



Manual S Compliance Report
AC-1: Master
Mechanical Design Services, LLC

Job: Kidwai
 Date:
 By:

19718 W. Amelia Ave., Buckeye, AZ 85396 Phone: 602-628-2061 Email: chrisline@cox.net

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Cooling Equipment

Design Conditions

Outdoor design DB:	108°F	Sensible gain:	42918	Btuh	Entering coil DB:	79.8°F
Outdoor design WB:	69.4°F	Latent gain:	272	Btuh	Entering coil WB:	62.3°F
Indoor design DB:	75.0°F	Total gain:	43189	Btuh		
Indoor RH:	45%	Estimated airflow:	1900	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	4TWR6060H1+TEM6A0C60H51++TDR+UF/HRZ			
Manufacturer:	Trane					
Actual airflow:	1900	cfm				
Sensible capacity:	44792	Btuh	104%	of load		
Latent capacity:	2177	Btuh	802%	of load		
Total capacity:	46969	Btuh	109%	of load	SHR:	95%

Heating Equipment

Design Conditions

Outdoor design DB:	38.7°F	Heat loss:	35394	Btuh	Entering coil DB:	67.6°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	4TWR6060H1+TEM6A0C60H51++TDR+UF/HRZ			
Manufacturer:	Trane					
Actual airflow:	1900	cfm				
Output capacity:	47486	Btuh	134%	of load	Capacity balance:	27 °F
Supplemental heat required:	0	Btuh			Economic balance:	-99 °F

Meets all requirements of ACCA Manual S.



Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Notes:

Design Information

Weather: Phoenix/Sky Harbor, AZ, US

Winter Design Conditions

Outside db 39 °F
 Inside db 70 °F
 Design TD 31 °F

Summer Design Conditions

Outside db 108 °F
 Inside db 75 °F
 Design TD 33 °F
 Daily range M
 Relative humidity 45 %
 Moisture difference -10 gr/lb

Heating Summary

Structure 19750 Btuh
 Ducts 9006 Btuh
 Central vent (82 cfm) 2703 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 31460 Btuh

Sensible Cooling Equipment Load Sizing

Structure 23130 Btuh
 Ducts 15551 Btuh
 Central vent (82 cfm) 2876 Btuh
 Outside air
 Blower 0 Btuh
 Use manufacturer's data y
 Rate/swing multiplier 1.00
 Equipment sensible load 41558 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

	Heating	Cooling
Area (ft ²)	1647	1647
Volume (ft ³)	20769	20769
Air changes/hour	0.21	0.11
Equiv. AVF (cfm)	74	39

Latent Cooling Equipment Load Sizing

Structure 1031 Btuh
 Ducts -334 Btuh
 Central vent (82 cfm) -557 Btuh
 Outside air
 Equipment latent load 141 Btuh

Equipment Total Load (Sen+Lat) 41698 Btuh
 Req. total capacity at 0.80 SHR 4.3 ton

Heating Equipment Summary

Make Trane
 Trade TRANE
 Model 4TWR6060H1
 AHRI ref 8858393

Efficiency 9 HSPF

Heating input 55000 Btuh @ 47°F
 Heating output 27 °F
 Temperature rise 1900 cfm
 Actual air flow 0.066 cfm/Btuh
 Air flow factor 0.70 in H2O
 Static pressure
 Space thermostat
 Capacity balance point = 23 °F

Cooling Equipment Summary

Make Trane
 Trade TRANE
 Cond 4TWR6060H1
 Coil TEM6A0C60H51++TDR+UF/HRZ
 AHRI ref 8858393

Efficiency 12.5 EER, 15 SEER

Sensible cooling 45600 Btuh
 Latent cooling 11400 Btuh
 Total cooling 57000 Btuh
 Actual air flow 1900 cfm
 Air flow factor 0.049 cfm/Btuh
 Static pressure 0.70 in H2O
 Load sensible heat ratio 1.00

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



Manual S Compliance Report
AC-3: Gym
Mechanical Design Services, LLC

Job: Kidwai
 Date:
 By:

19718 W. Amelia Ave., Buckeye, AZ 85396 Phone: 602-628-2061 Email: chriscline@cox.net

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Cooling Equipment

Design Conditions

Outdoor design DB:	108°F	Sensible gain:	31810	Btuh	Entering coil DB:	80.3°F
Outdoor design WB:	69.4°F	Latent gain:	317	Btuh	Entering coil WB:	62.4°F
Indoor design DB:	75.0°F	Total gain:	32127	Btuh		
Indoor RH:	45%	Estimated airflow:	1400	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	4TWR6042H1+TEM6A0C48H41++TDR+UF/HRZ			
Manufacturer:	Trane					
Actual airflow:	1400	cfm				
Sensible capacity:	35174	Btuh	111%	of load		
Latent capacity:	808	Btuh	255%	of load		
Total capacity:	35982	Btuh	112%	of load	SHR:	98%

Heating Equipment

Design Conditions

Outdoor design DB:	38.7°F	Heat loss:	26019	Btuh	Entering coil DB:	66.6°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	4TWR6042H1+TEM6A0C48H41++TDR+UF/HRZ			
Manufacturer:	Trane					
Actual airflow:	1400	cfm				
Output capacity:	32918	Btuh	127%	of load	Capacity balance:	28 °F
Supplemental heat required:	0	Btuh			Economic balance:	-99 °F

Meets all requirements of ACCA Manual S.



Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Design Conditions

Location:
 Phoenix/Sky Harbor, AZ, US
 Elevation: 1106 ft
 Latitude: 33°N

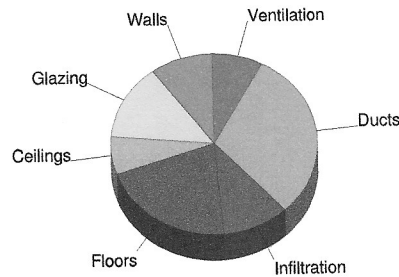
	Heating	Cooling
Outdoor:		
Dry bulb (°F)	39	108
Daily range (°F)	-	21 (M)
Wet bulb (°F)	-	69
Wind speed (mph)	15.0	7.5

	Heating	Cooling
Indoor:		
Indoor temperature (°F)	70	75
Design TD (°F)	31	33
Relative humidity (%)	45	45
Moisture difference (gr/lb)	22.4	-10.4

Infiltration:	
Method	Simplified
Construction quality	Average
Fireplaces	0

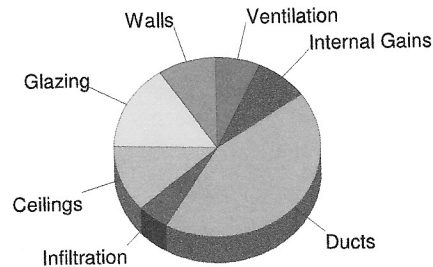
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	3499	9.9
Glazing	13.3	4803	13.6
Doors	0	0	0
Ceilings	1.0	2398	6.8
Floors	3.1	7442	21.0
Infiltration	1.8	3702	10.5
Ducts		10748	30.4
Piping		0	0
Humidification		0	0
Ventilation		2803	7.9
Adjustments		0	0
Total		35394	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.3	3918	9.1
Glazing	18.2	6581	15.3
Doors	0	0	0
Ceilings	2.2	5183	12.1
Floors	0	0	0
Infiltration	1.1	2110	4.9
Ducts		18534	43.2
Ventilation		2982	6.9
Internal gains		3610	8.4
Blower		0	0
Adjustments		0	0
Total		42918	100.0



Latent Cooling Load = 272 Btuh
 Overall U-value = 0.084 Btuh/ft²·°F

Data entries checked.

Project Information

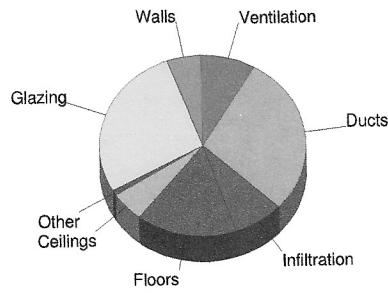
For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Design Conditions

Location: Phoenix/Sky Harbor, AZ, US Elevation: 1106 ft Latitude: 33°N		Indoor: Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)		Heating 70 31 45 22.4	Cooling 75 33 45 -10.4
Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating 39 - - 15.0	Cooling 108 21 (M) 69 7.5	Infiltration: Method Construction quality Fireplaces	Simplified Average 0	

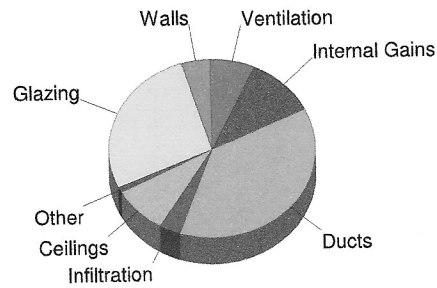
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	1.6	1688	5.4
Glazing	16.5	8681	27.6
Doors	12.2	293	0.9
Ceilings	1.0	1650	5.2
Floors	3.0	5005	15.9
Infiltration	1.8	2434	7.7
Ducts		9006	28.6
Piping		0	0
Humidification		0	0
Ventilation		2703	8.6
Adjustments		0	0
Total		31460	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.8	1890	4.5
Glazing	21.5	11293	27.2
Doors	17.2	413	1.0
Ceilings	2.2	3566	8.6
Floors	0	0	0
Infiltration	1.1	1387	3.3
Ducts		15551	37.4
Ventilation		2876	6.9
Internal gains		4580	11.0
Blower		0	0
Adjustments		0	0
Total		41558	100.0



Latent Cooling Load = 141 Btuh
 Overall U-value = 0.113 Btuh/ft²·°F

WARNING: window to floor area ratio = 31.9% - more than 25%.

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Design Conditions

Location:

Phoenix/Sky Harbor, AZ, US
 Elevation: 1106 ft
 Latitude: 33°N

Outdoor:

Dry bulb (°F)
 Daily range (°F)
 Wet bulb (°F)
 Wind speed (mph)

	Heating	Cooling
	39	108
	-	21 (M)
	-	69
	15.0	7.5

Indoor:

Indoor temperature (°F)
 Design TD (°F)
 Relative humidity (%)
 Moisture difference (gr/lb)

	Heating	Cooling
	70	75
	31	33
	45	45
	22.4	-10.4

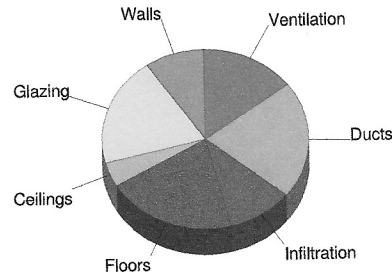
Infiltration:

Method
 Construction quality
 Fireplaces

Simplified
 Average
 0

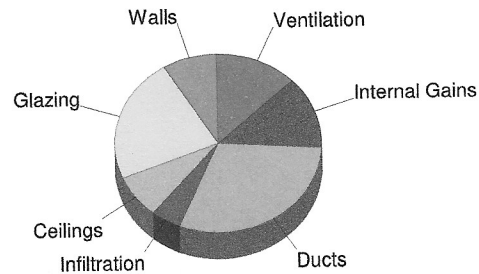
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.1	2435	9.4
Glazing	17.2	5098	19.6
Doors	0	0	0
Ceilings	1.0	1142	4.4
Floors	4.7	5318	20.4
Infiltration	1.8	2657	10.2
Ducts		5500	21.1
Piping		0	0
Humidification		0	0
Ventilation		3869	14.9
Adjustments		0	0
Total		26019	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.4	2727	8.6
Glazing	24.2	7175	22.6
Doors	0	0	0
Ceilings	2.2	2467	7.8
Floors	0	0	0
Infiltration	1.1	1515	4.8
Ducts		9620	30.2
Ventilation		4116	12.9
Internal gains		4190	13.2
Blower		0	0
Adjustments		0	0
Total		31810	100.0



Latent Cooling Load = 317 Btuh
 Overall U-value = 0.120 Btuh/ft²·°F

WARNING: window to floor area ratio = 26.0% - more than 25%.



Project Summary
AC-1: Master
Mechanical Design Services, LLC

Job: Kidwai
 Date:
 By:

19718 W. Amelia Ave., Buckeye, AZ 85396 Phone: 602-628-2061 Email: chrisline@cox.net

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Notes:

Design Information

Weather: Phoenix/Sky Harbor, AZ, US

Winter Design Conditions

Outside db 39 °F
 Inside db 70 °F
 Design TD 31 °F

Summer Design Conditions

Outside db 108 °F
 Inside db 75 °F
 Design TD 33 °F
 Daily range M
 Relative humidity 45 %
 Moisture difference -10 gr/lb

Heating Summary

Structure 21844 Btuh
 Ducts 10748 Btuh
 Central vent (85 cfm) 2803 Btuh
 Outside air
 Humidification 0 Btuh
 Piping 0 Btuh
 Equipment load 35394 Btuh

Sensible Cooling Equipment Load Sizing

Structure 21402 Btuh
 Ducts 18534 Btuh
 Central vent (85 cfm) 2982 Btuh
 Outside air 0 Btuh
 Blower
 Use manufacturer's data y
 Rate/swing multiplier 1.00
 Equipment sensible load 42918 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 1241 Btuh
 Ducts -393 Btuh
 Central vent (85 cfm) -577 Btuh
 Outside air
 Equipment latent load 272 Btuh

	Heating	Cooling
Area (ft²)	2394	2394
Volume (ft³)	24804	24804
Air changes/hour	0.27	0.15
Equiv. AVF (cfm)	112	60

Equipment Total Load (Sen+Lat) 43189 Btuh
 Req. total capacity at 0.80 SHR 4.5 ton

Heating Equipment Summary

Make Trane
 Trade TRANE
 Model 4TWR6060H1
 AHRI ref 8858393
 Efficiency 9 HSPF
 Heating input 55000 Btuh @ 47°F
 Heating output 27 °F
 Temperature rise 1900 cfm
 Actual air flow 0.058 cfm/Btuh
 Air flow factor 0.60 in H2O
 Static pressure
 Space thermostat
 Capacity balance point = 27 °F

Cooling Equipment Summary

Make Trane
 Trade TRANE
 Cond 4TWR6060H1
 Coil TEM6A0C60H51++TDR+UF/HRZ
 AHRI ref 8858393
 Efficiency 12.5 EER, 15 SEER
 Sensible cooling 45600 Btuh
 Latent cooling 11400 Btuh
 Total cooling 57000 Btuh
 Actual air flow 1900 cfm
 Air flow factor 0.048 cfm/Btuh
 Static pressure 0.60 in H2O
 Load sensible heat ratio 0.99

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.





Manual S Compliance Report
AC-2: Kitchen
Mechanical Design Services, LLC

Job: Kidwai
 Date:
 By:

19718 W. Amelia Ave., Buckeye, AZ 85396 Phone: 602-628-2061 Email: chriscline@cox.net

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Cooling Equipment

Design Conditions

Outdoor design DB:	108°F	Sensible gain:	41558	Btuh	Entering coil DB:	79.2°F
Outdoor design WB:	69.4°F	Latent gain:	141	Btuh	Entering coil WB:	62.2°F
Indoor design DB:	75.0°F	Total gain:	41698	Btuh		
Indoor RH:	45%	Estimated airflow:	1900	cfm		

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	4TWR6060H1+TEM6A0C60H51++TDR+UF/HRZ			
Manufacturer:	Trane					
Actual airflow:	1900	cfm				
Sensible capacity:	44391	Btuh	107%	of load		
Latent capacity:	1619	Btuh	1150%	of load		
Total capacity:	46010	Btuh	110%	of load	SHR:	96%

Heating Equipment

Design Conditions

Outdoor design DB:	38.7°F	Heat loss:	31460	Btuh	Entering coil DB:	67.8°F
Indoor design DB:	70.0°F					

Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	Split ASHP	Model:	4TWR6060H1+TEM6A0C60H51++TDR+UF/HRZ			
Manufacturer:	Trane					
Actual airflow:	1900	cfm				
Output capacity:	47468	Btuh	151%	of load	Capacity balance:	23 °F
Supplemental heat required:	0	Btuh			Economic balance:	-99 °F

Meets all requirements of ACCA Manual S.





Project Summary
AC-3: Gym
Mechanical Design Services, LLC

Job: Kidwai
 Date:
 By:

19718 W. Amelia Ave., Buckeye, AZ 85396 Phone: 602-628-2061 Email: chris@wrightsoft.com

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Notes:

Design Information

Weather: Phoenix/Sky Harbor, AZ, US

Winter Design Conditions

Outside db 39 °F
 Inside db 70 °F
 Design TD 31 °F

Summer Design Conditions

Outside db 108 °F
 Inside db 75 °F
 Design TD 33 °F
 Daily range M
 Relative humidity 45 %
 Moisture difference -10 gr/lb

Heating Summary

Structure 16651 Btuh
 Ducts 5500 Btuh
 Central vent (117 cfm) 3869 Btuh
 Outside air 0 Btuh
 Humidification 0 Btuh
 Piping 26019 Btuh
 Equipment load

Sensible Cooling Equipment Load Sizing

Structure 18074 Btuh
 Ducts 9620 Btuh
 Central vent (117 cfm) 4116 Btuh
 Outside air 0 Btuh
 Blower
 Use manufacturer's data
 Rate/swing multiplier 1.00
 Equipment sensible load 31810 Btuh

Infiltration

Method Simplified
 Construction quality Average
 Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 1307 Btuh
 Ducts -193 Btuh
 Central vent (117 cfm) -797 Btuh
 Outside air
 Equipment latent load 317 Btuh

	Heating	Cooling
Area (ft²)	1140	1140
Volume (ft³)	11398	11398
Air changes/hour	0.42	0.23
Equiv. AVF (cfm)	80	43

Equipment Total Load (Sen+Lat) 32127 Btuh
 Req. total capacity at 0.80 SHR 3.3 ton

Heating Equipment Summary

Make Trane
 Trade TRANE
 Model 4TWR6042H1
 AHRI ref 8858408
 Efficiency 9.6 HSPF
 Heating input 39000 Btuh @ 47°F
 Heating output 26 °F
 Temperature rise 1400 cfm
 Actual air flow 0.063 cfm/Btuh
 Air flow factor 0.60 in H2O
 Static pressure
 Space thermostat
 Capacity balance point = 28 °F

Cooling Equipment Summary

Make Trane
 Trade TRANE
 Cond 4TWR6042H1
 Coil TEM6A0C48H41++TDR+UF/HRZ
 AHRI ref 8858408
 Efficiency 13.0 EER, 17 SEER
 Sensible cooling 33600 Btuh
 Latent cooling 8400 Btuh
 Total cooling 42000 Btuh
 Actual air flow 1400 cfm
 Air flow factor 0.051 cfm/Btuh
 Static pressure 0.60 in H2O
 Load sensible heat ratio 0.99

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



Right-Suite@Universal 2022 22.0.03 RSU63790

...rrent WorkKidwai - Brian Romney\Kidwai_JSD.rup Calc = MJ8 Front Door faces: N

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Design Conditions

Location:
 Phoenix/Sky Harbor, AZ, US
 Elevation: 1106 ft
 Latitude: 33°N

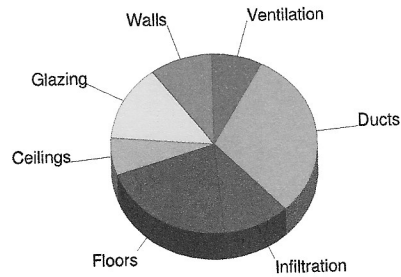
Outdoor:	Heating	Cooling
Dry bulb (°F)	39	108
Daily range (°F)	-	21 (M)
Wet bulb (°F)	-	69
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	70	75
Design TD (°F)	31	33
Relative humidity (%)	45	45
Moisture difference (gr/lb)	22.4	-10.4

Infiltration:	Method
Method	Simplified
Construction quality	Average
Fireplaces	0

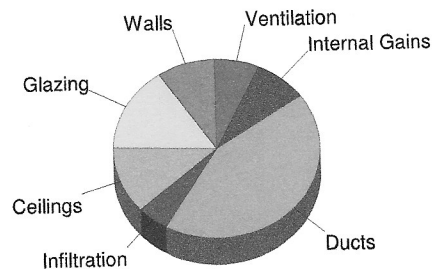
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.0	3499	9.9
Glazing	13.3	4803	13.6
Doors	0	0	0
Ceilings	1.0	2398	6.8
Floors	3.1	7442	21.0
Infiltration	1.8	3702	10.5
Ducts		10748	30.4
Piping		0	0
Humidification		0	0
Ventilation		2803	7.9
Adjustments		0	0
Total		35394	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.3	3918	9.1
Glazing	18.2	6581	15.3
Doors	0	0	0
Ceilings	2.2	5183	12.1
Floors	0	0	0
Infiltration	1.1	2110	4.9
Ducts		18534	43.2
Ventilation		2982	6.9
Internal gains		3610	8.4
Blower		0	0
Adjustments		0	0
Total		42918	100.0



Latent Cooling Load = 272 Btuh
 Overall U-value = 0.084 Btuh/ft²·°F

Data entries checked.

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Design Conditions

Location:
 Phoenix/Sky Harbor, AZ, US
 Elevation: 1106 ft
 Latitude: 33°N

Outdoor:

	Heating	Cooling
Dry bulb (°F)	39	108
Daily range (°F)	-	21 (M)
Wet bulb (°F)	-	69
Wind speed (mph)	15.0	7.5

Indoor:

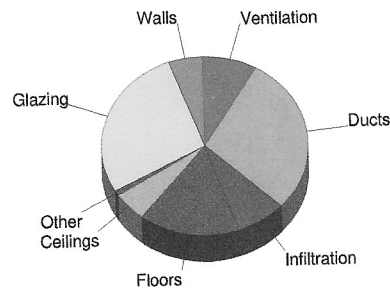
	Heating	Cooling
Indoor temperature (°F)	70	75
Design TD (°F)	31	33
Relative humidity (%)	45	45
Moisture difference (gr/lb)	22.4	-10.4

Infiltration:

Method	Simplified
Construction quality	Average
Fireplaces	0

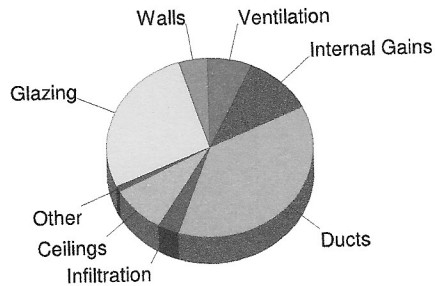
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	1.6	1688	5.4
Glazing	16.5	8681	27.6
Doors	12.2	293	0.9
Ceilings	1.0	1650	5.2
Floors	3.0	5005	15.9
Infiltration	1.8	2434	7.7
Ducts		9006	28.6
Piping		0	0
Humidification		0	0
Ventilation		2703	8.6
Adjustments		0	0
Total		31460	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.8	1890	4.5
Glazing	21.5	11293	27.2
Doors	17.2	413	1.0
Ceilings	2.2	3566	8.6
Floors	0	0	0
Infiltration	1.1	1387	3.3
Ducts		15551	37.4
Ventilation		2876	6.9
Internal gains		4580	11.0
Blower		0	0
Adjustments		0	0
Total		41558	100.0



Latent Cooling Load = 141 Btuh
 Overall U-value = 0.113 Btuh/ft²·°F

WARNING: window to floor area ratio = 31.9% - more than 25%.

Project Information

For: Kidwai Residence
 7399 E. Monterra Way, Scottsdale, AZ 85266

Design Conditions

Location:
 Phoenix/Sky Harbor, AZ, US
 Elevation: 1106 ft
 Latitude: 33°N

Indoor:
 Indoor temperature (°F) 70
 Design TD (°F) 31
 Relative humidity (%) 45
 Moisture difference (gr/lb) 22.4

Heating 70
Cooling 75

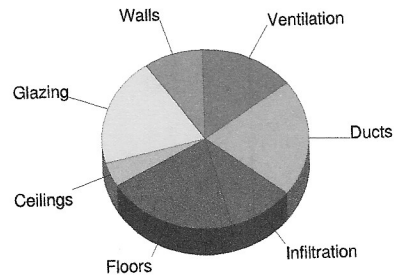
Outdoor:

	Heating	Cooling
Dry bulb (°F)	39	108
Daily range (°F)	-	21 (M)
Wet bulb (°F)	-	69
Wind speed (mph)	15.0	7.5

Infiltration:
 Method Simplified
 Construction quality Average
 Fireplaces 0

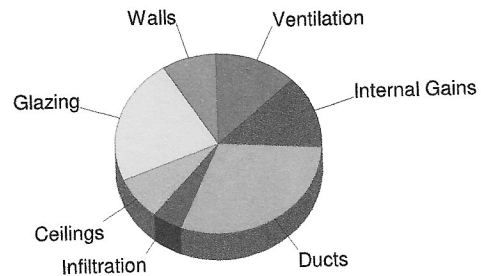
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.1	2435	9.4
Glazing	17.2	5098	19.6
Doors	0	0	0
Ceilings	1.0	1142	4.4
Floors	4.7	5318	20.4
Infiltration	1.8	2657	10.2
Ducts		5500	21.1
Piping		0	0
Humidification		0	0
Ventilation		3869	14.9
Adjustments		0	0
Total		26019	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.4	2727	8.6
Glazing	24.2	7175	22.6
Doors	0	0	0
Ceilings	2.2	2467	7.8
Floors	0	0	0
Infiltration	1.1	1515	4.8
Ducts		9620	30.2
Ventilation		4116	12.9
Internal gains		4190	13.2
Blower		0	0
Adjustments		0	0
Total		31810	100.0



Latent Cooling Load = 317 Btuh
 Overall U-value = 0.120 Btuh/ft²·°F

WARNING: window to floor area ratio = 26.0% - more than 25%.



Duct System Summary

AC-1: Master

Mechanical Design Services, LLC

Job: Kidwai
Date:
By:

19718 W. Amelia Ave., Buckeye, AZ 85396 Phone: 602-628-2061 Email: chriscline@cox.net

Project Information

For: Kidwai Residence
7399 E. Monterra Way, Scottsdale, AZ 85266

	Heating	Cooling
External static pressure	0.60 in H2O	0.60 in H2O
Pressure losses	0.15 in H2O	0.15 in H2O
Available static pressure	0.45 in H2O	0.45 in H2O
Supply / return available pressure	0.320 / 0.130 in H2O	0.320 / 0.130 in H2O
Lowest friction rate	0.112 in/100ft	0.112 in/100ft
Actual air flow	1900 cfm	1900 cfm
Total effective length (TEL)		403 ft

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
Bath 2	h 1132	66	40	0.139	5.0	0x0	VIFx	49.5	180.0	st9
Bath 3	h 1132	66	40	0.133	5.0	0x0	VIFx	40.4	200.0	st4A
Bedroom 2-A	c 4103	173	195	0.129	9.0	0x0	VIFx	57.5	190.0	st8
Bedroom 3-A	h 4654	271	270	0.141	9.0	0x0	VIFx	42.0	185.0	st4
Dressing	c 3480	125	166	0.182	8.0	0x0	VIFx	30.5	145.0	st10
Laundry	c 2778	95	132	0.196	7.0	0x0	VIFx	8.5	155.0	st10
M. Bath	h 3186	186	148	0.142	8.0	0x0	VIFx	35.5	190.0	st11
M. Bath-A	h 3186	186	148	0.140	8.0	0x0	VIFx	38.5	190.0	st11
M. Bedroom	c 3224	142	153	0.130	8.0	0x0	VIFx	46.5	200.0	st8
M. Bedroom-A	c 3224	142	153	0.135	8.0	0x0	VIFx	56.5	180.0	st8
M. Closet	h 2188	128	87	0.141	7.0	0x0	VIFx	16.0	210.0	st11
M. WC	h 972	57	53	0.138	5.0	0x0	VIFx	31.5	200.0	st11
Office	c 3076	127	146	0.117	8.0	0x0	VIFx	58.0	215.0	st6
Office-A	c 3076	127	146	0.112	8.0	0x0	VIFx	66.0	220.0	st6
WIC 2	c 230	5	11	0.142	4.0	0x0	VIFx	44.5	180.0	st9
WIC 3	c 230	5	11	0.132	4.0	0x0	VIFx	41.4	200.0	st4A

Bold/italic values have been manually overridden



Right-Suite® Universal 2022 22.0.03 RSU63790

...rrent WorkKidwai - Brian RomneyKidwai_JSD.rup Calc = MJ8 Front Door faces: N

2022-Jun-15 16:43:38

Page 1

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st10	Peak AVF	1344	1464	0.112	685	15.5	14 x 22	ShtMetl	st2
st2	Peak AVF	1900	1900	0.112	691	17.1	18 x 22	ShtMetl	
st11	Peak AVF	556	436	0.138	667	10.4	10 x 12	ShtMetl	st2
st8	Peak AVF	711	795	0.112	681	12.4	12 x 14	ShtMetl	st5
st9	Peak AVF	71	51	0.139	520	5.0	0 x 0	VinIFlx	st5
st4A	Peak AVF	71	51	0.132	520	5.0	0 x 0	VinIFlx	st4
st4	Peak AVF	342	321	0.132	628	10.0	0 x 0	VinIFlx	st10
st5	Peak AVF	782	846	0.112	677	12.6	12 x 15	ShtMetl	st10
st6	Peak AVF	253	293	0.112	537	10.0	0 x 0	VinIFlx	st8

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb4	0x0	966	908	68.5	0.190	682	11.9	12x 17		ShMt	rrs4
rb2	0x0	934	992	116.5	0.112	680	13.4	14x 15		ShMt	rrs2

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rrs4	Peak AVF	966	908	0.190	773	11.9	12 x 15	ShtMetl	rt2
rt2	Peak AVF	966	908	0.190	773	11.9	12 x 15	ShtMetl	
rrs2	Peak AVF	934	992	0.112	794	13.4	12 x 15	ShtMetl	rt3
rt3	Peak AVF	934	992	0.112	794	13.4	12 x 15	ShtMetl	

Bold/italic values have been manually overridden



Duct System Summary

AC-2: Kitchen

Mechanical Design Services, LLC

Job: Kidwai

Date:

By:

19718 W. Amelia Ave., Buckeye, AZ 85396 Phone: 602-628-2061 Email: chriscline@cox.net

Project Information

For: Kidwai Residence
7399 E. Monterra Way, Scottsdale, AZ 85266

	Heating	Cooling
External static pressure	0.70 in H2O	0.70 in H2O
Pressure losses	0.15 in H2O	0.15 in H2O
Available static pressure	0.55 in H2O	0.55 in H2O
Supply / return available pressure	0.435 / 0.115 in H2O	0.435 / 0.115 in H2O
Lowest friction rate	0.116 in/100ft	0.116 in/100ft
Actual air flow	1900 cfm	1900 cfm
Total effective length (TEL)	473 ft	

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
Foyer	h 3956	261	195	0.131	9.0	0x 0	VIFx	67.0	265.0	st3A
G. Entry	h 1472	97	59	0.243	6.0	0x0	VIFx	19.5	160.0	st3
Kitchen Area	c 3636	143	179	0.185	8.0	0x0	VIFx	35.0	200.0	st3
Kitchen Area-A	c 3634	143	179	0.213	8.0	0x0	VIFx	49.5	155.0	st3
Kitchen Area-B	c 3634	143	179	0.175	8.0	0x0	VIFx	59.0	190.0	st3
Kitchen Area-C	c 3634	143	179	0.226	8.0	0x0	VIFx	37.5	155.0	st3
Kitchen Area-D	c 3634	143	179	0.184	8.0	0x0	VIFx	47.0	190.0	st3
Pantry	h 2140	141	76	0.244	7.0	0x0	VIFx	28.5	150.0	st3
Powder	h 1464	97	35	0.218	6.0	0x0	VIFx	39.6	160.0	st3
R. Family	c 3273	148	161	0.139	8.0	0x0	VIFx	59.0	255.0	st3A
R. Family-A	c 3273	147	161	0.116	8.0	0x0	VIFx	74.5	300.0	st3B
R. Family-B	c 3273	147	161	0.116	8.0	0x0	VIFx	74.0	300.0	st3B
R. Family-C	c 3273	147	161	0.138	8.0	0x0	VIFx	60.0	255.0	st3A

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st3	PeakAVF	1900	1900	0.116	691	17.0	18 x 22	ShtMetl	
st3A	PeakAVF	851	838	0.116	681	12.6	12 x 15	ShtMetl	st3
st3B	PeakAVF	295	322	0.116	579	8.7	10 x 8	ShtMetl	st3A

Bold/italic values have been manually overridden



wrightsoft®
A Mitel® / Berkshire Hathaway Company

Right-Suite® Universal 2022 22.0.03 RSU63790

...rrert WorkKidwai - Brian RomneyKidwai_JSD.rup Calc = MJ8 Front Door faces: N

2022-Jun-15 16:43:38

Page 3

Return Branch Detail Table

Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb1	0x0	1900	1900	98.5	0.116	691	17.0	18x 22		ShMt	rrs1

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rrs1	Peak AVF	1900	1900	0.116	793	17.0	15 x 23	ShtMetl	rt4
rt4	Peak AVF	1900	1900	0.116	782	17.0	14 x 25	ShtMetl	



Project Information

For: Kidwai Residence
7399 E. Monterra Way, Scottsdale, AZ 85266

	Heating	Cooling
External static pressure	0.60 in H2O	0.60 in H2O
Pressure losses	0.15 in H2O	0.15 in H2O
Available static pressure	0.45 in H2O	0.45 in H2O
Supply / return available pressure	0.324 / 0.126 in H2O	0.324 / 0.126 in H2O
Lowest friction rate	0.142 in/100ft	0.142 in/100ft
Actual air flow	1400 cfm	1400 cfm
Total effective length (TEL)		317 ft

Supply Branch Detail Table

Name	Design (Btuh)	Htg (cfm)	Clg (cfm)	Design FR	Diam (in)	H x W (in)	Duct Matl	Actual Ln (ft)	Ftg.Eqv Ln (ft)	Trunk
G. Bath	h 819	52	37	0.142	4.0	0x0	VIFx	38.5	190.0	st1A
G. WIC	h 664	42	23	0.144	4.0	0x0	VIFx	46.0	180.0	st1A
Gym	c 3670	179	186	0.148	8.0	0x0	VIFx	58.5	160.0	st1A
Gym-A	c 3670	179	186	0.146	8.0	0x0	VIFx	62.0	160.0	st1A
Gym-B	c 3670	179	186	0.146	8.0	0x0	VIFx	52.5	170.0	st1A
Lounge	h 3124	197	188	0.226	8.0	0x0	VIFx	28.5	115.0	st1
Lounge-A	h 3124	197	188	0.221	8.0	0x0	VIFx	32.0	115.0	st1
Lounge-B	h 3124	197	188	0.222	8.0	0x0	VIFx	21.0	125.0	st1
Message	c 4362	178	221	0.172	9.0	0x0	VIFx	39.0	150.0	st1

Supply Trunk Detail Table

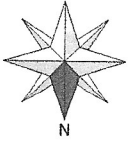
Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st1	PeakAVF	1400	1400	0.142	686	14.5	14 x 21	ShtMetl	
st1A	PeakAVF	630	616	0.142	648	10.8	10 x 14	ShtMetl	st1

Return Branch Detail Table

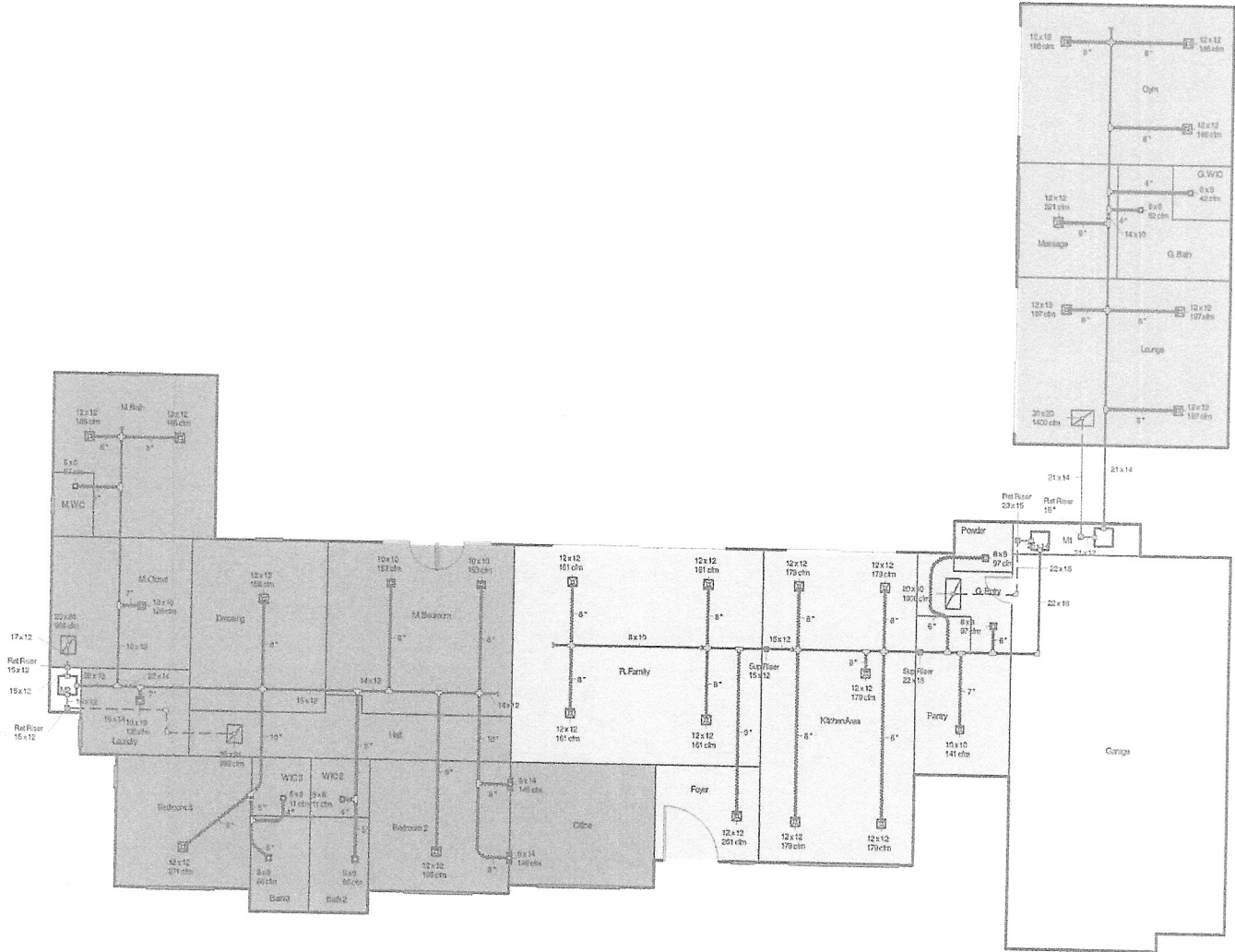
Name	Grille Size (in)	Htg (cfm)	Clg (cfm)	TEL (ft)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Stud/Joist Opening (in)	Duct Matl	Trunk
rb3	0x0	1400	1400	88.5	0.142	686	14.5	14x 21		ShMt	rrs3

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rrs3	PeakAVF	1400	1400	0.142	792	18.0	0 x 0	ShtMetl	rt1
rt1	PeakAVF	1400	1400	0.142	800	14.5	12 x 21	ShtMetl	



Main floor



Job #: Kidwai
Performed for:
Kidwai Residence
7399 E. Monterra Way
Scottsdale, AZ 85266

Mechanical Design Services, LLC
19718 W. Amelia Ave.
Buckeye, AZ 85396
Phone: 602-628-2061
chrisline@cox.net

Scale: 1 : 225
Page 1
Right-Suite® Universal 2022
22.0.03 RSU63790
2022-Jun-15 16:43:42
...ai - Brian Romney\Kidwai_JSD.rup