Infiltration Summary

ZONE NAME	Heating Volume ft³	Heating ACH	Heating AVF cfm	Heating HTM Btuh/ft²	Cooling Volume ft³	Cooling ACH	Cooling AVF cfm	Cooling HTM Btuh/ft²
(Rest of House Hydronic)	82288	0.74	1015	9.1	82288	0.38	521	1.1
AHU-Upper- ST	8136	1.24	168	9.1	8136	0.63	86	1.1
AH2	27353	0.63	286	9.1	27353	0.32	147	1.1
AHU- main Plan	28505	0.70	331	9.1	28505	0.36	170	1.1
AHU basement	18294	0.75	230	9.1	18294	0.39	118	1.1
Entire House	164576	0.37	1015	9.1	164576	0.19	521	1.1

Load and AVF Summary

ROOM NAME	Area ft²	Htg load Btuh	Clg load Btuh	Htg AVF cfm	Clg AVF cfm
Bedroom 3U	259	6023	3075	134	154
Bedroom 3	259	4617	1248	47	56
Bedroom4	180	1571	153	16	7
Kitch/ Studio APT	459	6051	1253	62	56
WIC	42	43	221	0	10
Bedroom 1	333	5619	1174	58	52
Walkway B	295	299	0	3	0
WIC 2	47	4629	812	48	36
Bedroom 2	195	3530	654	36	29
Office	271	5634	2979	96	141
Media Room	726	9441	4744	161	225
Closet	18	1237	180	21	9
Guest Bedroom	230	2055	775	35	37
Laundry	74	962	140	16	7
Mudroom	88	3120	521	53	25
Great R/KIt/Pant	1441	18917	6006	322	285
Entrance	320	5570	1530	95	73
Room U	42	90	52	2	3
Bunk Room	464	9352	3928	208	197
Open to Below U	578	6930	3192	154	160
Primary suite U	450	4559	3067	101	154
Exercice Room U	228	8500	2244	189	112
Bedroom 2 U	188	2875	1540	64	77
Walk Way	499	7091	3125	157	157
Office U	198	1487	1174	33	59
Studio U	263	6222	4021	177	217
Great /Din/Kit U	641	21973	10813	623	583
WIC U	192	2655	566	59	28
Great R/ Din/Kit	638	9080	2663	93	119
(Rest of House Hydronic)	9616	160129	59987	0	0
Great /Din/Kit U	641	21973	10813	623	583
Studio U	263	6222	4021	177	217
AHU-Upper- ST	904	28195	14833	800	800
Bedroom 3U	259	6023	3075	134	154
Open to Below U	578	6930	3192	154	160
Primary suite U	450	4559	3067	101	154
Bedroom 2 U	188	2875	1540	64	77
Exercice Room U	228	8500	2244	189	112
WIC U	192	2655	566	59	28
Office U	198	1487	1174	33	59
Room U	42	90	52	2	3
Bunk Room	464	9352	3928	208	197
Walk Way	499	7091	3125	157	157
AH2	3097	49561	21962	1100	1100
Media Room	726	9441	4744	161	225
Great R/KIt/Pant	1441	18917	6006	322	285
Entrance	320	5570	1530	95	73
Office	271	5634	2979	96	141
Guest Bedroom	230	2055	775	35	37
Laundry	74	962	140	16	7
Mudroom	88	3120	521	53	25
Closet	18	1237	180	21	9
AHU- main Plan	3167	46935	16875	800	800
Bedroom 3	259	4617	1248	47	56
Walkway B	295	299	0	3	0
Bedroom 1	333	5619	1174	58	52

Kitch/ Studio APT	459	6051	1253	62	56
Bedroom4	180	1571	153	16	7
Bedroom 2	195	3530	654	36	29
WIC 2	47	4629	812	48	36
WIC	42	43	221	0	10
Great R/ Din/Kit	638	9080	2663	93	119
AHU basement	2448	35437	8178	364	364
Entire House	9616	160129	61184	3064	3064

wrightsoft

Project Summary
AH2

Job: 19
Date: May 18, 2022
By:

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

Notes:

Design Information

Weather: Logan Cache, UT, US

Winter Design Conditions

Outside db	0	°F
Inside db	68	°F
Design TD	68	°F

Summer Design Conditions

Outside db	91	°F
Inside db	75	°F
Design TD	16	°F
Daily range	H	
Relative humidity	50	%
Moisture difference	-31	gr/lb

Heating Summary

Structure	49561	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	49561	Btuh

Sensible Cooling Equipment Load Sizing

Structure	21962	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.96	
Equipment sensible load	21149	Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft²)	3097	3097
Volume (ft³)	27353	27353
Air changes/hour	0.63	0.32
Equiv. AVF (cfm)	286	147

Latent Cooling Equipment Load Sizing

Structure	-2608	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Equipment latent load	0	Btuh
Equipment Total Load (Sen+Lat)	21149	Btuh
Req. total capacity at 0.70 SHR	2.5	ton

Heating Equipment Summary

Make	Carrier
Trade	CARRIER
Model	25VNA837A0030
AHRI ref	9893266

Efficiency	8.5 HSPF	
Heating input		
Heating output	49000	Btuh @ 47°F
Temperature rise	48	°F
Actual air flow	1100	cfm
Air flow factor	0.022	cfm/Btuh
Static pressure	0.60	in H2O

Space thermostat
Capacity balance point = 15 °F

Backup:
Input = 15 kW, Output = 49561 Btuh, 100 AFUE

Cooling Equipment Summary

Make	Carrier
Trade	CARRIER
Cond	25VNA837A0030
Coil	CNPVP3617ALA+59TP6A060E17--14+UI
AHRI ref	9893266

Efficiency	11.5 EER, 17 SEER	
Sensible cooling	21980	Btuh
Latent cooling	9420	Btuh
Total cooling	31400	Btuh
Actual air flow	1100	cfm
Air flow factor	0.050	cfm/Btuh
Static pressure	0.60	in H2O
Load sensible heat ratio	1.00	

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

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

Notes:

Design Information

Weather: Logan Cache, UT, US

Winter Design Conditions

Outside db	0	°F
Inside db	68	°F
Design TD	68	°F

Summer Design Conditions

Outside db	91	°F
Inside db	75	°F
Design TD	16	°F
Daily range	H	
Relative humidity	50	%
Moisture difference	-31	gr/lb

Heating Summary

Structure	35437	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	35437	Btuh

Sensible Cooling Equipment Load Sizing

Structure	8178	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.96	
Equipment sensible load	7875	Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft²)	2448	2448
Volume (ft³)	18294	18294
Air changes/hour	0.75	0.39
Equiv. AVF (cfm)	230	118

Latent Cooling Equipment Load Sizing

Structure	-1896	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Equipment latent load	0	Btuh
Equipment Total Load (Sen+Lat)	7875	Btuh
Req. total capacity at 0.70 SHR	0.9	ton

Heating Equipment Summary

Make	Generic
Trade	
Model	SEER 14.0, HSPF 8.1
AHRI ref	

Efficiency	8.1 HSPF	
Heating input		
Heating output	10880	Btuh @ 47°F
Temperature rise	32	°F
Actual air flow	364	cfm
Air flow factor	0.010	cfm/Btuh
Static pressure	0.60	in H2O
Space thermostat		

Capacity balance point = 43 °F

Backup:
Input = 10 kW, Output = 35437 Btuh, 100 AFUE

Cooling Equipment Summary

Make	Generic
Trade	
Cond	SEER 14.0, HSPF 8.1
Coil	
AHRI ref	

Efficiency	12.2 EER, 14 SEER	
Sensible cooling	7654	Btuh
Latent cooling	3280	Btuh
Total cooling	10934	Btuh
Actual air flow	364	cfm
Air flow factor	0.045	cfm/Btuh
Static pressure	0.60	in H2O
Load sensible heat ratio	1.00	

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

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

Notes:

Design Information

Weather: Logan Cache, UT, US

Winter Design Conditions

Outside db	0	°F
Inside db	68	°F
Design TD	68	°F

Summer Design Conditions

Outside db	91	°F
Inside db	75	°F
Design TD	16	°F
Daily range	H	
Relative humidity	50	%
Moisture difference	-31	gr/lb

Heating Summary

Structure	46935	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	46935	Btuh

Sensible Cooling Equipment Load Sizing

Structure	16875	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.96	
Equipment sensible load	16250	Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft²)	3167	3167
Volume (ft³)	28505	28505
Air changes/hour	0.70	0.36
Equiv. AVF (cfm)	331	170

Latent Cooling Equipment Load Sizing

Structure	-3013	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Equipment latent load	0	Btuh
Equipment Total Load (Sen+Lat)	16250	Btuh
Req. total capacity at 0.70 SHR	1.9	ton

Heating Equipment Summary

Make	Carrier
Trade	CARRIER
Model	25HNB624C00320
AHRI ref	9637497

Efficiency	8.2 HSPF	
Heating input		
Heating output	25200	Btuh @ 47°F
Temperature rise	34	°F
Actual air flow	800	cfm
Air flow factor	0.017	cfm/Btuh
Static pressure	0.60	in H2O
Space thermostat		

Capacity balance point = 31 °F

Backup:
Input = 14 kW, Output = 46935 Btuh, 100 AFUE

Cooling Equipment Summary

Make	Carrier
Trade	CARRIER
Cond	25HNB624C00320
Coil	CNPVT3617ALA+59SP5A040E17--12
AHRI ref	9637497

Efficiency	16.0 EER, 12 SEER	
Sensible cooling	16380	Btuh
Latent cooling	7020	Btuh
Total cooling	23400	Btuh
Actual air flow	800	cfm
Air flow factor	0.047	cfm/Btuh
Static pressure	0.60	in H2O
Load sensible heat ratio	1.00	

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

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

Notes:

Design Information

Weather: Logan Cache, UT, US

Winter Design Conditions

Outside db	0	°F
Inside db	68	°F
Design TD	68	°F

Summer Design Conditions

Outside db	91	°F
Inside db	75	°F
Design TD	16	°F
Daily range	H	
Relative humidity	50	%
Moisture difference	-31	gr/lb

Heating Summary

Structure	28195	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	28195	Btuh

Sensible Cooling Equipment Load Sizing

Structure	14833	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.96	
Equipment sensible load	14285	Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft²)	904	904
Volume (ft³)	8136	8136
Air changes/hour	1.24	0.63
Equiv. AVF (cfm)	168	86

Latent Cooling Equipment Load Sizing

Structure	-1527	Btuh
Ducts	0	Btuh
Central vent (0 cfm) (none)	0	Btuh
Equipment latent load	0	Btuh
Equipment Total Load (Sen+Lat)	14285	Btuh
Req. total capacity at 0.70 SHR	1.7	ton

Heating Equipment Summary

Make	Trane
Trade	TRANE
Model	4TWR4024G1
AHRI ref	203504726

Efficiency	8.2 HSPF	
Heating input		
Heating output	22600	Btuh @ 47°F
Temperature rise	30	°F
Actual air flow	800	cfm
Air flow factor	0.028	cfm/Btuh
Static pressure	0.75	in H2O
Space thermostat		

Capacity balance point = 20 °F

Backup:
Input = 8 kW, Output = 28195 Btuh, 100 AFUE

Cooling Equipment Summary

Make	Trane
Trade	TRANE
Cond	4TWR4024G1
Coil	A(A,B)W254++TDR
AHRI ref	203504726

Efficiency	11.1 EER, 14 SEER	
Sensible cooling	14840	Btuh
Latent cooling	6360	Btuh
Total cooling	21200	Btuh
Actual air flow	800	cfm
Air flow factor	0.054	cfm/Btuh
Static pressure	0.75	in H2O
Load sensible heat ratio	1.00	

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

AED Assessment
AH2

Job: 19
Date: May 18, 2022
By:

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

Design Conditions

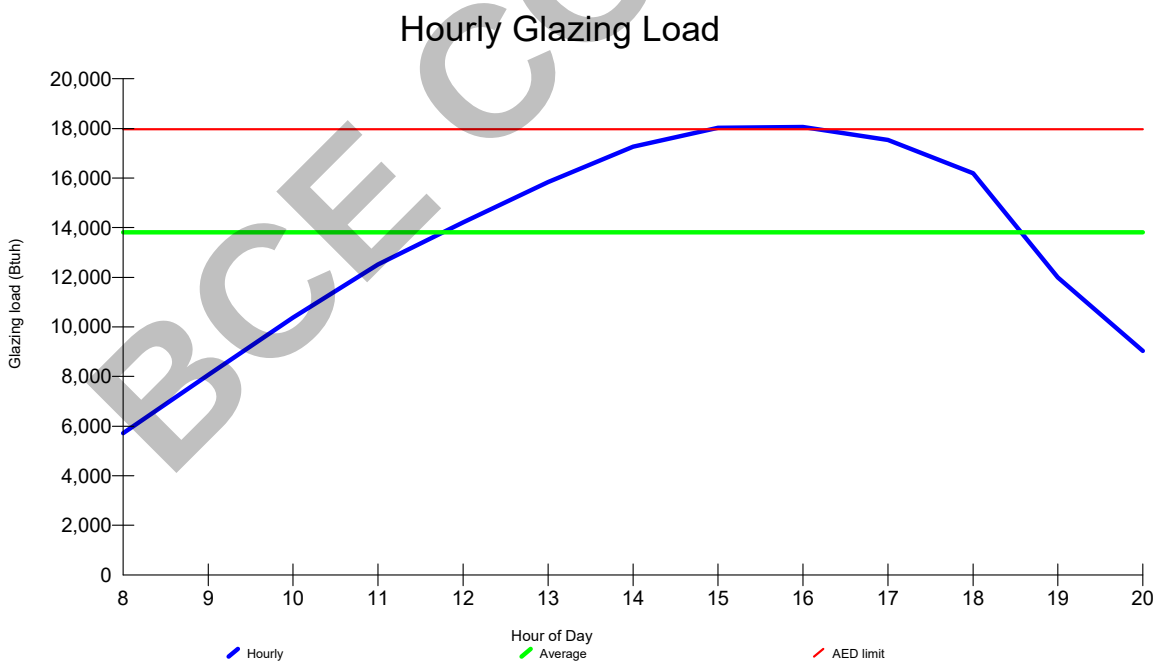
Location:
Logan Cache, UT, US
Elevation: 4455 ft
Latitude: 42°N

Outdoor:	Heating	Cooling
Dry bulb (°F)	0	91
Daily range (°F)	-	36 (H)
Wet bulb (°F)	-	61
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	68	75
Design TD (°F)	68	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	54.9	-30.7

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 30.7%.

Zone does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 90 Btuh (PFG - 1.3*AFG)

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

Design Conditions

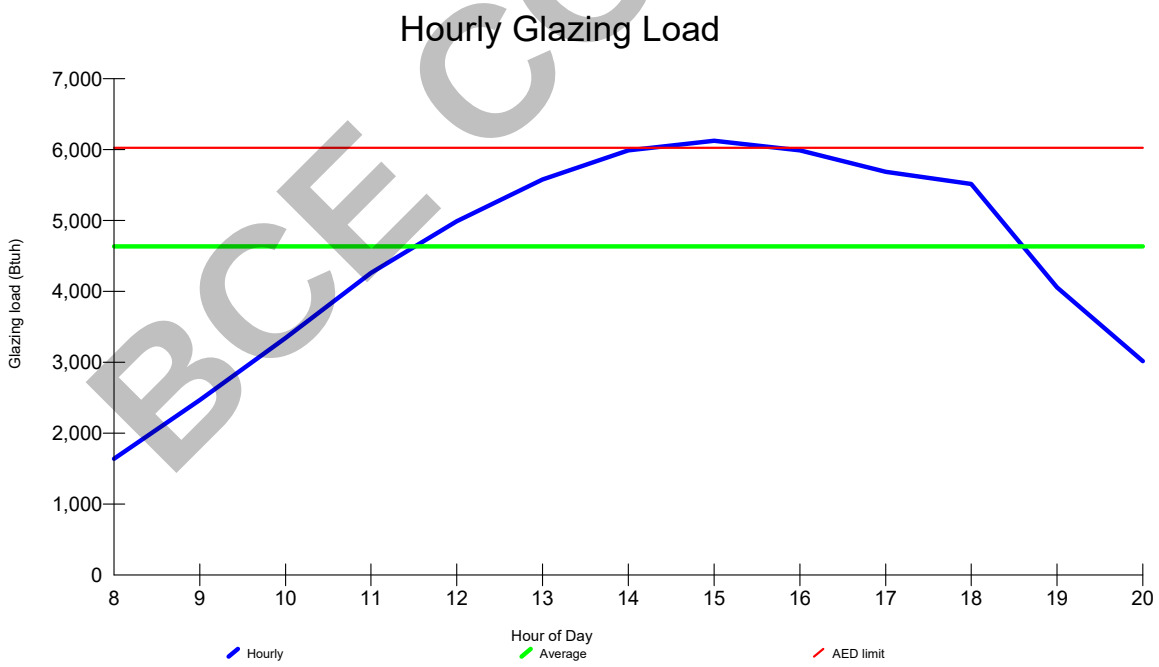
Location:
Logan Cache, UT, US
Elevation: 4455 ft
Latitude: 42°N

Outdoor:	Heating	Cooling
Dry bulb (°F)	0	91
Daily range (°F)	-	36 (H)
Wet bulb (°F)	-	61
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	68	75
Design TD (°F)	68	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	54.9	-30.7

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 32.1%.

Zone does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 96 Btuh (PFG - 1.3*AFG)

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

Design Conditions

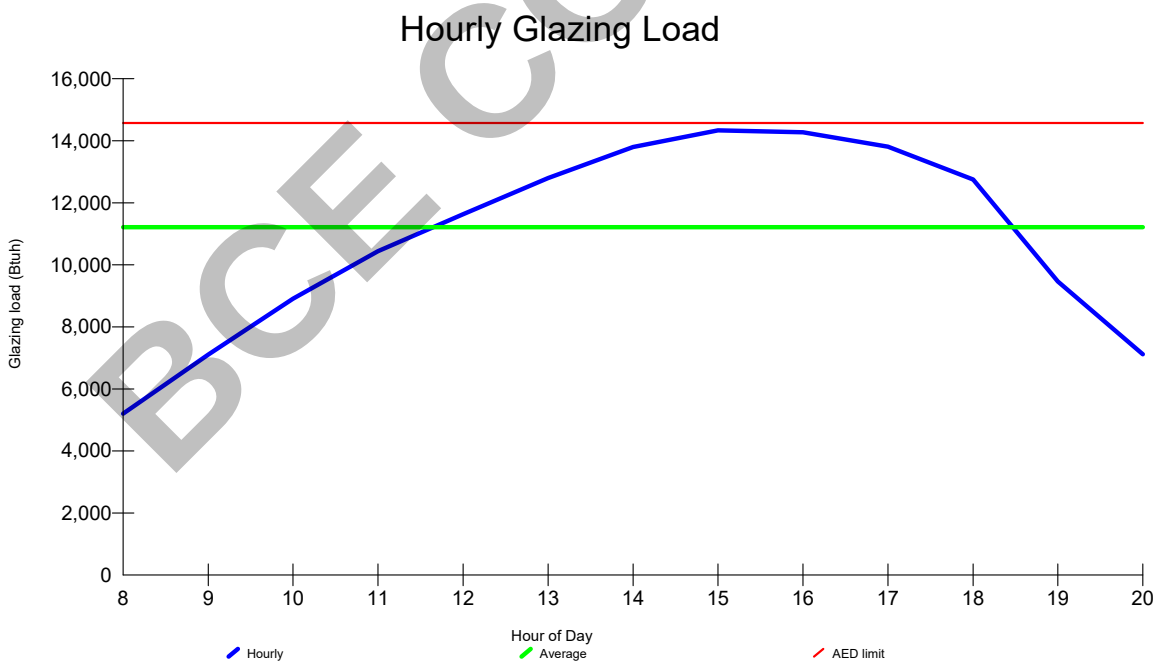
Location:
Logan Cache, UT, US
Elevation: 4455 ft
Latitude: 42°N

Outdoor:	Heating	Cooling
Dry bulb (°F)	0	91
Daily range (°F)	-	36 (H)
Wet bulb (°F)	-	61
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	68	75
Design TD (°F)	68	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	54.9	-30.7

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 27.9%.

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

AED excursion: 0 Btuh

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

Design Conditions

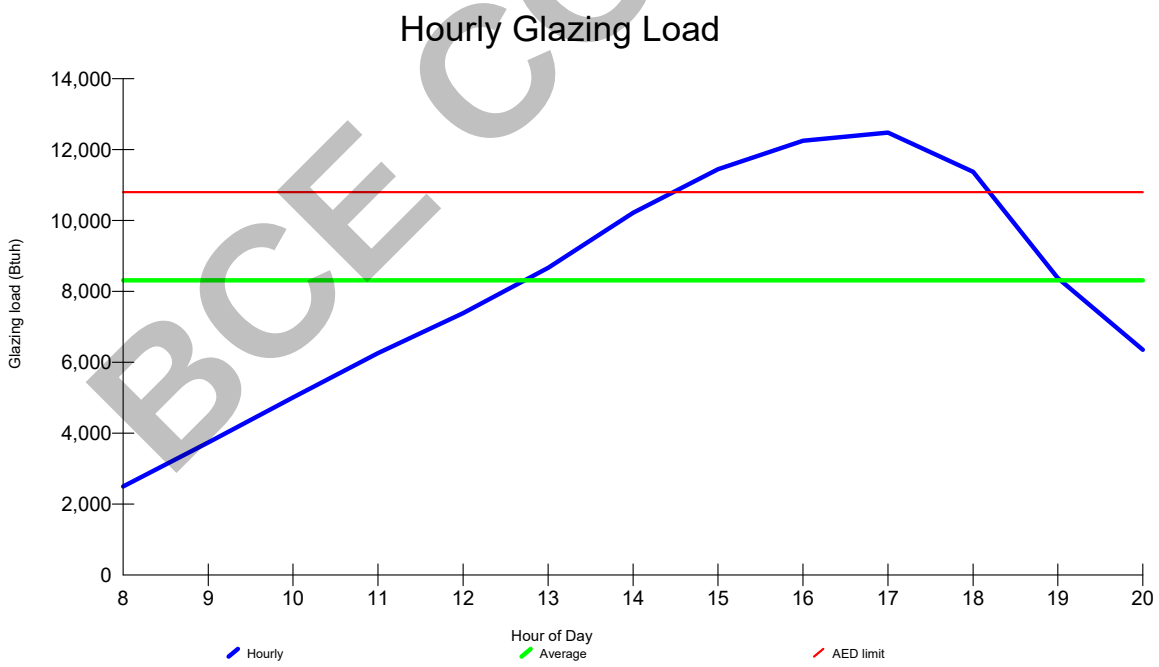
Location:
Logan Cache, UT, US
Elevation: 4455 ft
Latitude: 42°N

Outdoor:	Heating	Cooling
Dry bulb (°F)	0	91
Daily range (°F)	-	36 (H)
Wet bulb (°F)	-	61
Wind speed (mph)	15.0	7.5

Indoor:	Heating	Cooling
Indoor temperature (°F)	68	75
Design TD (°F)	68	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	54.9	-30.7

Infiltration:

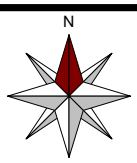
Test for Adequate Exposure Diversity

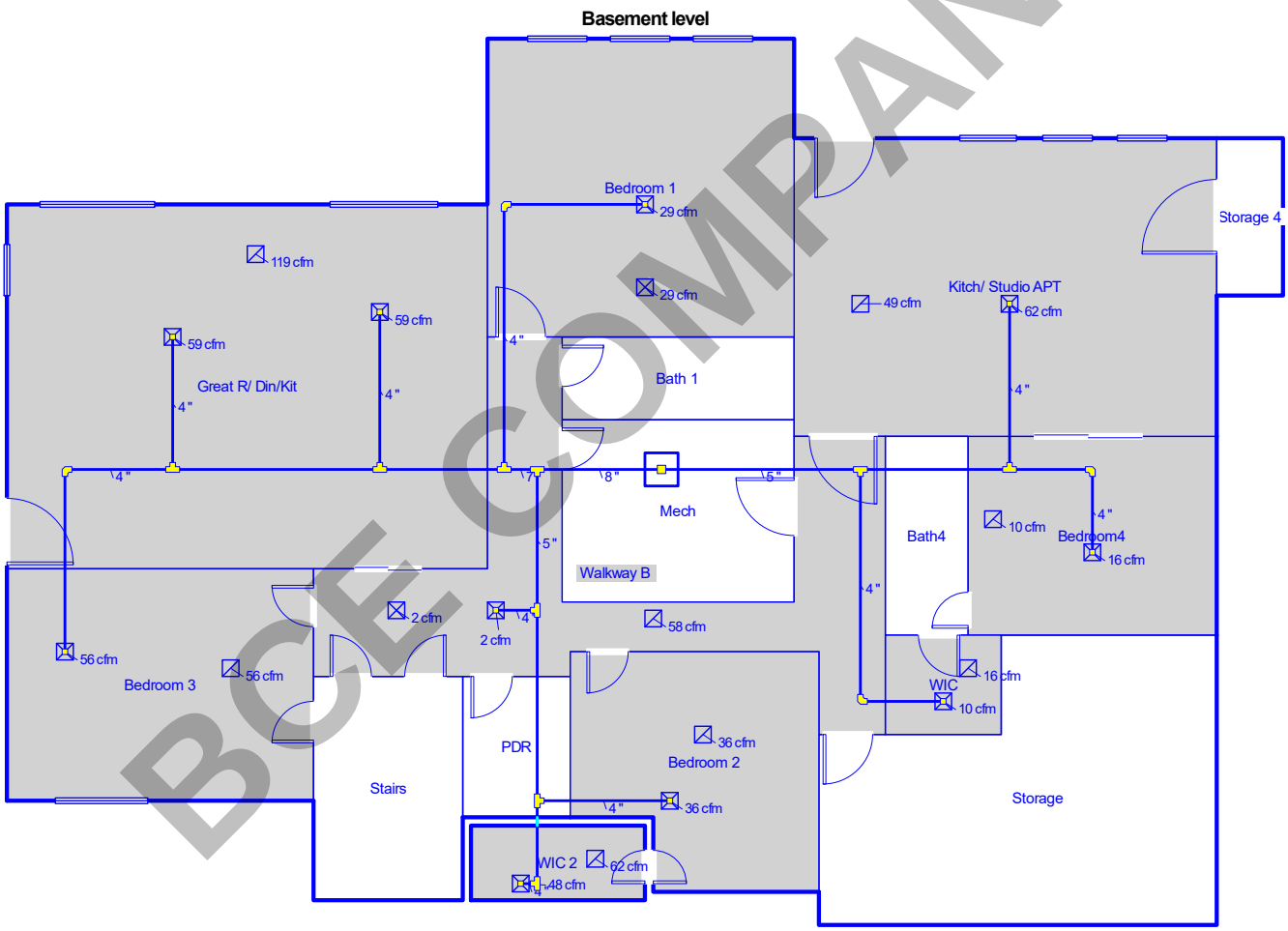


Maximum hourly glazing load exceeds average by 50.2%.

Zone does not have adequate exposure diversity (AED), based on AED limit of 30%.

AED excursion: 1675 Btuh (PFG - 1.3*AFG)





Job #: 19
Performed for:
Buter Residence
LOT 130
LEHI - UT, UT

Scale: 1 : 135

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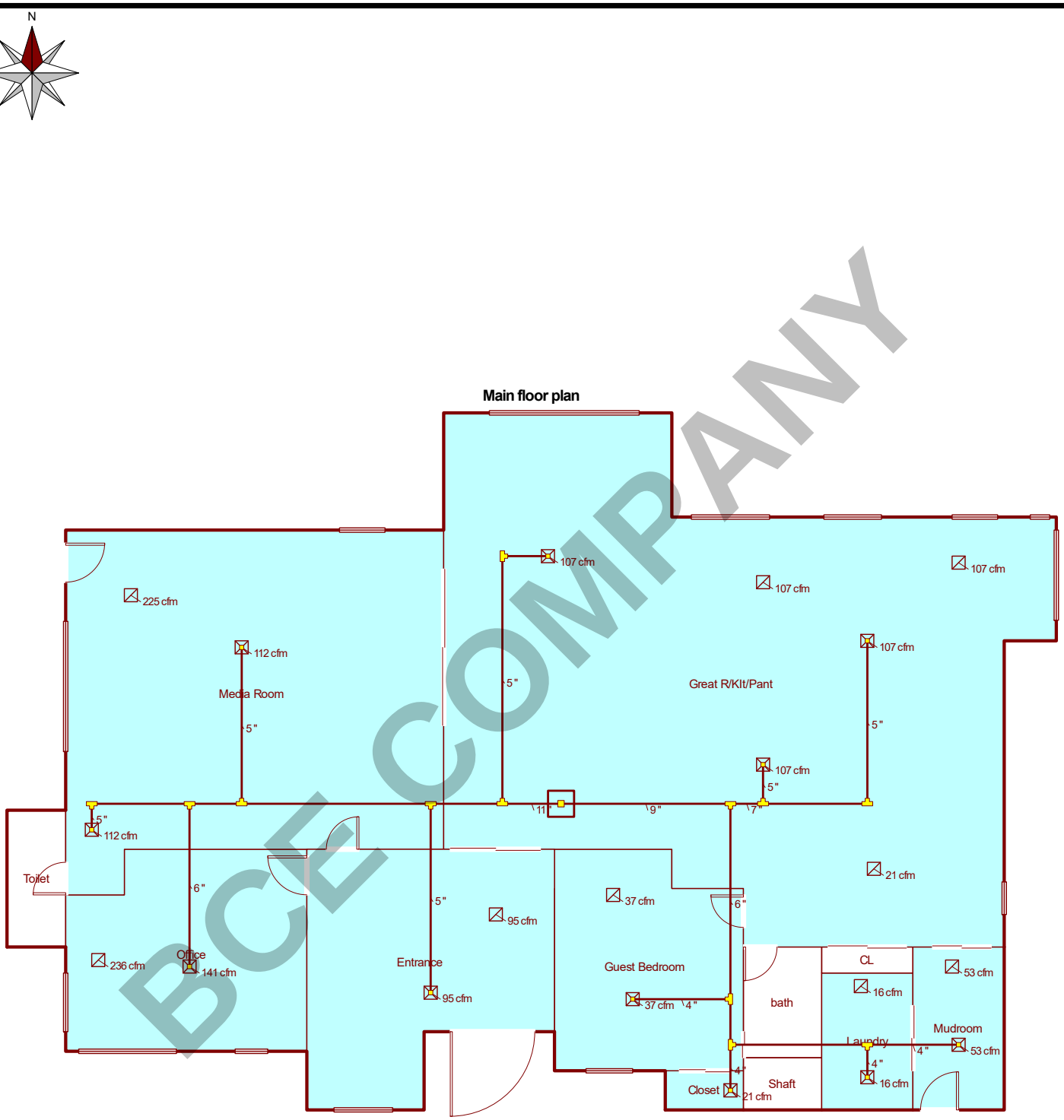

Job #: 19
Performed for:
Buter Residence
LOT 130
LEHI - UT, UT

Scale: 1 : 135

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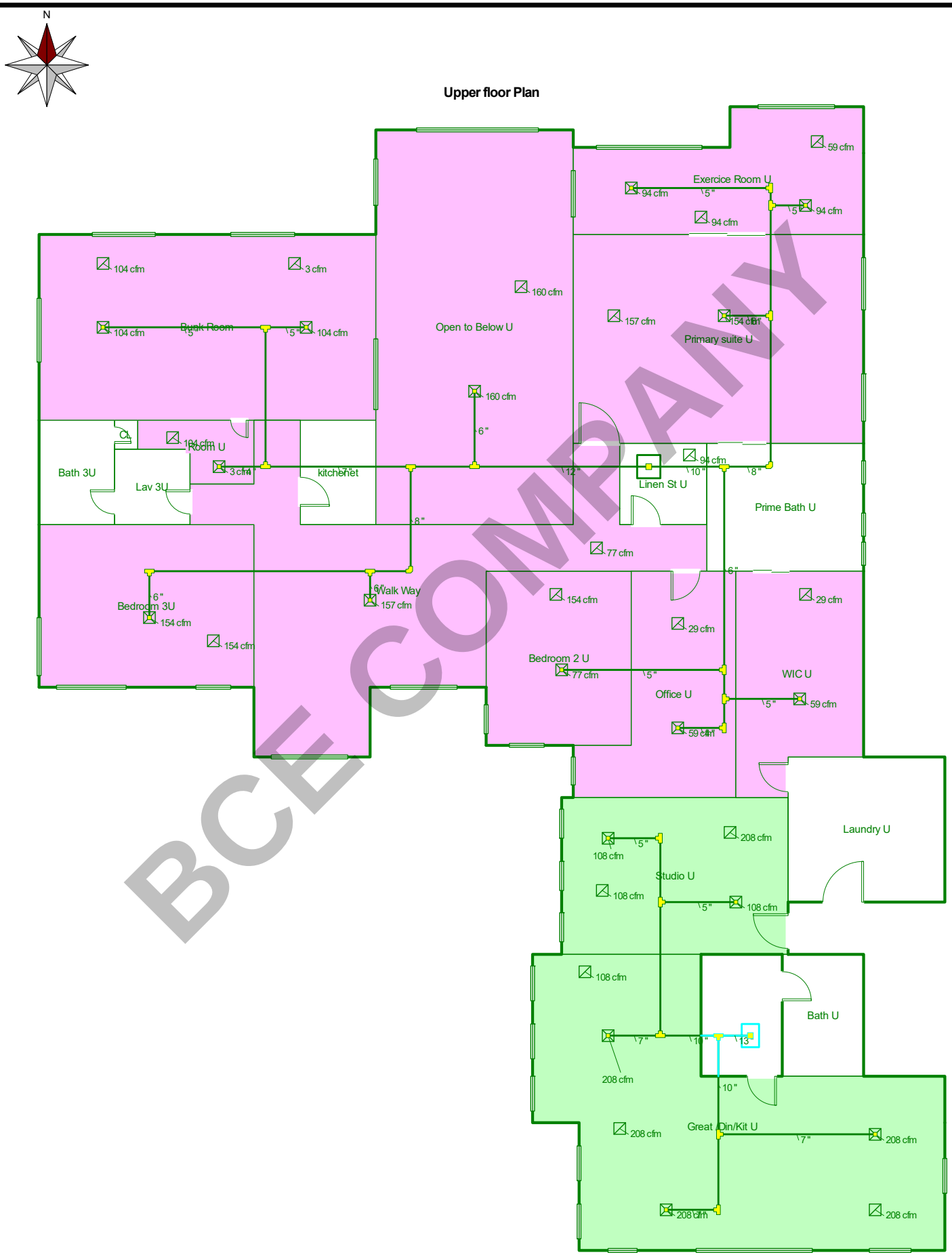

Job #: 19
Performed for:
Buter Residence
LOT 130
LEHI - UT, UT

Scale: 1 : 135

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Duct System Summary
AH2

Job: 19
Date: May 18, 2022
By:

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

	Heating	Cooling
External static pressure	0.60 in H2O	0.60 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.60 in H2O	0.60 in H2O
Supply / return available pressure	0.300 / 0.300 in H2O	0.300 / 0.300 in H2O
Lowest friction rate	0.220 in/100ft	0.220 in/100ft
Actual air flow	1100 cfm	1100 cfm
Total effective length (TEL)	273 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
Bedroom 2 U	c 1540	64	77	0.220	5.0	0x 0	ShMt	38.0	235.0	st21
Bedroom 3U	c 3075	134	154	0.351	6.0	0x 0	ShMt	56.0	115.0	st23
Bunk Room	h 4676	104	98	0.317	5.0	0x 0	ShMt	59.0	130.0	st22
Bunk Room-A	h 4676	104	98	0.336	5.0	0x 0	ShMt	48.5	130.0	st22
Exercice Room U	h 4250	94	56	0.360	5.0	0x 0	ShMt	46.5	120.0	st20
Exercice Room U-A	h 4250	94	56	0.314	5.0	0x 0	ShMt	36.0	155.0	st20
Office U	c 1174	33	59	0.269	4.0	0x 0	ShMt	33.0	190.0	st21
Open to Below U	c 3192	154	160	0.350	6.0	0x 0	ShMt	21.5	150.0	st7
Primary suite U	c 3067	101	154	0.312	6.0	0x 0	ShMt	27.5	165.0	st20
Room U	c 52	2	3	0.359	4.0	0x 0	ShMt	37.0	130.0	st22
WIC U	h 2655	59	28	0.233	5.0	0x 0	ShMt	33.0	225.0	st21
Walk Way	h 7091	157	157	0.323	6.0	0x 0	ShMt	35.5	150.0	st23

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st20	Peak AVF	290	266	0.312	830	8.0	0 x 0	ShtMetl	st6
st6	Peak AVF	446	430	0.220	817	10.0	0 x 0	ShtMetl	
st21	Peak AVF	156	164	0.220	837	6.0	0 x 0	ShtMetl	st6
st22	Peak AVF	210	199	0.317	784	7.0	0 x 0	ShtMetl	st7
st23	Peak AVF	291	311	0.323	890	8.0	0 x 0	ShtMetl	st7
st7	Peak AVF	654	670	0.317	853	12.0	0 x 0	ShtMetl	

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
rb2	0x 0	94	56	0	0	0	0	0x 0		ShMt	
rb28	0x 0	104	98	0	0	0	0	0x 0		ShMt	
rb31	0x 0	29	14	0	0	0	0	0x 0		ShMt	
rb32	0x 0	29	14	0	0	0	0	0x 0		ShMt	
rb35	0x 0	33	59	0	0	0	0	0x 0		ShMt	
rb34	0x 0	157	157	0	0	0	0	0x 0		ShMt	
rb33	0x 0	64	77	0	0	0	0	0x 0		ShMt	
rb36	0x 0	94	56	0	0	0	0	0x 0		ShMt	
rb30	0x 0	101	154	0	0	0	0	0x 0		ShMt	
rb27	0x 0	154	160	0	0	0	0	0x 0		ShMt	
rb26	0x 0	104	98	0	0	0	0	0x 0		ShMt	
rb37	0x 0	2	3	0	0	0	0	0x 0		ShMt	
rb29	0x 0	134	154	0	0	0	0	0x 0		ShMt	

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

	Heating	Cooling
External static pressure	0.60 in H2O	0.60 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.60 in H2O	0.60 in H2O
Supply / return available pressure	0.300 / 0.300 in H2O	0.300 / 0.300 in H2O
Lowest friction rate	0.230 in/100ft	0.230 in/100ft
Actual air flow	364 cfm	364 cfm
Total effective length (TEL)	261 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
Bedroom 1	h 2809	29	26	0.262	4.0	0x 0	ShMt	34.0	195.0	st12
Bedroom 1-A	h 587	29	26	0	0	0x 0	ShMt	0	0	
Bedroom 2	h 3530	36	29	0.230	4.0	0x 0	ShMt	35.5	225.0	st13
Bedroom 3	c 1248	47	56	0.359	4.0	0x 0	ShMt	47.0	120.0	st12
Bedroom4	h 1571	16	7	0.441	4.0	0x 0	ShMt	31.0	105.0	st1
Great R/ Din/Kit	c 1332	47	59	0.277	4.0	0x 0	ShMt	26.5	190.0	st12
Great R/ Din/Kit-A	c 1332	47	59	0.312	4.0	0x 0	ShMt	37.5	155.0	st12
Kitch/ Studio APT	h 6051	62	56	0.351	4.0	0x 0	ShMt	31.0	140.0	st1
WIC	c 221	0	10	0.314	4.0	0x 0	ShMt	31.0	160.0	st1
WIC 2	h 4629	48	36	0.241	4.0	0x 0	ShMt	33.5	215.0	st13
Walkway B	h 149	2	0	0.237	4.0	0x 0	ShMt	18.5	235.0	st13
Walkway B-A	h 0	2	0	0	0	0x 0	ShMt	0	0	

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st13	Peak AVF	85	65	0.230	626	5.0	0 x 0	ShtMetl	st2
st1	Peak AVF	79	72	0.314	577	5.0	0 x 0	ShtMetl	
st12	Peak AVF	170	200	0.262	749	7.0	0 x 0	ShtMetl	st2
st2	Peak AVF	255	265	0.230	761	8.0	0 x 0	ShtMetl	

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
rb8	0x 0	49	56	0	0	0	0	0x 0		ShMt	
rb5	0x 0	58	52	0	0	0	0	0x 0		ShMt	
rb7	0x 0	93	119	0	0	0	0	0x 0		ShMt	
rb11	0x 0	36	29	0	0	0	0	0x 0		ShMt	
rb6	0x 0	49	36	0	0	0	0	0x 0		ShMt	
rb9	0x 0	0	10	0	0	0	0	0x 0		ShMt	
rb10	0x 0	62	56	0	0	0	0	0x 0		ShMt	
rb13	0x 0	16	7	0	0	0	0	0x 0		ShMt	

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

	Heating	Cooling
External static pressure	0.60 in H2O	0.60 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.60 in H2O	0.60 in H2O
Supply / return available pressure	0.300 / 0.300 in H2O	0.300 / 0.300 in H2O
Lowest friction rate	0.248 in/100ft	0.248 in/100ft
Actual air flow	800 cfm	800 cfm
Total effective length (TEL)	242 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
Closet	h 1237	21	9	0.364	4.0	0x 0	ShMt	35.0	130.0	st16
Entrance	h 5570	95	73	0.317	5.0	0x 0	ShMt	24.5	165.0	st3
Great R/Klt/Pant	h 6306	107	95	0.248	5.0	0x 0	ShMt	27.0	215.0	st3
Great R/Klt/Pant-A	h 6305	107	95	0.361	5.0	0x 0	ShMt	36.0	130.0	st17
Great R/Klt/Pant-B	h 6305	107	95	0.379	5.0	0x 0	ShMt	18.5	140.0	st17
Guest Bedroom	c 775	35	37	0.342	4.0	0x 0	ShMt	35.5	140.0	st16
Laundry	h 962	16	7	0.344	4.0	0x 0	ShMt	44.5	130.0	st16
Media Room	c 2372	80	112	0.405	5.0	0x 0	ShMt	38.0	110.0	st3
Media Room-A	c 2372	80	112	0.313	5.0	0x 0	ShMt	36.5	155.0	st3
Mudroom	h 3120	53	25	0.335	4.0	0x 0	ShMt	49.0	130.0	st16
Office	c 2979	96	141	0.323	6.0	0x 0	ShMt	41.0	145.0	st3

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	Peak AVF	459	534	0.248	809	11.0	0 x 0	ShtMetl	
st16	Peak AVF	126	77	0.335	640	6.0	0 x 0	ShtMetl	st4
st4	Peak AVF	341	266	0.335	771	9.0	0 x 0	ShtMetl	
st17	Peak AVF	215	190	0.361	804	7.0	0 x 0	ShtMetl	st4

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	0x 0	107	95	0	0	0	0	0x 0		ShMt	
rb23	0x 0	161	225	0	0	0	0	0x 0		ShMt	
rb18	0x 0	95	73	0	0	0	0	0x 0		ShMt	
rb25	0x 0	107	95	0	0	0	0	0x 0		ShMt	
rb19	0x 0	204	236	0	0	0	0	0x 0		ShMt	
rb20	0x 0	53	25	0	0	0	0	0x 0		ShMt	
rb21	0x 0	16	7	0	0	0	0	0x 0		ShMt	
rb17	0x 0	35	37	0	0	0	0	0x 0		ShMt	
rb15	0x 0	21	9	0	0	0	0	0x 0		ShMt	

Project Information

For: Buter Residence, Twoleaf Design Group
LOT 130, LEHI - UT, UT

	Heating	Cooling
External static pressure	0.75 in H2O	0.75 in H2O
Pressure losses	0 in H2O	0 in H2O
Available static pressure	0.75 in H2O	0.75 in H2O
Supply / return available pressure	0.375 / 0.375 in H2O	0.375 / 0.375 in H2O
Lowest friction rate	0.300 in/100ft	0.300 in/100ft
Actual air flow	800 cfm	800 cfm
Total effective length (TEL)	250 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
Great /Din/Kit U	h 7325	208	194	0.509	7.0	0x 0	ShMt	12.3	135.0	st19
Great /Din/Kit U-A	h 7324	208	194	0.353	7.0	0x 0	ShMt	22.3	190.0	st18
Great /Din/Kit U-B	h 7324	208	194	0.300	7.0	0x 0	ShMt	24.8	225.0	st18
Studio U	c 2010	88	108	0.457	5.0	0x 0	ShMt	29.3	135.0	st19
Studio U-A	c 2010	88	108	0.439	5.0	0x 0	ShMt	25.8	145.0	st19

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st18	Peak AVF	416	389	0.300	762	10.0	0 x 0	ShtMetl	st5
st5	Peak AVF	800	800	0.300	868	13.0	0 x 0	ShtMetl	
st19	Peak AVF	384	411	0.439	754	10.0	0 x 0	ShtMetl	st5

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
rb40	0x 0	88	108	0	0	0	0	0x 0		ShMt	
rb41	0x 0	208	194	0	0	0	0	0x 0		ShMt	
rb42	0x 0	208	194	0	0	0	0	0x 0		ShMt	
rb38	0x 0	208	194	0	0	0	0	0x 0		ShMt	
rb39	0x 0	88	108	0	0	0	0	0x 0		ShMt	