613**	CFM	Coil ADP	**41.5**	°F
Sum of peak zone CFM	**11032**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.645**		Resulting RH	**36**	%
ft²/Ton	**111.4**		Design supply temp.	**51.0**	°F
BTU/(hr-ft²)	**107.8**		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	**327.5**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**11613**	CFM	BTU/(hr-ft²)	**50.1**	
Max coil CFM	**11613**	CFM	Ent. DB / Lvg DB	**40.1 / 66.2**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**11613**	CFM	Fan motor BHP	**30.00**	BHP
Standard CFM	**11600**	CFM	Fan motor kW	**22.37**	kW
Actual max CFM/ft²	**1.78**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**5960**	CFM	CFM/person	**192.26**	CFM/person
CFM/ft²	**0.91**	CFM/ft²			

Air System Sizing Summary for AHU14 Sys

Project Name: jxf_lab_mech2b_ACH
Prepared by: psuae

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Air System Information

Air System Name	**AHU14 Sys**		Number of zones	**1**	
Equipment Class	**PKG ROOF**		Floor Area	**1035.4**	ft²
Air System Type	**SZCAV**				

Sizing Calculation Information

Zone and Space Sizing Method:

Zone CFM	**Sum of space airflow rates**		Calculation Months	**Jan to Dec**	
Space CFM	**Individual peak space loads**		Sizing Data	**Calculated**	

Central Cooling Coil Sizing Data

Total coil load	**23.3**	Tons	Load occurs at	**Jul 1400**	
Total coil load	**280.0**	MBH	OA DB / WB	**91.5 / 74.9**	°F
Sensible coil load	**160.5**	MBH	Entering DB / WB	**90.3 / 74.2**	°F
Coil CFM at Jul 1400	**4095**	CFM	Leaving DB / WB	**54.0 / 53.0**	°F
Max block CFM	**4095**	CFM	Coil ADP	**49.9**	°F
Sum of peak zone CFM	**3890**	CFM	Bypass Factor	**0.100**	
Sensible heat ratio	**0.573**		Resulting RH	**57**	%
ft²/Ton	**44.4**		Design supply temp.	**53.0**	°F
BTU/(hr-ft²)	**270.5**		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	**229.8**	MBH	Load occurs at	**Des Htg**	
Coil CFM at Des Htg	**4095**	CFM	BTU/(hr-ft²)	**221.9**	
Max coil CFM	**4095**	CFM	Ent. DB / Lvg DB	**13.8 / 65.9**	°F
Water flow @ 20.0 °F drop	**N/A**				

Supply Fan Sizing Data

Actual max CFM	**4095**	CFM	Fan motor BHP	**5.00**	BHP
Standard CFM	**4090**	CFM	Fan motor kW	**3.73**	kW
Actual max CFM/ft²	**3.95**	CFM/ft²			

Outdoor Ventilation Air Data

Design airflow CFM	**3890**	CFM	CFM/person	**648.33**	CFM/person
CFM/ft²	**3.76**	CFM/ft²			