

Infiltration Summary

ZONE NAME	Heating				Cooling			
	Volume ft³	ACH	AVF cfm	HTM Btuh/ft²	Volume ft³	ACH	AVF cfm	HTM Btuh/ft²
AHU-01	16056	0.25	66	1.6	16056	0.13	35	0.8
AHU-02	12049	0.32	65	1.6	12049	0.17	35	0.8
Whole House	28105	0.28	131	1.6	28105	0.15	70	0.8

Load and AVF Summary

ROOM NAME	Area ft²	Htg load Btuh	Clg load Btuh	Htg AVF cfm	Clg AVF cfm
laundry	98	0	710	0	60
WIC	132	682	987	93	83
M. Bath	185	2165	2920	295	246
kitchen	273	1982	3177	270	267
Dining, Great	567	3715	5516	507	464
WC	40	524	579	72	49
Entry	27	1226	1127	167	95
Hall	212	0	456	0	38
M. Bedroom	250	699	2366	95	199
AHU-01	1784	10993	17837	1500	1500
Bedroom 2	193	2137	2981	255	267
Bedroom 3	175	1669	2476	199	221
Bath 3	50	496	725	59	65
Closet 2	39	67	16	8	1
Upstairs Hall	120	209	50	25	4
Bedroom 4	173	1185	2556	141	229
Bath 2	74	715	1127	85	101
Loft	517	6094	6844	727	612
AHU-02	1339	12571	16775	1500	1500
Whole House	3123	23564	34612	3000	3000

Project Information

For: CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE, PHOENIX, AZ 85018

Notes:

Design Information

Weather: Phoenix Co, AZ, US

Winter Design Conditions

Outside db 35 °F
Inside db 68 °F
Design TD 33 °F

Summer Design Conditions

Outside db 106 °F
Inside db 75 °F
Design TD 31 °F
Daily range H
Relative humidity 50 %
Moisture difference 1 gr/lb

Heating Summary

Structure 23564 Btuh
Ducts 0 Btuh
Central vent (0 cfm) 0 Btuh

Humidification 0 Btuh
Piping 0 Btuh
Equipment load 23564 Btuh

Sensible Cooling Equipment Load Sizing

Structure 34612 Btuh
Ducts 0 Btuh
Central vent (0 cfm) 0 Btuh

Blower 0 Btuh

Use manufacturer's data n
Rate/swing multiplier 1.11
Equipment sensible load 38419 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 2035 Btuh
Ducts 0 Btuh
Central vent (0 cfm) 0 Btuh

Equipment latent load 2035 Btuh

	Heating	Cooling
Area (ft²)	3123	3123
Volume (ft³)	28105	28105
Air changes/hour	0.28	0.15
Equiv. AVF (cfm)	131	70

Equipment Total Load (Sen+Lat) 40454 Btuh
Req. total capacity at 0.70 SHR 4.6 ton

Heating Equipment Summary

Make n/a
Trade n/a
Model n/a
AHRI ref. n/a

Efficiency n/a
Heating input
Heating output 0 Btuh
Temperature rise 0 °F
Actual air flow 0 cfm
Air flow factor 0 cfm/Btuh
Static pressure 0 in H2O
Space thermostat n/a

Cooling Equipment Summary

Make n/a
Trade n/a
Cond n/a
Coil n/a
AHRI ref. n/a
Efficiency n/a
Sensible cooling 0 Btuh
Latent cooling 0 Btuh
Total cooling 0 Btuh
Actual air flow 0 cfm
Air flow factor 0 cfm/Btuh
Static pressure 0 in H2O
Load sensible heat ratio 0

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

Project Information

For: CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE, PHOENIX, AZ 85018

Notes:

Design Information

Weather: Phoenix Co, AZ, US

Winter Design Conditions

Outside db 35 °F
Inside db 68 °F
Design TD 33 °F

Summer Design Conditions

Outside db 106 °F
Inside db 75 °F
Design TD 31 °F
Daily range H
Relative humidity 50 %
Moisture difference 1 gr/lb

Heating Summary

Structure 10993 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 10993 Btuh

Sensible Cooling Equipment Load Sizing

Structure 17837 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 1.11
Equipment sensible load 19799 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 1418 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Equipment latent load 1418 Btuh

	Heating	Cooling
Area (ft²)	1784	1784
Volume (ft³)	16056	16056
Air changes/hour	0.25	0.13
Equiv. AVF (cfm)	66	35

Equipment Total Load (Sen+Lat) 21217 Btuh
Req. total capacity at 0.70 SHR 2.4 ton

Heating Equipment Summary

Make Day & Night
Trade Coastal 14 SEER HP
Model N4H448CKG10
AHRI ref 0
Efficiency 8.2 HSPF
Heating input
Heating output 45500 Btuh @ 47°F
Temperature rise 29 °F
Actual air flow 1500 cfm
Air flow factor 0.136 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = -1 °F

Cooling Equipment Summary

Make Day & Night
Trade Coastal 14 SEER HP
Cond N4H448CKG10
Coil FEM4X4800BL
AHRI ref 0
Efficiency 11.5 EER, 14 SEER
Sensible cooling 31500 Btuh
Latent cooling 13500 Btuh
Total cooling 45000 Btuh
Actual air flow 1500 cfm
Air flow factor 0.084 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.93

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Project Information

For: CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE, PHOENIX, AZ 85018

Notes:

Design Information

Weather: Phoenix Co, AZ, US

Winter Design Conditions

Outside db 35 °F
Inside db 68 °F
Design TD 33 °F

Summer Design Conditions

Outside db 106 °F
Inside db 75 °F
Design TD 31 °F
Daily range H
Relative humidity 50 %
Moisture difference 1 gr/lb

Heating Summary

Structure 12571 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Humidification 0 Btuh
Piping 0 Btuh
Equipment load 12571 Btuh

Sensible Cooling Equipment Load Sizing

Structure 16775 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Blower 0 Btuh
Use manufacturer's data n
Rate/swing multiplier 1.11
Equipment sensible load 18620 Btuh

Infiltration

Method Simplified
Construction quality Average
Fireplaces 0

Latent Cooling Equipment Load Sizing

Structure 617 Btuh
Ducts 0 Btuh
Central vent (0 cfm)
(none) 0 Btuh
Equipment latent load 617 Btuh

	Heating	Cooling
Area (ft²)	1339	1339
Volume (ft³)	12049	12049
Air changes/hour	0.32	0.17
Equiv. AVF (cfm)	65	35

Equipment Total Load (Sen+Lat) 19237 Btuh
Req. total capacity at 0.70 SHR 2.2 ton

Heating Equipment Summary

Make Day & Night
Trade Coastal 14 SEER HP
Model N4H448CKG10
AHRI ref 0
Efficiency 8.2 HSPF
Heating input
Heating output 45500 Btuh @ 47°F
Temperature rise 29 °F
Actual air flow 1500 cfm
Air flow factor 0.119 cfm/Btuh
Static pressure 0.30 in H2O
Space thermostat
Capacity balance point = 2 °F

Cooling Equipment Summary

Make Day & Night
Trade Coastal 14 SEER HP
Cond N4H448CKG10
Coil FEM4X4800BL
AHRI ref 0
Efficiency 11.5 EER, 14 SEER
Sensible cooling 31500 Btuh
Latent cooling 13500 Btuh
Total cooling 45000 Btuh
Actual air flow 1500 cfm
Air flow factor 0.089 cfm/Btuh
Static pressure 0.30 in H2O
Load sensible heat ratio 0.96

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

Project Information

For: CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE, PHOENIX, AZ 85018

Design Conditions

Location:

Phoenix Co, AZ, US
Elevation: 1083 ft
Latitude: 33°N

Outdoor:

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

Heating

35
-
-
15.0

Cooling

106
26 (H)
72
7.5

Indoor:

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

Heating

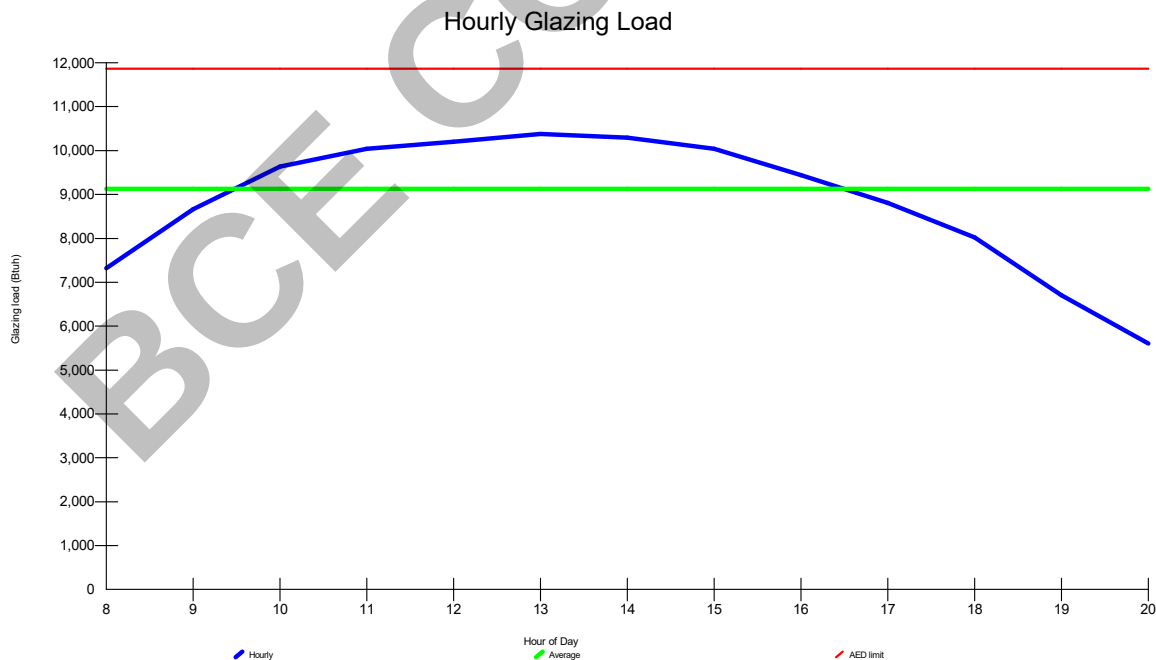
68
33
50
28.1

Cooling

75
31
50
0.8

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 13.7%.

House has adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 0 Btuh

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4207 E CAMPBELL AVE, PHOENIX, AZ 85018

Design Conditions

Location:

Phoenix Co, AZ, US
Elevation: 1083 ft
Latitude: 33°N

Outdoor:

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

Heating

35
-
-
15.0

Cooling

106
26 (H)
72
7.5

Indoor:

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

Heating

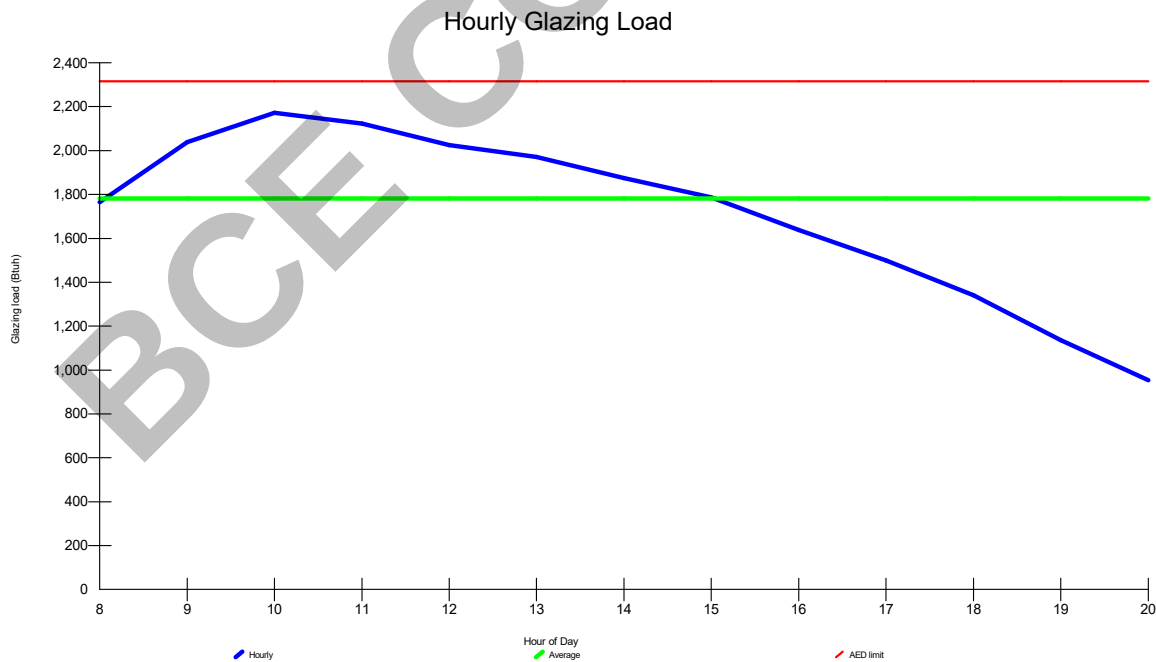
68
33
50
28.1

Cooling

75
31
50
0.8

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 22.0%.

Zone has adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 0 Btuh

Project Information

For: CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE, PHOENIX, AZ 85018

Design Conditions

Location:

Phoenix Co, AZ, US
Elevation: 1083 ft
Latitude: 33°N

Outdoor:

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

Heating

35
-
-
15.0

Cooling

106
26 (H)
72
7.5

Indoor:

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

Heating

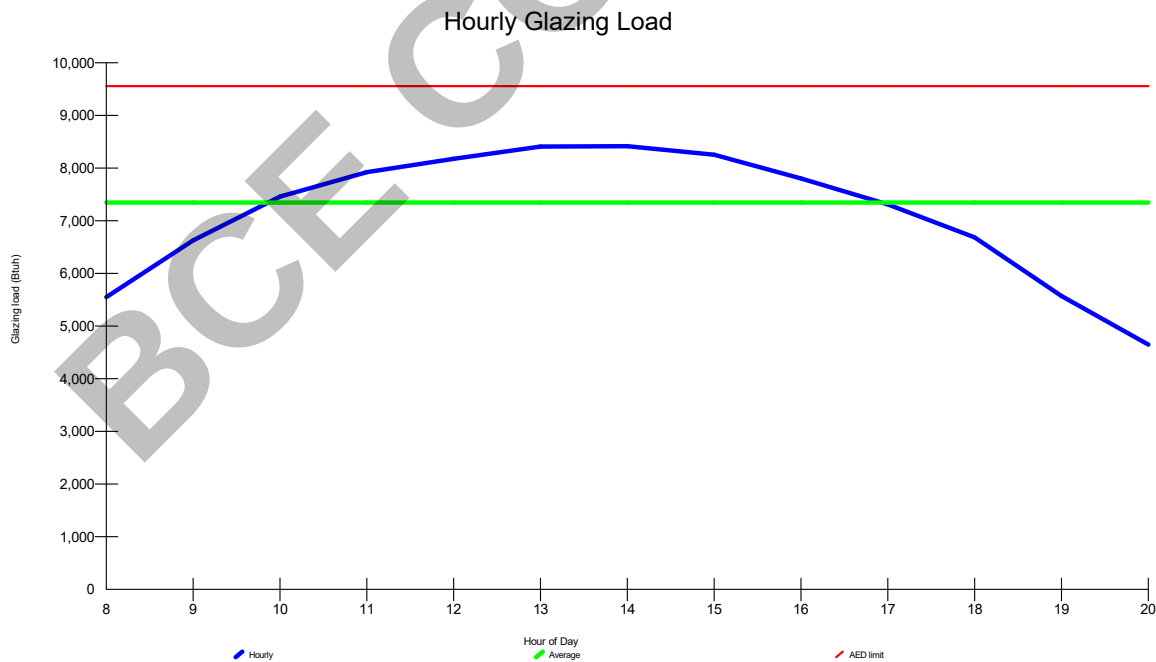
68
33
50
28.1

Cooling

75
31
50
0.8

Infiltration:

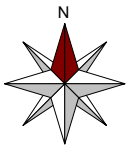
Test for Adequate Exposure Diversity



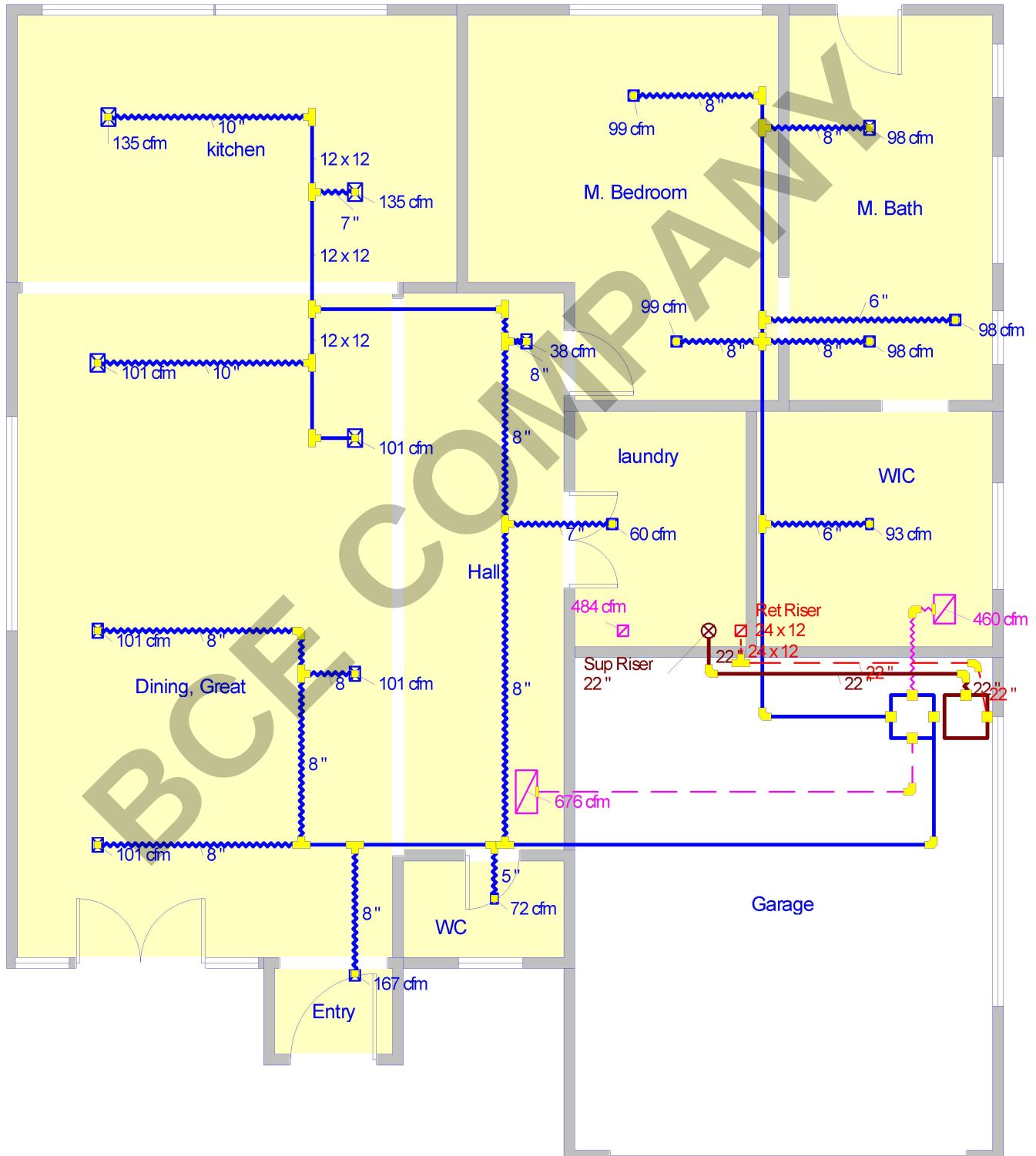
Maximum hourly glazing load exceeds average by 14.6%.

Zone has adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 0 Btu/h

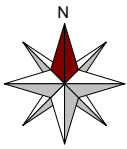


Level 1

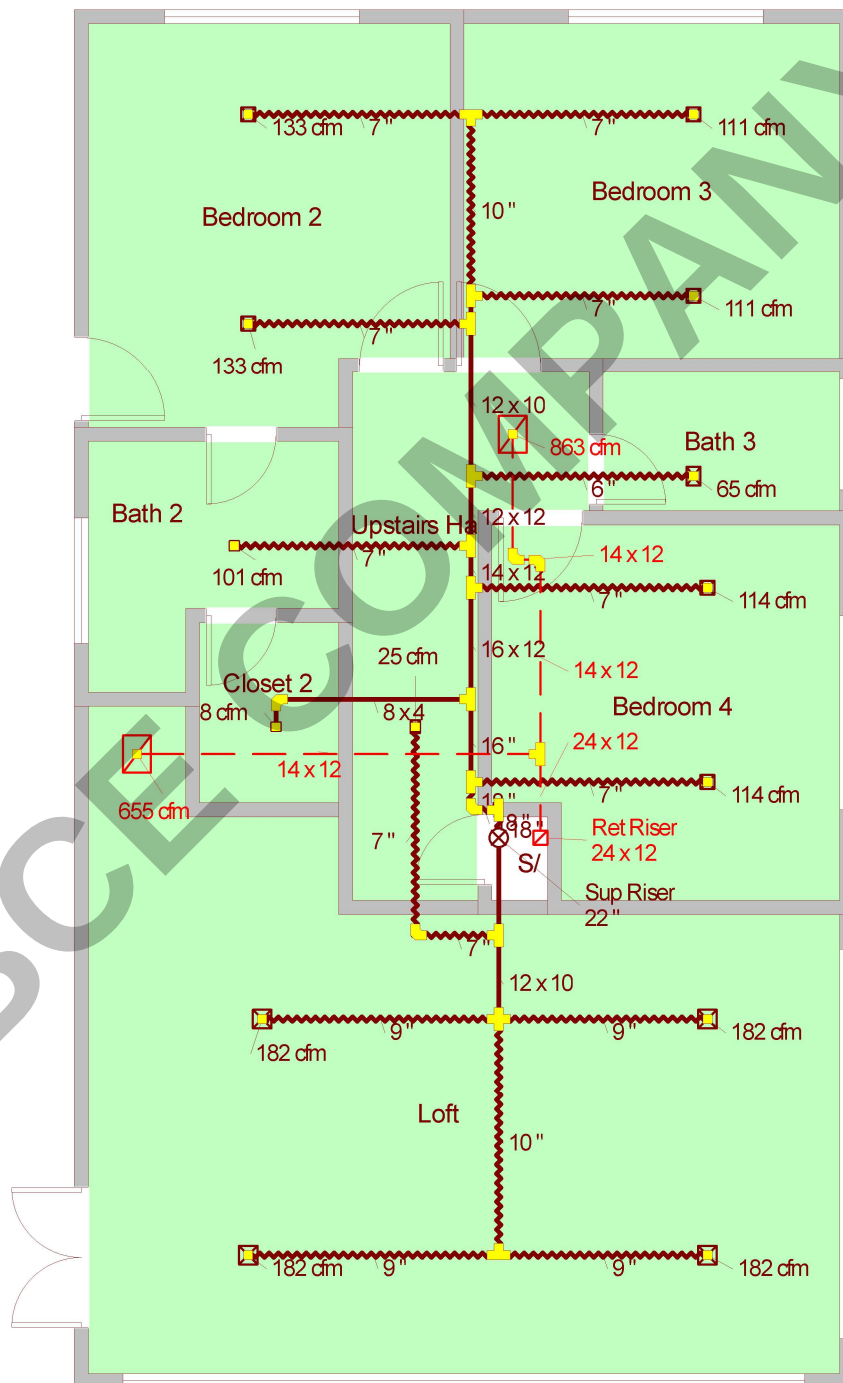


Job #:
Performed for:
CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE
PHOENIX, AZ 85018

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Level 2



Job #:
Performed for:
CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE
PHOENIX, AZ 85018

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Project Information

For: CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE, PHOENIX, AZ 85018

	Heating	Cooling
External static pressure	0.30 in H2O	0.30 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.150 / 0.150 in H2O	0.150 / 0.150 in H2O
Lowest friction rate	0.121 in/100ft	0.121 in/100ft
Actual air flow	1500 cfm	1500 cfm
Total effective length (TEL)	249 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
Dining, Great	h 743	101	93	0.140	8.0	0x 0	MtFx	55.0	160.0	st21
Dining, Great-A	h 743	101	93	0.162	8.0	0x 0	MtFx	45.0	140.0	st20
Dining, Great-B	h 743	101	93	0.149	8.0	0x 0	MtFx	46.0	155.0	st21
Dining, Great-C	h 743	101	93	0.125	8.0	10x 0	ShMt	68.0	172.0	st26
Dining, Great-D	h 743	101	93	0.126	10.0	0x 0	MtFx	72.5	165.0	st26
Entry	h 1226	167	95	0.183	8.0	0x 0	MtFx	39.0	125.0	st20
Hall-A	c 456	0	38	0.171	8.0	0x 0	MtFx	50.5	125.0	st23
M. Bath	h 722	98	82	0.171	8.0	0x 0	MtFx	38.5	137.0	st29
M. Bath-B	h 722	98	82	0.221	8.0	0x 0	MtFx	28.5	107.0	st29
M. Bath-C	h 722	98	82	0.193	6.0	0x 0	MtFx	33.5	122.0	st29
M. Bedroom	c 1183	48	99	0.164	8.0	0x 0	MtFx	41.0	142.0	st29
M. Bedroom-A	c 1183	48	99	0.223	8.0	0x 0	MtFx	27.5	107.0	st29
WC	h 524	72	49	0.216	5.0	0x 0	MtFx	29.0	110.0	st20
WIC	h 682	93	83	0.268	6.0	0x 0	MtFx	20.0	92.0	st29
kitchen	h 991	135	134	0.121	10.0	0x 0	MtFx	78.5	170.0	st28
kitchen-A	h 991	135	134	0.129	7.0	0x 0	MtFx	67.5	165.0	st27
laundry	c 710	0	60	0.192	7.0	0x 0	MtFx	46.0	110.0	st22

Bold/italic values have been manually overridden

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st29	Peak AVF	484	527	0.164	0	12.0	16 x 0	ShtlMetl	st3
st21	Peak AVF	203	186	0.140	581	8.0	0 x 0	MetlFlx	st20
st20	Peak AVF	1016	973	0.121	0	24.0	12 x 0	ShtlMetl	st2
st2	Peak AVF	1016	973	0.121	0	24.0	12 x 0	ShtlMetl	
st22	Peak AVF	473	551	0.121	1578	8.0	0 x 0	MetlFlx	st20
st23	Peak AVF	473	491	0.121	1407	8.0	0 x 0	MetlFlx	st22
st26	Peak AVF	203	186	0.125	203	12.0	12 x 12	ShtlMetl	st25
st25	Peak AVF	473	453	0.121	0	12.0	12 x 0	ShtlMetl	st23
st27	Peak AVF	270	267	0.121	270	12.0	12 x 12	ShtlMetl	st25
st28	Peak AVF	135	134	0.121	135	12.0	12 x 12	ShtlMetl	st27
st3	Peak AVF	484	527	0.164	0	12.0	16 x 0	ShtlMetl	

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
rb5	0x 0	364	484	0	0	0	0	0x 0		MtFx	
rb2	0x 0	676	638	0	0	0	0	0x 0		MtFx	
rb1	0x 0	460	377	0	0	0	0	0x 0		MtFx	

Bold/italic values have been manually overridden

Project Information

For: CAMPBELL- NEW CONSTRUCTION
4207 E CAMPBELL AVE, PHOENIX, AZ 85018

	Heating	Cooling
External static pressure	0.30 in H2O	0.30 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.30 in H2O	0.30 in H2O
Supply / return available pressure	0.203 / 0.097 in H2O	0.203 / 0.097 in H2O
Lowest friction rate	0.069 in/100ft	0.069 in/100ft
Actual air flow	1500 cfm	1500 cfm
Total effective length (TEL)	434 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-A	c 1127	85	101	0.093	7.0	0x 0	MtFx	47.0	172.0	st15
Bath 3	c 725	59	65	0.086	6.0	0x 0	MtFx	49.0	187.0	st16
Bedroom 2	c 1491	127	133	0.069	7.0	0x 0	MtFx	62.0	232.0	st18
Bedroom 2-A	c 1491	127	133	0.079	7.0	0x 0	MtFx	54.5	202.0	st17
Bedroom 3	c 1238	100	111	0.069	7.0	0x 0	MtFx	62.0	232.0	st18
Bedroom 3-A	c 1238	100	111	0.075	6.8	0x 0	MtFx	55.5	217.0	st17
Bedroom 4	c 1278	71	114	0.123	7.0	0x 0	MtFx	38.5	127.0	st12
Bedroom 4-A	c 1278	71	114	0.100	7.0	0x 0	MtFx	45.5	157.0	st14
Closet 2	h 67	8	1	0.100	2.3	4x 8	ShMt	41.0	162.0	st13
Loft	h 1523	182	153	0.111	9.0	0x 0	MtFx	51.0	132.0	st7
Loft-A	h 1523	182	153	0.129	9.0	0x 0	MtFx	41.0	117.0	st6
Loft-B	h 1523	182	153	0.112	9.0	0x 0	MtFx	49.5	132.0	st7
Loft-C	h 1523	182	153	0.128	9.0	0x 0	MtFx	42.0	117.0	st6
Upstairs Hall	h 209	25	4	0.137	7.0	0x 0	MtFx	41.0	107.0	st8

Bold/italic values have been manually overridden

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	Peak AVF	1500	1500	0.069	568	22.0	0 x 0	MetlFlx	
st4	Peak AVF	1500	1500	0.069	568	22.0	0 x 0	ShtMetl	st1
st5	Peak AVF	1500	1500	0.069	568	22.0	0 x 0	ShtMetl	st4
st9	Peak AVF	752	616	0.111	0	12.0	10 x 0	ShtMetl	st5
st10	Peak AVF	748	884	0.069	500	18.0	0 x 0	MetlFlx	st5
st7	Peak AVF	364	306	0.111	667	10.0	0 x 0	MetlFlx	st6
st6	Peak AVF	727	612	0.111	873	12.0	10 x 12	ShtMetl	st9
st18	Peak AVF	227	244	0.069	447	10.0	0 x 0	MetlFlx	st17
st17	Peak AVF	454	488	0.069	586	11.3	10 x 12	ShtMetl	st16
st16	Peak AVF	513	553	0.069	553	11.9	12 x 12	ShtMetl	st15
st15	Peak AVF	599	654	0.069	560	12.6	12 x 14	ShtMetl	st14
st8	Peak AVF	25	4	0.137	93	7.0	0 x 0	MetlFlx	st9
st14	Peak AVF	669	768	0.069	576	13.4	12 x 16	ShtMetl	st13
st13	Peak AVF	677	769	0.069	551	16.0	0 x 0	ShtMetl	st12
st12	Peak AVF	748	884	0.069	500	18.0	0 x 0	MetlFlx	st11
st11	Peak AVF	748	884	0.069	500	18.0	0 x 0	MetlFlx	st10

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
rb12	0x0	655	637	134.5	0.072	561	16.0	12x 14		ShMt	rt5
rb14	0x0	845	863	139.5	0.069	740	16.0	12x 14		ShMt	rt6

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt6	Peak AVF	845	863	0.069	740	17.6	12 x 14	ShtMetl	rt5
rt5	Peak AVF	1500	1500	0.069	750	17.6	12 x 24	ShtMetl	rt4
rt1	Peak AVF	1500	1500	0.069	568	22.0	0 x 0	ShtMetl	
rt4	Peak AVF	1500	1500	0.069	568	22.0	0 x 0	ShtMetl	rt1

Bold/italic values have been manually overridden