Project Summary
Entire House
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Notes:

Design Information

Weather: Fort Collins, CO, US

Winter Design Conditions

Outside db	1	°F
Inside db	70	°F
Design TD	69	°F

Summer Design Conditions

Outside db	91	°F
Inside db	75	°F
Design TD	16	°F
Daily range	H	
Relative humidity	50	%
Moisture difference	-39	gr/lb

Heating Summary

Structure	54115	Btuh
Ducts	6391	Btuh
Central vent (204 cfm)	12754	Btuh
Humidification	2327	Btuh
Piping	0	Btuh
Equipment load	75587	Btuh

Sensible Cooling Equipment Load Sizing

Structure	22727	Btuh
Ducts	4897	Btuh
Central vent (204 cfm)	2958	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.96	
Equipment sensible load	29359	Btuh

Infiltration

Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

	Heating	Cooling
Area (ft²)	6002	6002
Volume (ft³)	40849	40849
Air changes/hour	0.10	0.05
Equiv. AVF (cfm)	68	34

Latent Cooling Equipment Load Sizing

Structure	56	Btuh
Ducts	-136	Btuh
Central vent (204 cfm)	-4467	Btuh
Equipment latent load	0	Btuh
Equipment total load	29359	Btuh
Req. total capacity at 0.70 SHR	3.5	ton

Heating Equipment Summary

Make	n/a
Trade	n/a
Model	n/a
AHRI ref no.	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 no.	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 Summary
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Notes:

Design Information

Weather: Fort Collins, CO, US

Winter Design Conditions

Outside db	1	°F
Inside db	70	°F
Design TD	69	°F

Summer Design Conditions

Outside db	91	°F
Inside db	75	°F
Design TD	16	°F
Daily range	H	
Relative humidity	50	%
Moisture difference	-39	gr/lb

Heating Summary

Structure	35707	Btuh
Ducts	0	Btuh
Central vent (119 cfm)	7405	Btuh
Humidification	7868	Btuh
Piping	0	Btuh
Equipment load	50979	Btuh

Sensible Cooling Equipment Load Sizing

Structure	14077	Btuh
Ducts	0	Btuh
Central vent (119 cfm)	1717	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.96	
Equipment sensible load	15163	Btuh

Infiltration

Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

	Heating	Cooling
Area (ft²)	4278	4278
Volume (ft³)	23614	23614
Air changes/hour	0.10	0.05
Equiv. AVF (cfm)	38	19

Latent Cooling Equipment Load Sizing

Structure	-419	Btuh
Ducts	0	Btuh
Central vent (119 cfm)	-2593	Btuh
Equipment latent load	0	Btuh
Equipment total load	15163	Btuh
Req. total capacity at 0.85 SHR	1.5	ton

Heating Equipment Summary

Make	Bryant
Trade	Bryant
Model	340AAV060080
AHRI ref no.	2009836

Efficiency	92.1	AFUE
Heating input	63360	Btuh
Heating output	58608	Btuh
Temperature rise	46	°F
Actual air flow	1400	cfm
Air flow factor	0.039	cfm/Btuh
Static pressure	1.00	in H2O
Space thermostat		

Cooling Equipment Summary

Make	Bryant
Trade	LEGACY RNC 13 PURON
Cond	113ANA024-D
Coil	CNPVP3621A
AHRI ref no.	3895772

Efficiency	12.0 EER, 14.5 SEER	
Sensible cooling	19550	Btuh
Latent cooling	3450	Btuh
Total cooling	23000	Btuh
Actual air flow	1400	cfm
Air flow factor	0.099	cfm/Btuh
Static pressure	1.00	in H2O
Load sensible heat ratio	1.00	

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

Project Summary
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Notes:

Design Information

Weather: Fort Collins, CO, US

Winter Design Conditions

Outside db	1	°F
Inside db	70	°F
Design TD	69	°F

Summer Design Conditions

Outside db	91	°F
Inside db	75	°F
Design TD	16	°F
Daily range	H	
Relative humidity	50	%
Moisture difference	-39	gr/lb

Heating Summary

Structure	18408	Btuh
Ducts	6391	Btuh
Central vent (86 cfm)	5349	Btuh
Humidification	5754	Btuh
Piping	0	Btuh
Equipment load	35902	Btuh

Sensible Cooling Equipment Load Sizing

Structure	8716	Btuh
Ducts	4912	Btuh
Central vent (86 cfm)	1240	Btuh
Blower	0	Btuh
Use manufacturer's data	n	
Rate/swing multiplier	0.96	
Equipment sensible load	14273	Btuh

Infiltration

Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

	Heating	Cooling
Area (ft²)	1724	1724
Volume (ft³)	17235	17235
Air changes/hour	0.10	0.05
Equiv. AVF (cfm)	30	15

Latent Cooling Equipment Load Sizing

Structure	475	Btuh
Ducts	-136	Btuh
Central vent (86 cfm)	-1873	Btuh
Equipment latent load	0	Btuh
Equipment total load	14273	Btuh
Req. total capacity at 0.85 SHR	1.4	ton

Heating Equipment Summary

Make	Bryant
Trade	BRYANT
Model	340AAV048060
AHRI ref no.	2009861

Efficiency	92.1	AFUE
Heating input	47520	Btuh
Heating output	44352	Btuh
Temperature rise	49	°F
Actual air flow	1000	cfm
Air flow factor	0.040	cfm/Btuh
Static pressure	1.00	in H2O
Space thermostat		

Cooling Equipment Summary

Make	Bryant
Trade	LEGACY RNC 13 PURON
Cond	113ANA018-E
Coil	CNPVP2417A
AHRI ref no.	3871286

Efficiency	11.0 EER, 13.2 SEER	
Sensible cooling	15215	Btuh
Latent cooling	2685	Btuh
Total cooling	17900	Btuh
Actual air flow	1000	cfm
Air flow factor	0.073	cfm/Btuh
Static pressure	1.00	in H2O
Load sensible heat ratio	1.00	

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

AED Assessment
Entire House
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

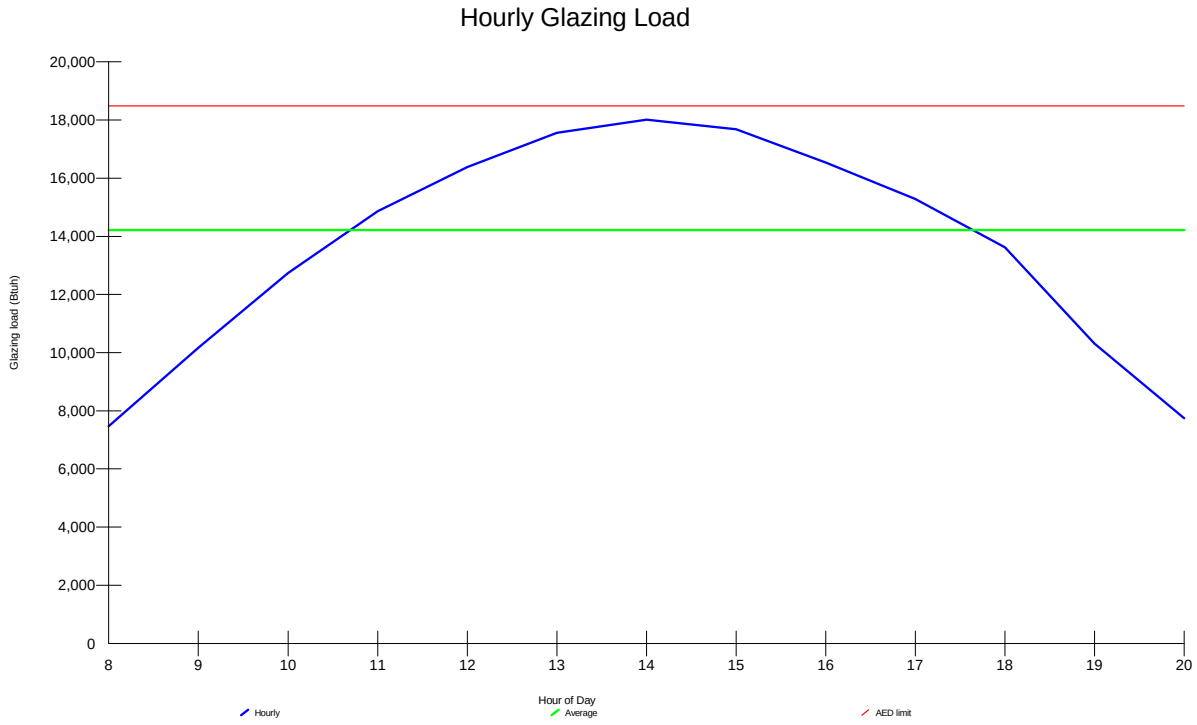
Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 26.7%.

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

AED excursion: 0 Btuh

AED Assessment
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

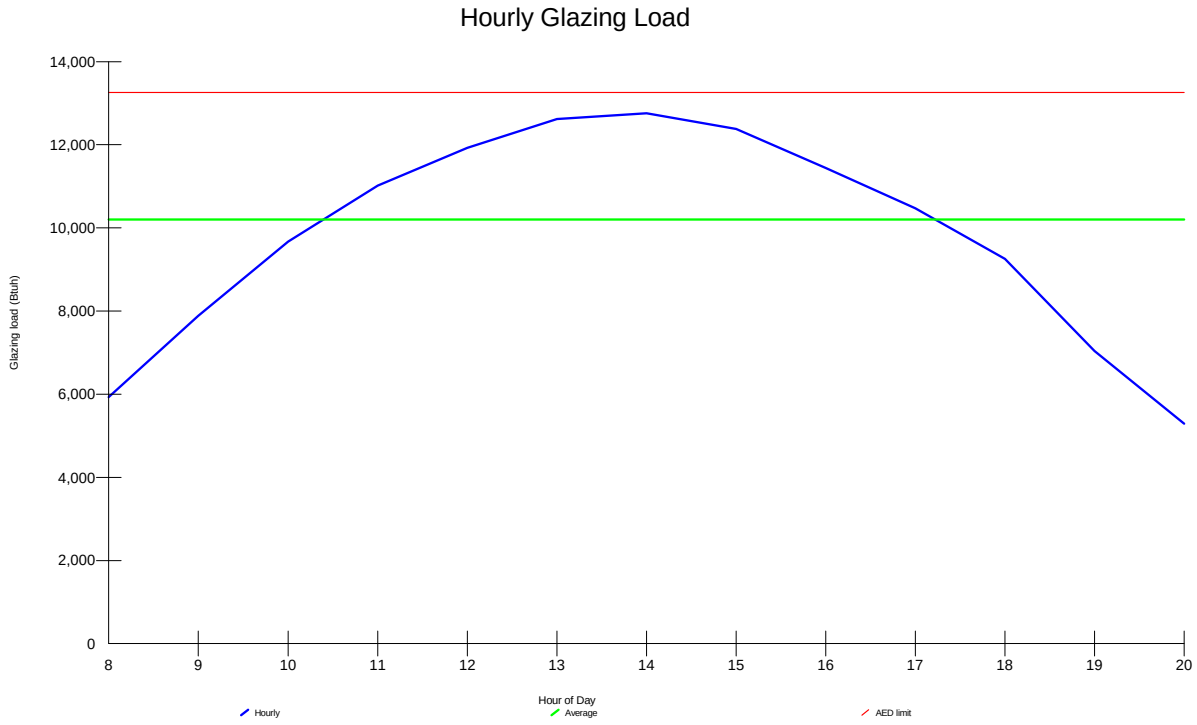
Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 25.1%.

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

AED excursion: 0 Btuh

AED Assessment
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

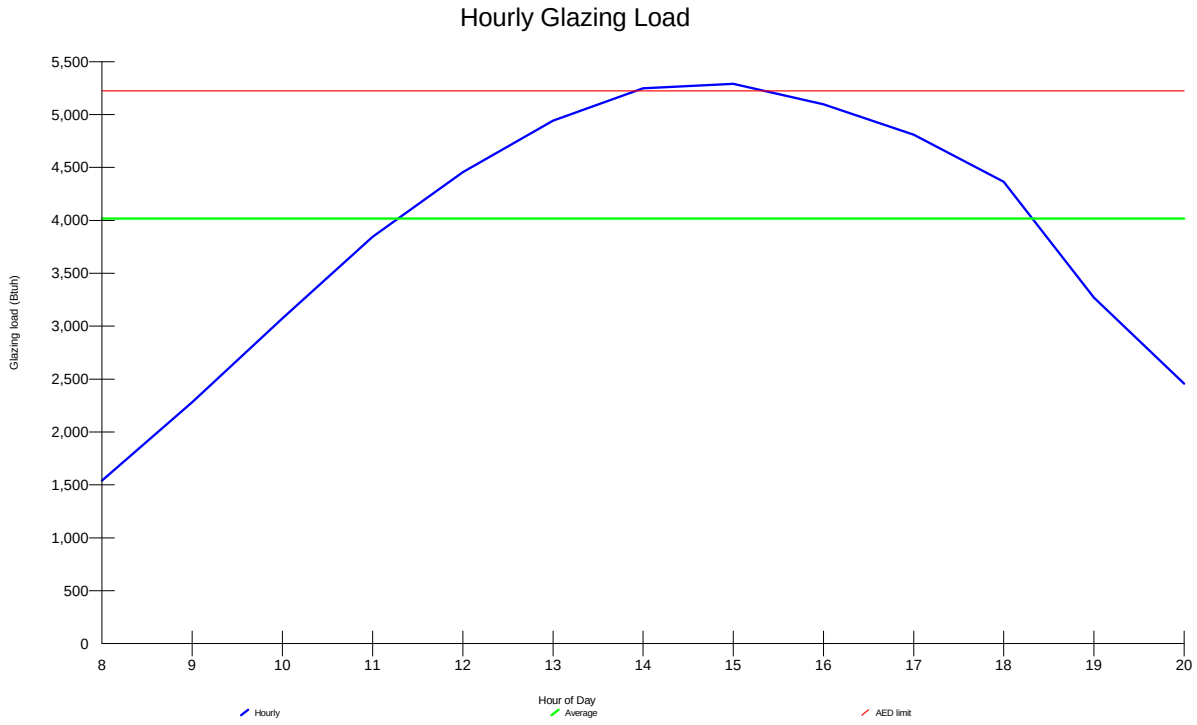
Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 31.7%.

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

AED excursion: 66 Btuh (PFG - 1.3*AFG)

Building Analysis
Entire House
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

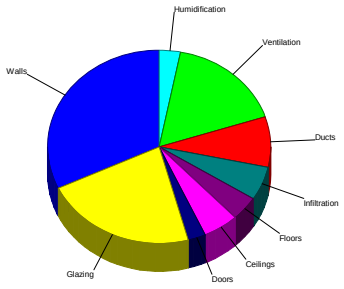
Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1
Infiltration:		
Method	Simplified	
Construction quality	Tight	
Fireplaces	1 (Tight)	

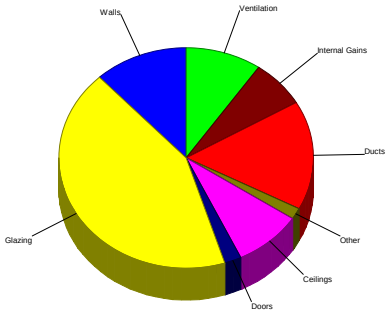
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.3	24199	32.0
Glazing	20.7	16784	22.2
Doors	26.9	1940	2.6
Ceilings	1.8	3898	5.2
Floors	1.4	3042	4.0
Infiltration	0.9	4251	5.6
Ducts		6391	8.5
Piping		0	0
Humidification		2327	3.1
Ventilation		12754	16.9
Adjustments		0	
Total		**75587**	**100.0**



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.6	3649	11.9
Glazing	16.2	13139	43.0
Doors	9.2	661	2.2
Ceilings	1.2	2655	8.7
Floors	0.0	10	0.0
Infiltration	0.1	493	1.6
Ducts		4897	16.0
Ventilation		2958	9.7
Internal gains		2120	6.9
Blower		0	0
Adjustments		0	
Total		**30582**	**100.0**



Latent Cooling Load = 0 Btuh
Overall U-value = 0.066 Btuh/ft²-°F

Data entries checked.

Building Analysis
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

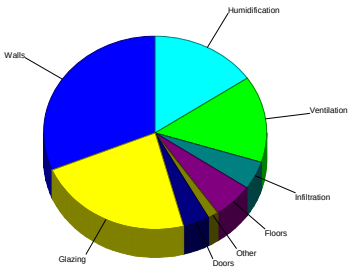
Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1
Infiltration:		
Method	Simplified	
Construction quality	Tight	
Fireplaces	1 (Tight)	

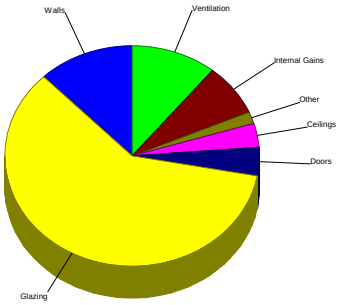
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.1	15953	31.3
Glazing	20.7	11630	22.8
Doors	26.9	1940	3.8
Ceilings	1.8	806	1.6
Floors	1.4	2984	5.9
Infiltration	0.9	2394	4.7
Ducts		0	0
Piping		0	0
Humidification		7868	15.4
Ventilation		7405	14.5
Adjustments		0	
Total		**50979**	**100.0**



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.5	1929	12.2
Glazing	16.8	9457	59.9
Doors	9.2	661	4.2
Ceilings	1.2	549	3.5
Floors	0.0	5	0.0
Infiltration	0.1	278	1.8
Ducts		0	0
Ventilation		1717	10.9
Internal gains		1200	7.6
Blower		0	0
Adjustments		0	
Total		**15794**	**100.0**



Latent Cooling Load = 0 Btuh
Overall U-value = 0.067 Btuh/ft²-°F

Data entries checked.

Building Analysis
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

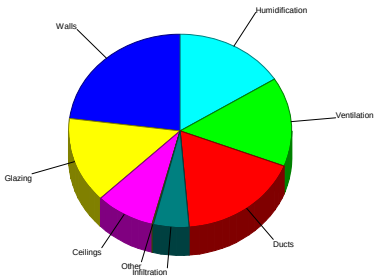
Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1
Infiltration:		
Method	Simplified	
Construction quality	Tight	
Fireplaces	1 (Tight)	

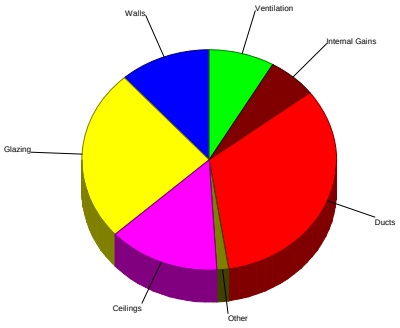
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	4.7	8245	23.0
Glazing	20.7	5154	14.4
Doors	0	0	0
Ceilings	1.8	3092	8.6
Floors	2.4	58	0.2
Infiltration	0.9	1858	5.2
Ducts		6391	17.8
Piping		0	0
Humidification		5754	16.0
Ventilation		5349	14.9
Adjustments		0	
Total		**35902**	**100.0**



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	1.0	1721	11.6
Glazing	15.1	3748	25.2
Doors	0	0	0
Ceilings	1.2	2106	14.2
Floors	0.2	6	0.0
Infiltration	0.1	215	1.4
Ducts		4912	33.0
Ventilation		1240	8.3
Internal gains		920	6.2
Blower		0	0
Adjustments		0	
Total		**14868**	**100.0**



Latent Cooling Load = 0 Btuh
Overall U-value = 0.064 Btuh/ft²-°F

Data entries checked.

Component Constructions
Entire House
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1

Infiltration:

Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

Construction descriptions	**Or**	**Area** ft²	**U-value** Btuh/ft²-°F	**Insul R** ft²-°F/Btuh	**Htg HTM** Btuh/ft²	**Loss** Btuh	**Clg HTM** Btuh/ft²	**Gain** Btuh
Walls								
12E-0sw: Frm wall, stucco ext, 1/2" wood shth, r-19 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm	n	926	0.068	19.0	4.69	4343	0.98	906
	e	868	0.068	19.0	4.69	4073	0.98	850
	s	906	0.068	19.0	4.69	4252	0.98	887
	w	909	0.068	19.0	4.69	4263	0.98	890
	all	3608	0.068	19.0	4.69	16931	0.98	3533
15B13-0wc-8: Bg wall, heavy damp soil, 2"x4" wood int frm, concrete wall, r-13 cav ins, 8" thk, 1/2" gypsum board int fnsh	n	542	0.049	13.0	3.59	1948	0.07	37
	e	511	0.049	13.0	3.59	1831	0.06	30
	s	492	0.049	13.0	3.31	1627	0.04	21
	w	515	0.049	13.0	3.61	1862	0.05	28
	all	2060	0.049	13.0	3.53	7268	0.06	116
Partitions								
(none)								
Windows								
U-30 SHGC-22: U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22)	n	205	0.300	0	20.7	4233	9.04	1848
	n	25	0.300	0	20.7	518	9.04	226
	e	147	0.300	0	20.7	3043	25.5	3753
	e	25	0.300	0	20.7	518	25.5	638
	s	228	0.300	0	20.7	4720	14.0	3188
	s	75	0.300	0	20.7	1553	14.0	1049
	w	61	0.300	0	20.7	1263	25.5	1557
	all	766	0.300	0	20.7	15846	16.0	12258
U-30 SHGC-22 GD: U-30 SHGC-22 - Glass Door; NFRC rated (SHGC=0.22)	s	24	0.300	0	20.7	497	14.0	336
	w	21	0.300	0	20.7	442	25.5	545
	all	45	0.300	0	20.7	938	19.4	880
Doors								
11D0: Door, wd sc type	n	28	0.390	0	26.9	753	9.16	257
	w	24	0.390	0	26.9	646	9.16	220
	w	20	0.390	0	26.9	541	9.16	184
	all	72	0.390	0	26.9	1940	9.16	661

Ceilings

16B-38ad: Attic ceiling, asphalt shingles roof mat, r-38 ceil ins, 1/2" gypsum board int fnsh	2173	0.026	38.0	1.79	3898	1.22	2655

Floors

20P-30w: Flr floor, frm flr, 12" thkns, hrd wd flr fnsh, r-30 cav ins, amb ovr	43	0.035	30.0	2.41	103	0.25	10
21A-32t: Bg floor, heavy damp soil, 8' depth	2130	0.020	0	1.38	2939	0	0

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1

Infiltration:

Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

Construction descriptions	**Or**	**Area** ft²	**U-value** Btuh/ft²-°F	**Insul R** ft²-°F/Btuh	**Htg HTM** Btuh/ft²	**Loss** Btuh	**Clg HTM** Btuh/ft²	**Gain** Btuh
Walls								
12E-0sw: Frm wall, stucco ext, 1/2" wood shth, r-19 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm	n	493	0.068	19.0	4.69	2311	0.98	482
	e	414	0.068	19.0	4.69	1942	0.98	405
	s	474	0.068	19.0	4.69	2224	0.98	464
	w	471	0.068	19.0	4.69	2208	0.98	461
	all	1851	0.068	19.0	4.69	8686	0.98	1813
15B13-0wc-8: Bg wall, heavy damp soil, 2"x4" wood int frm, concrete wall, r-13 cav ins, 8" thk, 1/2" gypsum board int fnsh	n	542	0.049	13.0	3.59	1948	0.07	37
	e	511	0.049	13.0	3.59	1831	0.06	30
	s	492	0.049	13.0	3.31	1627	0.04	21
	w	515	0.049	13.0	3.61	1862	0.05	28
	all	2060	0.049	13.0	3.53	7268	0.06	116
Partitions								
(none)								
Windows								
U-30 SHGC-22: U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22)	n	110	0.300	0	20.7	2267	9.04	990
	n	25	0.300	0	20.7	518	9.04	226
	e	126	0.300	0	20.7	2608	25.5	3217
	e	25	0.300	0	20.7	518	25.5	638
	s	132	0.300	0	20.7	2732	14.0	1846
	s	75	0.300	0	20.7	1553	14.0	1049
	w	24	0.300	0	20.7	497	25.5	613
	all	517	0.300	0	20.7	10692	16.6	8577
U-30 SHGC-22 GD: U-30 SHGC-22 - Glass Door; NFRC rated (SHGC=0.22)	s	24	0.300	0	20.7	497	14.0	336
	w	21	0.300	0	20.7	442	25.5	545
	all	45	0.300	0	20.7	938	19.4	880
Doors								
11D0: Door, wd sc type	n	28	0.390	0	26.9	753	9.16	257
	w	24	0.390	0	26.9	646	9.16	220
	w	20	0.390	0	26.9	541	9.16	184
	all	72	0.390	0	26.9	1940	9.16	661

Ceilings

16B-38ad: Attic ceiling, asphalt shingles roof mat, r-38 ceil ins, 1/2" gypsum board int fnsh	449	0.026	38.0	1.79	806	1.22	549

Floors

20P-30w: Flr floor, frm flr, 12" thkns, hrd wd flr fnsh, r-30 cav ins, amb ovr	19	0.035	30.0	2.41	45	0.25	5
21A-32t: Bg floor, heavy damp soil, 8' depth	2130	0.020	0	1.38	2939	0	0

Component Constructions
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Conditions

Location:
Fort Collins, CO, US
Elevation: 5300 ft
Latitude: 41°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	1	91
Daily range (°F)	-	28 (H)
Wet bulb (°F)	-	59
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	69	16
Relative humidity (%)	50	50
Moisture difference (gr/lb)	61.1	-39.1

Infiltration:

Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

Construction descriptions	**Or**	**Area** ft²	**U-value** Btuh/ft²-°F	**Insul R** ft²-°F/Btuh	**Htg HTM** Btuh/ft²	**Loss** Btuh	**Clg HTM** Btuh/ft²	**Gain** Btuh
Walls								
12E-0sw: Frm wall, stucco ext, 1/2" wood shth, r-19 cav ins, 1/2" gypsum board int fnsh, 2"x6" wood frm	n	433	0.068	19.0	4.69	2032	0.98	424
	e	454	0.068	19.0	4.69	2130	0.98	445
	s	432	0.068	19.0	4.69	2028	0.98	423
	w	438	0.068	19.0	4.69	2055	0.98	429
	all	1757	0.068	19.0	4.69	8245	0.98	1721
Partitions								
(none)								
Windows								
U-30 SHGC-22: U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22)	n	95	0.300	0	20.7	1967	9.04	858
	e	21	0.300	0	20.7	435	25.5	536
	s	96	0.300	0	20.7	1987	14.0	1342
	w	37	0.300	0	20.7	766	25.5	945
	all	249	0.300	0	20.7	5154	14.8	3681
Doors								
(none)								
Ceilings								
16B-38ad: Attic ceiling, asphalt shingles roof mat, r-38 ceil ins, 1/2" gypsum board int fnsh		1724	0.026	38.0	1.79	3092	1.22	2106
Floors								
20P-30w: Flr floor, frm flr, 12" thkns, hrd wd flr fnsh, r-30 cav ins, amb ovr		24	0.035	30.0	2.41	58	0.25	6

Right-J® Worksheet
Entire House
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Entire House				Main Zone			
1	Room name													
2	Exposed wall						679.6 ft				479.0 ft			
3	Room height						9.6 ft		d		9.5 ft		d	
4	Room dimensions													
5	Room area						6001.7 ft²				4278.2 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	1158	926	4343	906	630	493	2311	482
.	├─G	U-30 SHGC-22	0.300	n	20.70	9.04	205	0	4233	1848	110	0	2267	990
.	└─D	11D0	0.390	n	26.91	9.16	28	28	753	257	28	28	753	257
.	W	15B13-0wc-8	0.093	n	3.59	0.07	567	542	1948	37	567	542	1948	37
11	└─G	U-30 SHGC-22	0.300	n	20.70	9.04	25	0	518	226	25	0	518	226
	W	12E-0sw	0.068	e	4.69	0.98	1015	868	4073	850	540	414	1942	405
	└─G	U-30 SHGC-22	0.300	e	20.70	25.53	147	0	3043	3753	126	0	2608	3217
	W	15B13-0wc-8	0.093	e	3.59	0.06	536	511	1831	30	536	511	1831	30
	└─G	U-30 SHGC-22	0.300	e	20.70	25.53	25	0	518	638	25	0	518	638
	W	12E-0sw	0.068	s	4.69	0.98	1158	906	4252	887	630	474	2224	464
	├─G	U-30 SHGC-22	0.300	s	20.70	13.98	228	0	4720	3188	132	0	2732	1846
	└─G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	24	0	497	336	24	0	497	336
	W	15B13-0wc-8	0.093	s	3.31	0.04	567	492	1627	21	567	492	1627	21
	└─G	U-30 SHGC-22	0.300	s	20.70	13.98	75	0	1553	1049	75	0	1553	1049
	W	12E-0sw	0.068	w	4.69	0.98	1015	909	4263	890	540	471	2208	461
	├─G	U-30 SHGC-22	0.300	w	20.70	25.53	61	0	1263	1557	24	0	497	613
	├─G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	21	0	442	545	21	0	442	545
	└─D	11D0	0.390	w	26.91	9.16	24	24	646	220	24	24	646	220
	W	15B13-0wc-8	0.093	w	3.61	0.05	536	515	1862	28	536	515	1862	28
	└─D	11D0	0.390	w	26.91	9.16	20	20	541	184	20	20	541	184
	C	16B-38ad	0.026	-	1.79	1.22	2173	2173	3898	2655	449	449	806	549
	F	20P-30w	0.035	-	2.41	0.25	43	43	103	10	19	19	45	5
	F	21A-32t	0.020	-	1.38	0.00	2130	2130	2939	0	2130	2130	2939	0
6	c) AED excursion									0				0
	Envelope loss/gain								49863	20114			33313	12600
12	a) Infiltration								4251	493			2394	278
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230				4			920	0			0
		Appliances/other								1200				1200
	Subtotal (lines 6 to 13)								54115	22727			35707	14077
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								54115	22727			35707	14077
15	Duct loads						12%	22%	6391	4897	0%	0%	0	0
	Total room load								60505	27624			35707	14077
	Air required (cfm)								2400	2400			1400	1400

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

Right-J® Worksheet
Entire House
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

1	Room name					Upper Zone									
2	Exposed wall					200.6 ft									
3	Room height					10.0 ft				d					
4	Room dimensions														
5	Room area					1723.5 ft²									
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area or perimeter		Load	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	528	433	2032	424				
.	├─G	U-30 SHGC-22	0.300	n	20.70	9.04	95	0	1967	858				
.	└─D	11D0	0.390	n	26.91	9.16	0	0	0	0				
.	W	15B13-0wc-8	0.093	n	3.59	0.07	0	0	0	0				
11	└─G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0				
	W	12E-0sw	0.068	e	4.69	0.98	475	454	2130	445				
	└─G	U-30 SHGC-22	0.300	e	20.70	25.53	21	0	435	536				
	W	15B13-0wc-8	0.093	e	3.59	0.06	0	0	0	0				
	└─G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0				
	W	12E-0sw	0.068	s	4.69	0.98	528	432	2028	423				
	├─G	U-30 SHGC-22	0.300	s	20.70	13.98	96	0	1987	1342				
	└─G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0				
	W	15B13-0wc-8	0.093	s	3.31	0.04	0	0	0	0				
	└─G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0				
	W	12E-0sw	0.068	w	4.69	0.98	475	438	2055	429				
	├─G	U-30 SHGC-22	0.300	w	20.70	25.53	37	0	766	945				
	├─G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0				
	└─D	11D0	0.390	w	26.91	9.16	0	0	0	0				
	W	15B13-0wc-8	0.093	w	3.61	0.05	0	0	0	0				
	└─D	11D0	0.390	w	26.91	9.16	0	0	0	0				
	C	16B-38ad	0.026	-	1.79	1.22	1724	1724	3092	2106				
	F	20P-30w	0.035	-	2.41	0.25	24	24	58	6				
	F	21A-32t	0.020	-	1.38	0.00	0	0	0	0				
6	c) AED excursion									66				
	Envelope loss/gain								16550	7581				
12	a) Infiltration								1858	215				
	b) Room ventilation								0	0				
13	Internal gains:	Occupants @ 230					4			920				
		Appliances/other								0				
	Subtotal (lines 6 to 13)								18408	8716				
	Less external load								0	0				
	Less transfer								0	0				
	Redistribution								0	0				
14	Subtotal								18408	8716				
15	Duct loads						35%	56%	6391	4912				
	Total room load								24798	13628				
	Air required (cfm)								1000	1000				

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Main Zone				Dn Office			
1	Room name						Main Zone				Dn Office			
2	Exposed wall						479.0 ft				42.8 ft			
3	Room height						9.5 ft		d		9.0 ft		heat/cool	
4	Room dimensions										1.0 x 310.4 ft			
5	Room area						4278.2 ft²				310.4 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	630	493	2311	482	0	0	0	0
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	110	0	2267	990	0	0	0	0
.	D	11D0	0.390	n	26.91	9.16	28	28	753	257	0	0	0	0
.	W	15B13-0wc-8	0.093	n	3.59	0.07	567	542	1948	37	35	35	130	3
11	G	U-30 SHGC-22	0.300	n	20.70	9.04	25	0	518	226	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	540	414	1942	405	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	126	0	2608	3217	0	0	0	0
	W	15B13-0wc-8	0.093	e	3.59	0.06	536	511	1831	30	158	133	425	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	25	0	518	638	25	0	518	638
	W	12E-0sw	0.068	s	4.69	0.98	630	474	2224	464	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	132	0	2732	1846	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	24	0	497	336	0	0	0	0
	W	15B13-0wc-8	0.093	s	3.31	0.04	567	492	1627	21	175	175	650	14
	G	U-30 SHGC-22	0.300	s	20.70	13.98	75	0	1553	1049	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	540	471	2208	461	0	0	0	0
	G	U-30 SHGC-22	0.300	w	20.70	25.53	24	0	497	613	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	21	0	442	545	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	24	24	646	220	0	0	0	0
	W	15B13-0wc-8	0.093	w	3.61	0.05	536	515	1862	28	18	18	67	1
	D	11D0	0.390	w	26.91	9.16	20	20	541	184	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	449	449	806	549	0	0	0	0
	F	20P-30w	0.035	-	2.41	0.25	19	19	45	5	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	2130	2130	2939	0	310	310	428	0
6	c) AED excursion									0				40
	Envelope loss/gain								33313	12600			2218	696
12	a) Infiltration								2394	278			40	5
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								1200				0
	Subtotal (lines 6 to 13)								35707	14077			2258	701
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								35707	14077			2258	701
15	Duct loads						0%	0%	0	0	-0%	0%	0	0
	Total room load								35707	14077			2258	701
	Air required (cfm)								1400	1400			89	70

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Dn Storage 55.2 ft				Dn Bath 13.6 ft			
1	Room name													
2	Exposed wall						9.0 ft		heat/cool		9.0 ft		heat/cool	
3	Room height							1.0 x	366.9 ft			1.0 x	94.6 ft	
4	Room dimensions						366.9 ft²				94.6 ft²			
5	Room area													
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	0	0	0	0	0	0	0	0
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
.	D	11D0	0.390	n	26.91	9.16	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	3.59	0.07	279	279	1037	22	91	91	339	7
11	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	e	3.59	0.06	176	176	653	14	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	3.31	0.04	20	20	73	2	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	3.61	0.05	23	23	84	2	32	32	117	2
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	0	0	0	0	0	0	0	0
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	367	367	506	0	95	95	131	0
6	c) AED excursion									-2				-1
	Envelope loss/gain								2353	37			587	9
12	a) Infiltration								51	6			13	1
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								2404	43			599	11
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								2404	43			599	11
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								2404	43			599	11
	Air required (cfm)								94	4			23	1

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Dn Bedroom				Dn Rec			
1	Room name						25.6 ft				72.9 ft			
2	Exposed wall						9.0 ft			heat/cool	9.0 ft			heat/cool
3	Room height							1.0 x	217.5 ft			1.0 x	1051.4 ft	
4	Room dimensions						217.5 ft²				1051.4 ft²			
5	Room area													
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	0	0	0	0	0	0	0	0
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
.	D	11D0	0.390	n	26.91	9.16	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	3.59	0.07	90	65	174	0	0	0	0	0
11	G	U-30 SHGC-22	0.300	n	20.70	9.04	25	0	518	226	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	e	3.59	0.06	0	0	0	0	153	153	569	12
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	3.31	0.04	0	0	0	0	300	225	636	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	75	0	1553	1049
	W	12E-0sw	0.068	w	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	3.61	0.05	140	140	521	11	203	182	624	2
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	20	20	541	184
	C	16B-38ad	0.026	-	1.79	1.22	0	0	0	0	0	0	0	0
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	218	218	300	0	1051	1051	1451	0
6	c) AED excursion									-11				215
	Envelope loss/gain								1513	225			5373	1461
12	a) Infiltration								24	3			67	8
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								1536	228			5440	1469
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								1536	228			5440	1469
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								1536	228			5440	1469
	Air required (cfm)								60	23			213	146

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Dn Powder				Library			
1	Room name													
2	Exposed wall						34.9 ft				37.4 ft			
3	Room height						9.0 ft			heat/cool	10.0 ft			heat/cool
4	Room dimensions							1.0 x	88.9 ft			1.0 x	222.8 ft	
5	Room area						88.9 ft²				222.8 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	0	0	0	0	39	39	182	38
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
.	D	11D0	0.390	n	26.91	9.16	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	3.59	0.07	72	72	268	6	0	0	0	0
11	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	175	139	652	136
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	36	0	745	919
	W	15B13-0wc-8	0.093	e	3.59	0.06	50	50	184	4	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	140	104	488	102
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	36	0	745	503
	G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	3.31	0.04	72	72	268	6	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	0	0	0	0	20	20	94	20
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	3.61	0.05	121	121	450	9	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	0	0	0	0	0	0	0	0
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	89	89	123	0	0	0	0	0
6	c) AED excursion									-1				-84
	Envelope loss/gain								1292	23			2906	1634
12	a) Infiltration								32	4			346	40
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								1324	27			3252	1674
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								1324	27			3252	1674
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								1324	27			3252	1674
	Air required (cfm)								52	3			128	166

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Living				Foyer			
1	Room name						38.5 ft				9.7 ft			
2	Exposed wall						10.0 ft		heat/cool		10.0 ft		heat/cool	
3	Room height							1.0 x 277.2 ft				9.7 x 24.2 ft		
4	Room dimensions						277.2 ft²				234.3 ft²			
5	Room area													
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	168	132	620	129	97	45	211	44
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	36	0	745	325	24	0	497	217
.	D	11D0	0.390	n	26.91	9.16	0	0	0	0	28	28	753	257
.	W	15B13-0wc-8	0.093	n	3.59	0.07	0	0	0	0	0	0	0	0
11	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	170	134	629	131	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	36	0	745	919	0	0	0	0
	W	15B13-0wc-8	0.093	e	3.59	0.06	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	22	22	103	21	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	3.31	0.04	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	25	25	117	24	0	0	0	0
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	3.61	0.05	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	11	11	20	13	0	0	0	0
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-77				-25
	Envelope loss/gain								2979	1487			1461	492
12	a) Infiltration								357	41			90	10
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								3335	1529			1551	503
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								3335	1529			1551	503
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								3335	1529			1551	503
	Air required (cfm)								131	152			61	50

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Powder				Dining			
1	Room name						0 ft				20.6 ft			
2	Exposed wall						10.0 ft			heat/cool	10.0 ft			heat/cool
3	Room height													
4	Room dimensions						6.1 x 7.5 ft				1.0 x 238.3 ft			
5	Room area						45.9 ft²				238.3 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	0	0	0	0	146	110	517	108
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	36	0	745	325
.	D	11D0	0.390	n	26.91	9.16	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	3.59	0.07	0	0	0	0	0	0	0	0
11	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	25	25	117	24
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	e	3.59	0.06	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	3.31	0.04	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	0	0	0	0	35	35	164	34
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	3.61	0.05	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	0	0	0	0	0	0	0	0
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									0				-25
	Envelope loss/gain								0	0			1544	467
12	a) Infiltration								0	0			191	22
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								0	0			1735	490
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								0	0			1735	490
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								0	0			1735	490
	Air required (cfm)								0	0			68	49

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Laundry				Mud			
1	Room name						Laundry				Mud			
2	Exposed wall						17.3 ft				8.8 ft			
3	Room height						10.0 ft			heat/cool	10.0 ft			heat/cool
4	Room dimensions						10.4 x 7.3 ft				1.0 x 82.0 ft			
5	Room area						75.7 ft²				82.0 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	100	87	406	85	0	0	0	0
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	14	0	279	122	0	0	0	0
.	D	11D0	0.390	n	26.91	9.16	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	3.59	0.07	0	0	0	0	0	0	0	0
11	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	e	3.59	0.06	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	3.31	0.04	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	73	73	340	71	88	64	298	62
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	24	24	646	220
	W	15B13-0wc-8	0.093	w	3.61	0.05	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	73	73	130	89	43	43	76	52
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-18				-16
	Envelope loss/gain								1156	348			1020	318
12	a) Infiltration								160	19			81	9
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								1315	366			1101	327
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								1315	366			1101	327
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								1315	366			1101	327
	Air required (cfm)								52	36			43	33

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Kitchen				R Entry			
1	Room name						12.6 ft				14.2 ft			
2	Exposed wall						10.0 ft			heat/cool	10.0 ft			heat/cool
3	Room height							1.0 x	369.3 ft			14.6 x	5.8 ft	
4	Room dimensions						369.3 ft²				84.6 ft²			
5	Room area													
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	0	0	0	0	0	0	0	0
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
.	D	11D0	0.390	n	26.91	9.16	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	3.59	0.07	0	0	0	0	0	0	0	0
11	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	e	3.59	0.06	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	142	94	440	92
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	24	0	497	336
	G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0	24	0	497	336
	W	15B13-0wc-8	0.093	s	3.31	0.04	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	126	126	589	123	0	0	0	0
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	3.61	0.05	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	0	0	0	0	0	0	0	0
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-64				139
	Envelope loss/gain								589	59			1434	902
12	a) Infiltration								116	13			131	15
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230				0			0	0			0
		Appliances/other								1200				0
	Subtotal (lines 6 to 13)								706	1273			1565	917
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								706	1273			1565	917
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								706	1273			1565	917
	Air required (cfm)								28	127			61	91

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

Right-J® Worksheet
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Nook				Family			
1	Room name						Nook				Family			
2	Exposed wall						31.4 ft				43.6 ft			
3	Room height						10.0 ft		heat/cool		10.0 ft		heat/cool	
4	Room dimensions						1.0	x	133.5 ft		22.6	x	17.0 ft	
5	Room area						133.5 ft²				384.6 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	80	80	375	78	0	0	0	0
.	├─G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
.	└─D	11D0	0.390	n	26.91	9.16	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	3.59	0.07	0	0	0	0	0	0	0	0
11	└─G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	170	116	544	114
	└─G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	54	0	1118	1379
	W	15B13-0wc-8	0.093	e	3.59	0.06	0	0	0	0	0	0	0	0
	└─G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	100	64	300	63	226	190	893	186
	├─G	U-30 SHGC-22	0.300	s	20.70	13.98	36	0	745	503	36	0	745	503
	└─G	U-30 SHGC-22 GD	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	3.31	0.04	0	0	0	0	0	0	0	0
	└─G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	134	110	518	108	40	19	88	18
	├─G	U-30 SHGC-22	0.300	w	20.70	25.53	24	0	497	613	0	0	0	0
	├─G	U-30 SHGC-22 GD	0.300	w	20.70	25.53	0	0	0	0	21	0	442	545
	└─D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	3.61	0.05	0	0	0	0	0	0	0	0
	└─D	11D0	0.390	w	26.91	9.16	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	108	108	193	131	216	216	387	263
	F	20P-30w	0.035	-	2.41	0.25	19	19	45	5	0	0	0	0
	F	21A-32t	0.020	-	1.38	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									77				-146
	Envelope loss/gain								2673	1578			4216	2862
12	a) Infiltration								291	34			404	47
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								2964	1612			4620	2909
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								2964	1612			4620	2909
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								2964	1612			4620	2909
	Air required (cfm)								116	160			181	289

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

Right-J® Worksheet
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Upper Zone				Bedroom 1			
1	Room name													
2	Exposed wall						200.6 ft				37.4 ft			
3	Room height						10.0 ft		d		10.0 ft		heat/cool	
4	Room dimensions										1.0 x 181.9 ft			
5	Room area						1723.5 ft²				181.9 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	528	433	2032	424	39	39	182	38
.	└G	U-30 SHGC-22	0.300	n	20.70	9.04	95	0	1967	858	0	0	0	0
.	└D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	0.00	0.00	0	0	0	0	0	0	0	0
11	└G	U-30 SHGC-22	0.300	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	475	454	2130	445	175	160	751	157
	└G	U-30 SHGC-22	0.300	e	20.70	25.53	21	0	435	536	15	0	311	383
	W	15B13-0wc-8	0.093	e	0.00	0.00	0	0	0	0	0	0	0	0
	└G	U-30 SHGC-22	0.300	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	528	432	2028	423	140	110	516	108
	├G	U-30 SHGC-22	0.300	s	20.70	13.98	96	0	1987	1342	30	0	621	419
	└G	U-30 SHGC-22 GD	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	0.00	0.00	0	0	0	0	0	0	0	0
	└G	U-30 SHGC-22	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	475	438	2055	429	20	20	94	20
	├G	U-30 SHGC-22	0.300	w	20.70	25.53	37	0	766	945	0	0	0	0
	├G	U-30 SHGC-22 GD	0.300	w	0.00	0.00	0	0	0	0	0	0	0	0
	└D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	0.00	0.00	0	0	0	0	0	0	0	0
	└D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	1724	1724	3092	2106	182	182	326	222
	F	20P-30w	0.035	-	2.41	0.25	24	24	58	6	0	0	0	0
	F	21A-32t	0.020	-	0.00	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									66				-42
	Envelope loss/gain								16550	7581			2800	1305
12	a) Infiltration								1858	215			346	40
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					4			920	1			230
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								18408	8716			3146	1575
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								18408	8716			3146	1575
15	Duct loads						35%	56%	6391	4912	35%	56%	1092	888
	Total room load								24798	13628			4239	2463
	Air required (cfm)								1000	1000			171	181

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

Right-J® Worksheet
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Bath 1				Bath 2			
1	Room name						3.2 ft				0 ft			
2	Exposed wall						10.0 ft		heat/cool		10.0 ft		heat/cool	
3	Room height							5.8 x 9.0 ft				5.3 x 9.0 ft		
4	Room dimensions						51.8 ft²				47.8 ft²			
5	Room area													
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	0	0	0	0	0	0	0	0
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
.	D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	0.00	0.00	0	0	0	0	0	0	0	0
11	G	U-30 SHGC-22	0.300	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	32	32	150	31	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	0.00	0.00	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	0.00	0.00	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	52	52	93	63	48	48	86	58
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	0.00	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-4				-2
	Envelope loss/gain								242	91			86	56
12	a) Infiltration								30	3			0	0
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								272	94			86	56
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								272	94			86	56
15	Duct loads						35%	56%	94	53	35%	56%	30	32
	Total room load								366	147			116	88
	Air required (cfm)								15	11			5	6

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

Right-J® Worksheet
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							Bedroom 2				Open To Below			
1	Room name						Bedroom 2				Open To Below			
2	Exposed wall						28.4 ft				29.3 ft			
3	Room height						10.0 ft		heat/cool		10.0 ft		heat/cool	
4	Room dimensions						1.0	x 220.3 ft			1.0	x 429.2 ft		
5	Room area						220.3 ft²				429.2 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	146	116	545	114	97	82	384	80
.	G	U-30 SHGC-22	0.300	n	20.70	9.04	30	0	621	271	15	0	311	136
.	D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	0.00	0.00	0	0	0	0	0	0	0	0
11	G	U-30 SHGC-22	0.300	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	138	138	648	135	0	0	0	0
	G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	e	0.00	0.00	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	196	155	728	152
	G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	41	0	849	573
	G	U-30 SHGC-22 GD	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	0.00	0.00	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	0	0	0	0
	G	U-30 SHGC-22 GD	0.300	w	0.00	0.00	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	0.00	0.00	0	0	0	0	0	0	0	0
	D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	220	220	395	269	429	429	770	524
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	24	24	58	6
	F	21A-32t	0.020	-	0.00	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-41				88
	Envelope loss/gain								2210	748			3100	1560
12	a) Infiltration								263	31			271	31
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					1			230	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								2473	1009			3372	1591
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								2473	1009			3372	1591
15	Duct loads						35%	56%	859	568	35%	56%	1171	897
	Total room load								3332	1577			4542	2488
	Air required (cfm)								134	116			183	183

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

Right-J® Worksheet
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

							M Bath 29.6 ft 10.0 ft x 1.0 heat/cool 229.6 ft² 229.6 ft				M Sitting 21.7 ft 10.0 ft x 1.0 heat/cool 135.9 ft² 135.9 ft			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	146	116	545	114	100	80	375	78
.	└G	U-30 SHGC-22	0.300	n	20.70	9.04	30	0	621	271	20	0	414	181
.	└D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	0.00	0.00	0	0	0	0	0	0	0	0
11	└G	U-30 SHGC-22	0.300	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	0	0	0	0
	└G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	e	0.00	0.00	0	0	0	0	0	0	0	0
	└G	U-30 SHGC-22	0.300	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	0	0	0	0
	├G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	0	0	0	0
	└G	U-30 SHGC-22 GD	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	0.00	0.00	0	0	0	0	0	0	0	0
	└G	U-30 SHGC-22	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	150	150	704	147	117	105	492	103
	├G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	12	0	248	306
	├G	U-30 SHGC-22 GD	0.300	w	0.00	0.00	0	0	0	0	0	0	0	0
	└D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	0.00	0.00	0	0	0	0	0	0	0	0
	└D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	230	230	412	281	136	136	244	166
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	0.00	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-33				88
	Envelope loss/gain								2282	779			1774	923
12	a) Infiltration								274	32			201	23
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	0			0
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								2556	811			1975	946
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								2556	811			1975	946
15	Duct loads						35%	56%	888	457	35%	56%	685	533
	Total room load								3444	1268			2660	1479
	Air required (cfm)								139	93			107	109

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

Right-J® Worksheet
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

1	Room name						M WIC				M Bedroom			
2	Exposed wall						0 ft				51.0 ft			
3	Room height						10.0 ft		heat/cool		10.0 ft		heat/cool	
4	Room dimensions						1.0	x 120.6 ft			1.0	x 306.5 ft		
5	Room area						120.6 ft²				306.5 ft²			
	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²)		Area (ft²) or perimeter (ft)		Load (Btuh)		Area (ft²) or perimeter (ft)		Load (Btuh)	
					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
6	W	12E-0sw	0.068	n	4.69	0.98	0	0	0	0	0	0	0	0
.	├─G	U-30 SHGC-22	0.300	n	20.70	9.04	0	0	0	0	0	0	0	0
.	└─D	11D0	0.390	n	0.00	0.00	0	0	0	0	0	0	0	0
.	W	15B13-0wc-8	0.093	n	0.00	0.00	0	0	0	0	0	0	0	0
11	└─G	U-30 SHGC-22	0.300	n	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	e	4.69	0.98	0	0	0	0	130	124	582	121
	└─G	U-30 SHGC-22	0.300	e	20.70	25.53	0	0	0	0	6	0	124	153
	W	15B13-0wc-8	0.093	e	0.00	0.00	0	0	0	0	0	0	0	0
	└─G	U-30 SHGC-22	0.300	e	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	s	4.69	0.98	0	0	0	0	192	167	783	163
	├─G	U-30 SHGC-22	0.300	s	20.70	13.98	0	0	0	0	25	0	518	350
	└─G	U-30 SHGC-22 GD	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	s	0.00	0.00	0	0	0	0	0	0	0	0
	└─G	U-30 SHGC-22	0.300	s	0.00	0.00	0	0	0	0	0	0	0	0
	W	12E-0sw	0.068	w	4.69	0.98	0	0	0	0	188	163	765	160
	├─G	U-30 SHGC-22	0.300	w	20.70	25.53	0	0	0	0	25	0	518	638
	├─G	U-30 SHGC-22 GD	0.300	w	0.00	0.00	0	0	0	0	0	0	0	0
	└─D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	W	15B13-0wc-8	0.093	w	0.00	0.00	0	0	0	0	0	0	0	0
	└─D	11D0	0.390	w	0.00	0.00	0	0	0	0	0	0	0	0
	C	16B-38ad	0.026	-	1.79	1.22	121	121	216	147	307	307	550	375
	F	20P-30w	0.035	-	2.41	0.25	0	0	0	0	0	0	0	0
	F	21A-32t	0.020	-	0.00	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-6				18
	Envelope loss/gain								216	142			3839	1978
12	a) Infiltration								0	0			472	55
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @ 230					0			0	2			460
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								216	142			4312	2492
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								216	142			4312	2492
15	Duct loads						35%	56%	75	80	35%	56%	1497	1404
	Total room load								291	221			5808	3897
	Air required (cfm)								12	16			234	286

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

Load Short Form
Entire House
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Information

	Htg	Clg
Outside db (°F)	1	91
Inside db (°F)	70	75
Design TD (°F)	69	16
Daily range	-	H
Inside humidity (%)	50	50
Moisture difference (gr/lb)	61	-39

Infiltration

Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

HEATING EQUIPMENT

Make	n/a		
Trade	n/a		
Model	n/a		
AHRI ref no.	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

Make	n/a		
Trade	n/a		
Cond	n/a		
Coil	n/a		
AHRI ref no.	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	

ROOM NAME		Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Main Zone	d	4278	35707	14077	1400	1400
Upper Zone	d	1724	24798	13628	1000	1000
Entire House	d	6002	60505	27624	2400	2400
Other equip loads			15082	2958		
Equip. @ 0.96 RSM				29359		
Latent cooling				0		
TOTALS		6002	75587	29359	2400	2400

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

Load Short Form
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Information

	Htg	Clg
Outside db (°F)	1	91
Inside db (°F)	70	75
Design TD (°F)	69	16
Daily range	-	H
Inside humidity (%)	50	50
Moisture difference (gr/lb)	61	-39

Infiltration	
Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

HEATING EQUIPMENT

Make Bryant
Trade Bryant
Model 340AAV060080
AHRI ref no. 2009836

Efficiency	92.1 AFUE	
Heating input	63360	Btuh
Heating output	58608	Btuh
Temperature rise	46	°F
Actual air flow	1400	cfm
Air flow factor	0.039	cfm/Btuh
Static pressure	1.00	in H2O
Space thermostat		

COOLING EQUIPMENT

Make Bryant
Trade LEGACY RNC 13 PURON
Cond 113ANA024-D
Coil CNPVP3621A
AHRI ref no. 3895772

Efficiency	12.0 EER, 14.5 SEER	
Sensible cooling	19550	Btuh
Latent cooling	3450	Btuh
Total cooling	23000	Btuh
Actual air flow	1400	cfm
Air flow factor	0.099	cfm/Btuh
Static pressure	1.00	in H2O
Load sensible heat ratio	1.00	

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Dn Office	310	2258	701	89	70
Dn Storage	367	2404	43	94	4
Dn Bath	95	599	11	23	1
Dn Bedroom	218	1536	228	60	23
Dn Rec	1051	5440	1469	213	146
Dn Powder	89	1324	27	52	3
Library	223	3252	1674	128	166
Living	277	3335	1529	131	152
Foyer	234	1551	503	61	50
Powder	46	0	0	0	0
Dining	238	1735	490	68	49
Laundry	76	1315	366	52	36
Mud	82	1101	327	43	33
Kitchen	369	706	1273	28	127
R Entry	85	1565	917	61	91
Nook	134	2964	1612	116	160

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

Family		385	4620	2909	181	289
Main Zone	d	4278	35707	14077	1400	1400
Other equip loads			15272	1717		
Equip. @ 0.96	RSM			15163		
Latent cooling				0		
TOTALS		4278	50979	15163	1400	1400

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

Load Short Form
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

Design Information

	Htg	Clg
Outside db (°F)	1	91
Inside db (°F)	70	75
Design TD (°F)	69	16
Daily range	-	H
Inside humidity (%)	50	50
Moisture difference (gr/lb)	61	-39

Infiltration	
Method	Simplified
Construction quality	Tight
Fireplaces	1 (Tight)

HEATING EQUIPMENT

Make Bryant
Trade BRYANT
Model 340AAV048060
AHRI ref no. 2009861

Efficiency	92.1 AFUE	
Heating input	47520	Btuh
Heating output	44352	Btuh
Temperature rise	49	°F
Actual air flow	1000	cfm
Air flow factor	0.040	cfm/Btuh
Static pressure	1.00	in H2O
Space thermostat		

COOLING EQUIPMENT

Make Bryant
Trade LEGACY RNC 13 PURON
Cond 113ANA018-E
Coil CNPVP2417A
AHRI ref no. 3871286

Efficiency	11.0 EER, 13.2 SEER	
Sensible cooling	15215	Btuh
Latent cooling	2685	Btuh
Total cooling	17900	Btuh
Actual air flow	1000	cfm
Air flow factor	0.073	cfm/Btuh
Static pressure	1.00	in H2O
Load sensible heat ratio	1.00	

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Bedroom 1	182	4239	2463	171	181
Bath 1	52	366	147	15	11
Bath 2	48	116	88	5	6
Bedroom 2	220	3332	1577	134	116
Open To Below	429	4542	2488	183	183
M Bath	230	3444	1268	139	93
M Sitting	136	2660	1479	107	109
M WIC	121	291	221	12	16
M Bedroom	307	5808	3897	234	286

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

Upper Zone Other equip loads Equip. @ 0.96 RSM Latent cooling	d	1724	24798 11103	13628 1240 14273 0	1000	1000
TOTALS		1724	35902	14273	1000	1000

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

Load Multizone Summary Report

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

Authority Air Designs, LLC.

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

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
Main Zone	23614	0.10	38	0.9	23614	0.05	19	0.1
Upper Zone	17235	0.10	30	0.9	17235	0.05	15	0.1
Entire House	40849	0.10	68	0.9	40849	0.05	34	0.1

Load and AVF Summary

ROOM NAME	Area ft²	Htg load Btuh	Clg load Btuh	Htg AVF cfm	Clg AVF cfm
Dn Office	310	2258	701	89	70
Dn Storage	367	2404	43	94	4
Dn Bath	95	599	11	23	1
Dn Bedroom	218	1536	228	60	23
Dn Rec	1051	5440	1469	213	146
Dn Powder	89	1324	27	52	3
Library	223	3252	1674	128	166
Living	277	3335	1529	131	152
Foyer	234	1551	503	61	50
Powder	46	0	0	0	0
Dining	238	1735	490	68	49
Laundry	76	1315	366	52	36
Mud	82	1101	327	43	33
Kitchen	369	706	1273	28	127
R Entry	85	1565	917	61	91
Nook	134	2964	1612	116	160
Family	385	4620	2909	181	289
Main Zone	4278	35707	14077	1400	1400
Bedroom 1	182	4239	2463	171	181
Bath 1	52	366	147	15	11
Bath 2	48	116	88	5	6
Bedroom 2	220	3332	1577	134	116
Open To Below	429	4542	2488	183	183
M Bath	230	3444	1268	139	93
M Sitting	136	2660	1479	107	109
M WIC	121	291	221	12	16
M Bedroom	307	5808	3897	234	286
Upper Zone	1724	24798	13628	1000	1000
Entire House	6002	60505	27624	2400	2400

Duct System Summary
Main Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

	Heating	Cooling
External static pressure	1.00 in H2O	1.00 in H2O
Pressure losses	0.40 in H2O	0.40 in H2O
Available static pressure	0.60 in H2O	0.60 in H2O
Supply / return available pressure	0.31 / 0.29 in H2O	0.31 / 0.29 in H2O
Lowest friction rate	0.074 in/100ft	0.074 in/100ft
Actual air flow	1400 cfm	1400 cfm
Total effective length (TEL)	807 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	h	1735	68	49	0.125	5.0	0x 0	ShMt	29.8	215.0	st2
Dn Bath	h	599	23	1	0.110	4.0	0x 0	ShMt	28.6	250.0	st2A
Dn Bedroom	h	1536	60	23	0.108	5.0	0x 0	ShMt	39.5	245.0	st2A
Dn Office	h	2258	89	70	0.119	6.0	0x 0	ShMt	32.4	225.0	st1
Dn Powder	h	1324	52	3	0.079	5.0	0x 0	ShMt	64.8	325.0	st2A
Dn Rec	h	2720	107	73	0.110	6.0	0x 0	ShMt	53.7	225.0	st2
Dn Rec-A	h	2720	107	73	0.097	6.0	0x 0	ShMt	65.4	250.0	st2A
Dn Storage	h	2404	94	4	0.122	6.0	0x 0	ShMt	16.8	235.0	st1
Family	c	1454	91	145	0.111	7.0	0x 0	ShMt	46.2	230.0	st2
Family-A	c	1454	91	145	0.097	7.0	0x 0	ShMt	67.4	250.0	st2A
Foyer	h	1551	61	50	0.121	5.0	0x 0	ShMt	12.7	240.0	st2
Kitchen	c	636	14	63	0.107	5.0	0x 0	ShMt	45.3	240.0	st2A
Kitchen-A	c	636	14	63	0.109	5.0	0x 0	ShMt	30.1	250.0	st2A
Laundry	h	1315	52	36	0.106	5.0	0x 0	ShMt	38.4	250.0	st2A
Library	c	837	64	83	0.107	6.0	0x 0	ShMt	35.8	250.0	st1
Library-A	c	837	64	83	0.115	6.0	0x 0	ShMt	27.3	240.0	st1
Living	c	764	65	76	0.122	5.0	0x 0	ShMt	20.6	230.0	st1
Living-A	c	764	65	76	0.103	6.0	0x 0	ShMt	18.7	280.0	st1
Mud	h	1101	43	33	0.112	5.0	0x 0	ShMt	34.6	240.0	st2A
Nook	c	806	58	80	0.074	6.0	0x 0	ShMt	72.2	340.0	st2A
Nook-A	c	806	58	80	0.075	6.0	0x 0	ShMt	73.2	335.0	st2A
R Entry	c	917	61	91	0.117	6.0	0x 0	ShMt	26.1	235.0	st2

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st2A	Peak AVF	572	600	0.074	635	12.1	8 x 17	ShtMetl	st2
st2	Peak AVF	959	1008	0.074	725	14.7	10 x 20	ShtMetl	
st1	Peak AVF	441	392	0.103	318	10.1	10 x 20	ShtMetl	

Return Branch Detail Table

Name	Grill 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	16x 15	532	247	178.9	0.164	677	12.0	0x 0		ShMt	rt5
rb3	6x 11	91	145	257.9	0.114	541	7.0	0x 0		ShMt	rt5A
rb12	6x 15	182	188	228.4	0.128	705	7.0	0x 0		ShMt	rt5A
rb9	0x 0	134	177	283.3	0.104	508	8.0	0x 0		ShMt	rt5A
rb10	0x 0	116	160	394.4	0.074	459	8.0	0x 0		ShMt	rt5A
rb11	14x 6	128	166	346.3	0.085	477	8.0	0x 0		ShMt	rt6
rb1	0x 0	75	154	228.0	0.129	578	7.0	0x 0		ShMt	rt6
rb8	14x 5	143	162	181.9	0.161	606	7.0	0x 0		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
rt5	Peak AVF	1055	917	0.074	506	14.8	12 x 25	ShtMetl	rt1
rt5A	Peak AVF	523	671	0.074	483	12.6	10 x 20	ShtMetl	rt5
rt6	Peak AVF	345	483	0.085	232	10.9	12 x 25	ShtMetl	rt1
rt1	Peak AVF	1400	1400	0.074	672	16.6	12 x 25	ShtMetl	

Duct System Summary
Upper Zone
Authority Air Designs, LLC.

Job: Sample
Date: Oct 17, 2011
By: Joe Colburn
Plan: Custom

6608 West 95th Place, Westminster, CO 80020 Phone: (303) 428-3378 Email: Projects@AuthorityAir.com Web: www.AuthorityAir.com

Project Information

For: Sample Design One
123 ABC St., Westminster, CO 80020
Phone: (303) 428-3378
Email: Projects@AuthorityAir.com

	Heating	Cooling
External static pressure	1.00 in H2O	1.00 in H2O
Pressure losses	0.38 in H2O	0.38 in H2O
Available static pressure	0.62 in H2O	0.62 in H2O
Supply / return available pressure	0.30 / 0.32 in H2O	0.30 / 0.32 in H2O
Lowest friction rate	0.094 in/100ft	0.094 in/100ft
Actual air flow	1000 cfm	1000 cfm
Total effective length (TEL)	657 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 1	h	366	15	11	0.113	4.0	0x 0	VlFx	31.5	230.0	st3
Bath 2	c	88	5	6	0.129	4.0	0x 0	VlFx	28.9	200.0	st3
Bedroom 1	c	1231	85	90	0.099	7.0	0x 0	VlFx	35.0	265.0	st4
Bedroom 1-A	c	1231	85	90	0.104	7.0	0x 0	VlFx	27.9	255.0	st4
Bedroom 2	h	3332	134	116	0.118	8.0	0x 0	VlFx	46.3	205.0	st3A
M Bath	h	3444	139	93	0.124	8.0	0x 0	VlFx	22.4	215.0	st3A
M Bedroom	c	1948	117	143	0.094	8.0	0x 0	VlFx	33.4	280.0	st4
M Bedroom-A	c	1948	117	143	0.096	8.0	0x 0	VlFx	28.3	280.0	st4
M Sitting	c	1479	107	109	0.105	7.0	0x 0	VlFx	26.2	255.0	st3
M WIC	c	221	12	16	0.133	4.0	0x 0	VlFx	12.7	210.0	st3
Open To Below	h	2271	92	91	0.111	7.0	0x 0	VlFx	21.9	245.0	st4
Open To Below-A	h	2271	92	91	0.116	7.0	0x 0	VlFx	9.2	245.0	st4

Supply Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
st4	Peak AVF	588	649	0.094	547	13.4	10 x 20	DctLinr	
st3A	Peak AVF	273	209	0.118	432	9.7	8 x 14	DctLinr	st3
st3	Peak AVF	412	351	0.105	347	11.2	10 x 20	DctLinr	

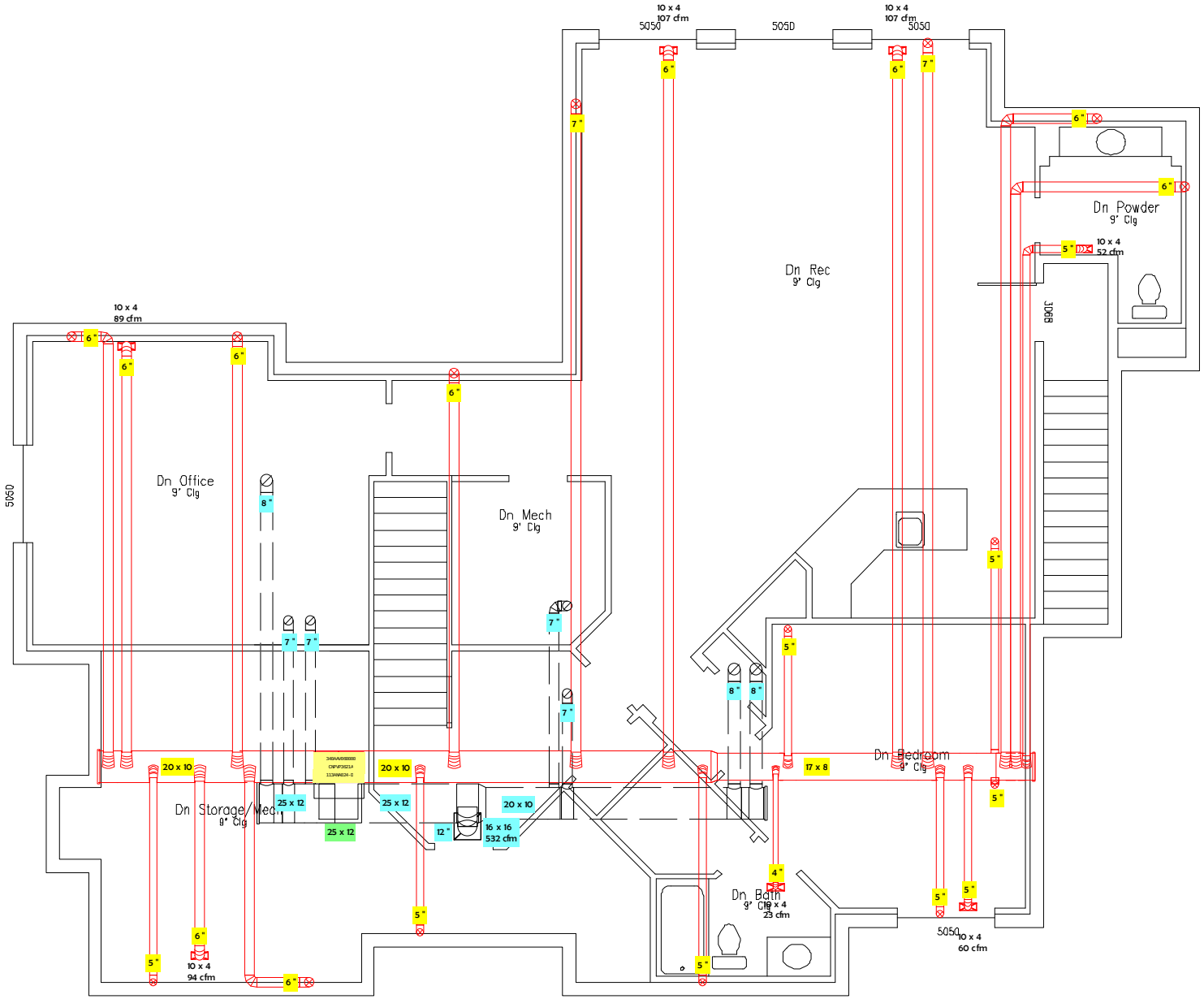
Return Branch Detail Table

Name	Grill 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	277	283	219.0	0.148	518	10.0	0x 0		VlFx	rt7
rb4	20x 16	492	504	274.4	0.118	641	12.0	0x 0		VlFx	rt8
rb6	12x 12	231	213	344.0	0.094	423	10.0	0x 0		VlFx	rt7

Return Trunk Detail Table

Name	Trunk Type	Htg (cfm)	Clg (cfm)	Design FR	Veloc (fpm)	Diam (in)	H x W (in)	Duct Material	Trunk
rt7	Peak AVF	508	496	0.094	428	12.5	10 x 20	DctLinr	rt2
rt8	Peak AVF	492	504	0.118	424	11.9	10 x 20	DctLinr	rt2
rt2	Peak AVF	1000	1000	0.094	569	15.6	12 x 24	DctLinr	

Basement



Job #: Sample
Performed by Joe Colburn for:
Sample Design One
123 ABC St.
Westminster, CO 80020
Phone: (303) 428-3378
Projects@AuthorityAir.com

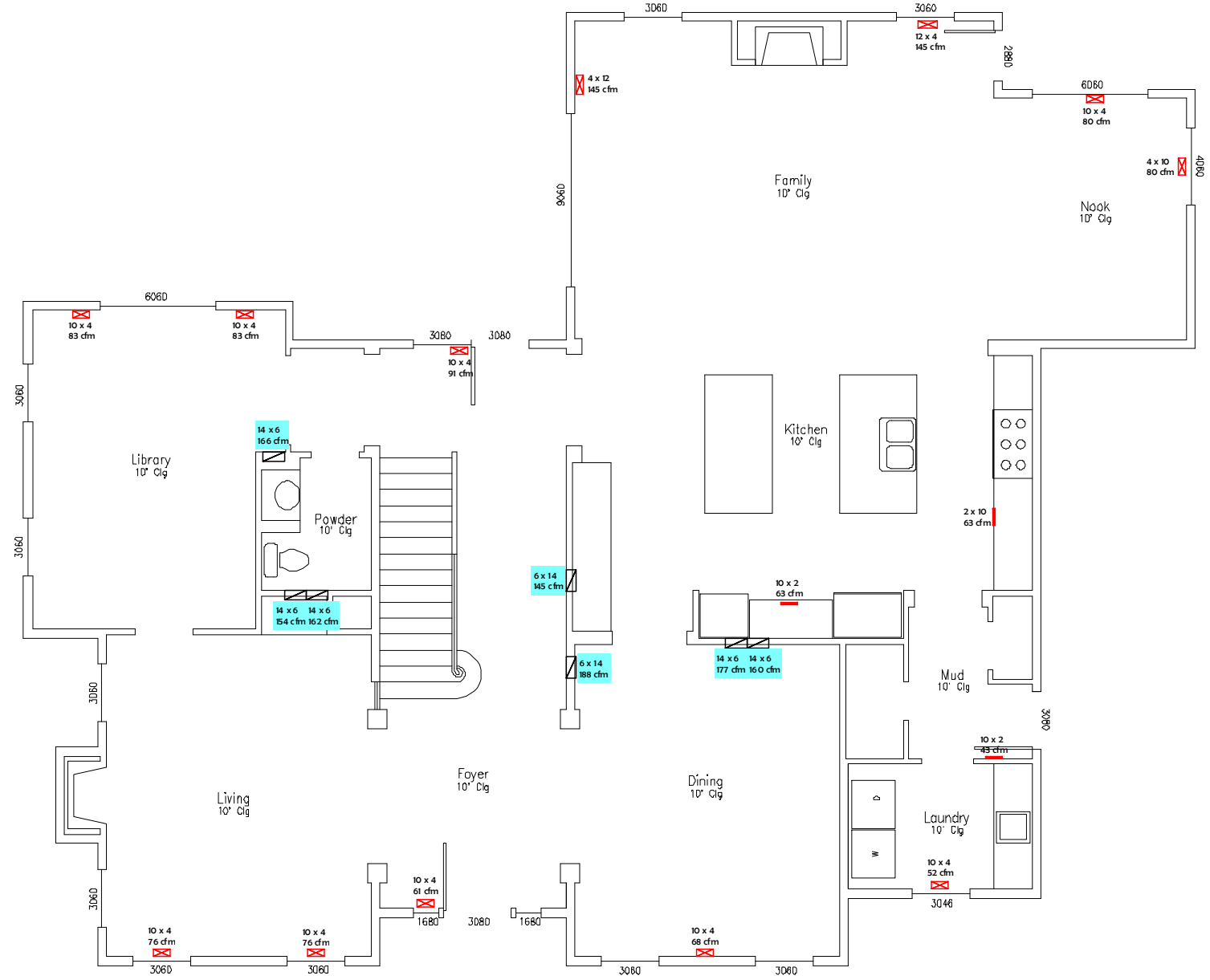
Authority Air Designs, LLC.

6608 West 95th Place
Westminster, CO 80020
Phone: (303) 428-3378
www.AuthorityAir.com Projects@AuthorityAir.com

Scale: 1/8" = 1'0"

Uponor System Design Software
12.0.03 RSU09203
2012-Feb-12 20:08:21
...cuments\Downloads\Sample One....

Main Floor



Job #: Sample
Performed by Joe Colburn for:
Sample Design One
123 ABC St.
Westminster, CO 80020
Phone: (303) 428-3378
Projects@AuthorityAir.com

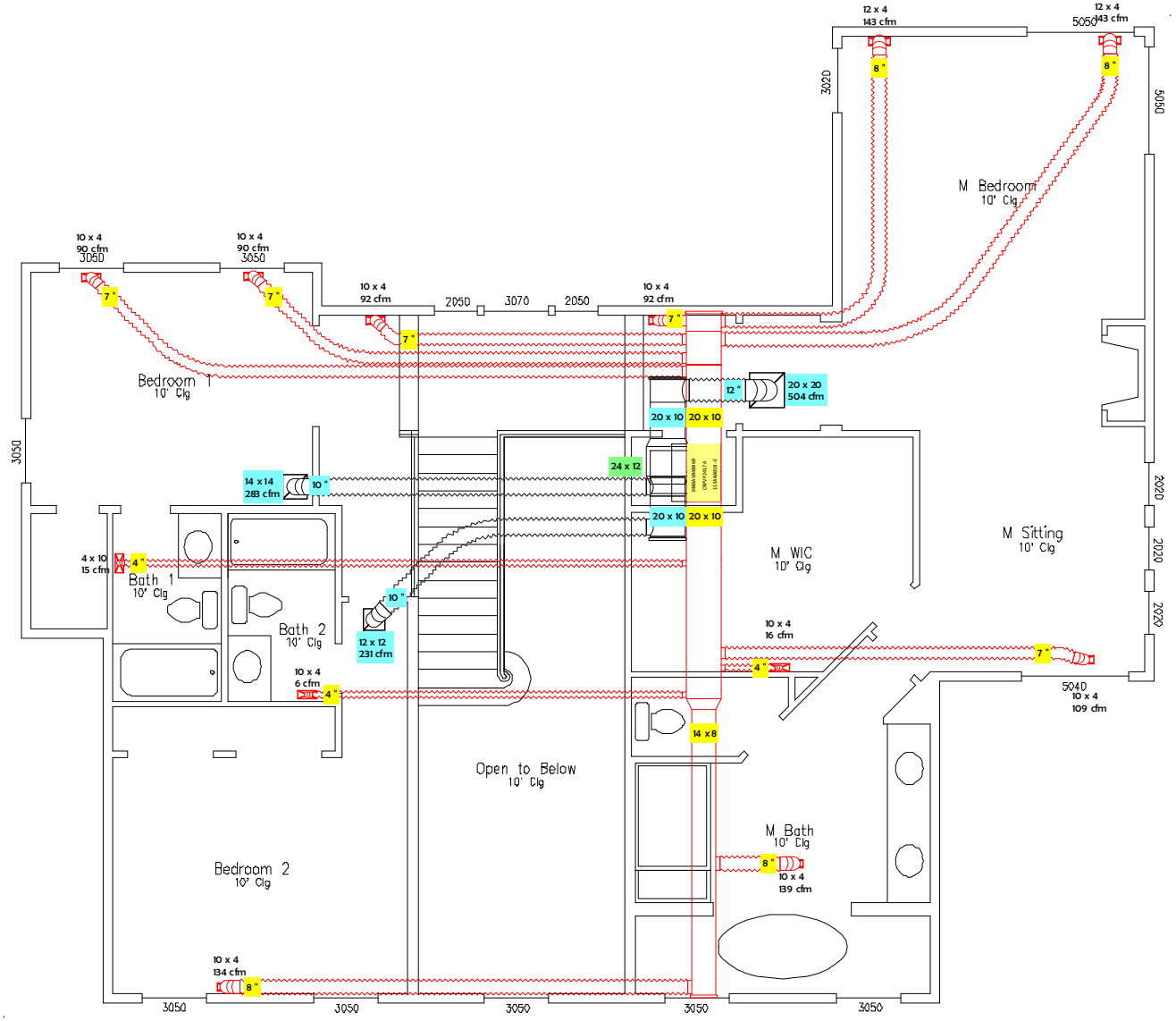
Authority Air Designs, LLC.

6608 West 95th Place
Westminster, CO 80020
Phone: (303) 428-3378
www.AuthorityAir.com Projects@AuthorityAir.com

Scale: 1/8" = 1'0"

Uponor System Design Software
12.0.03 RSU09203
2012-Feb-12 20:08:21
...cuments\Downloads\Sample One....

Upper Floor



Job #: Sample
Performed by Joe Colburn for:
Sample Design One
123 ABC St.
Westminster, CO 80020
Phone: (303) 428-3378
Projects@AuthorityAir.com

Authority Air Designs, LLC.

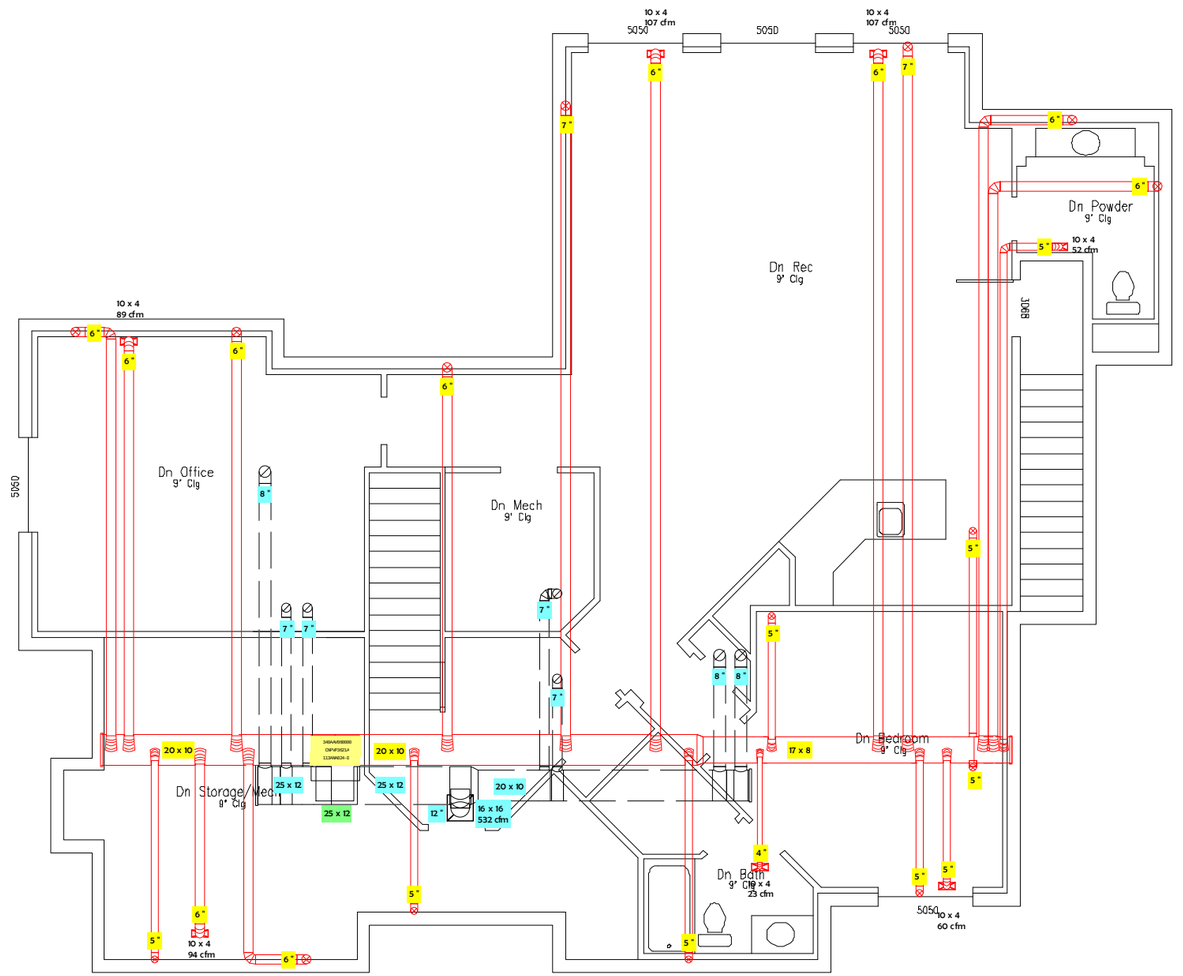
6608 West 95th Place
Westminster, CO 80020
Phone: (303) 428-3378
www.AuthorityAir.com Projects@AuthorityAir.com

Scale: 1/8" = 1'0"

Uponor System Design Software
12.0.03 RSU09203
2012-Feb-12 20:08:21
...cuments\Downloads\Sample One....

N

Basement



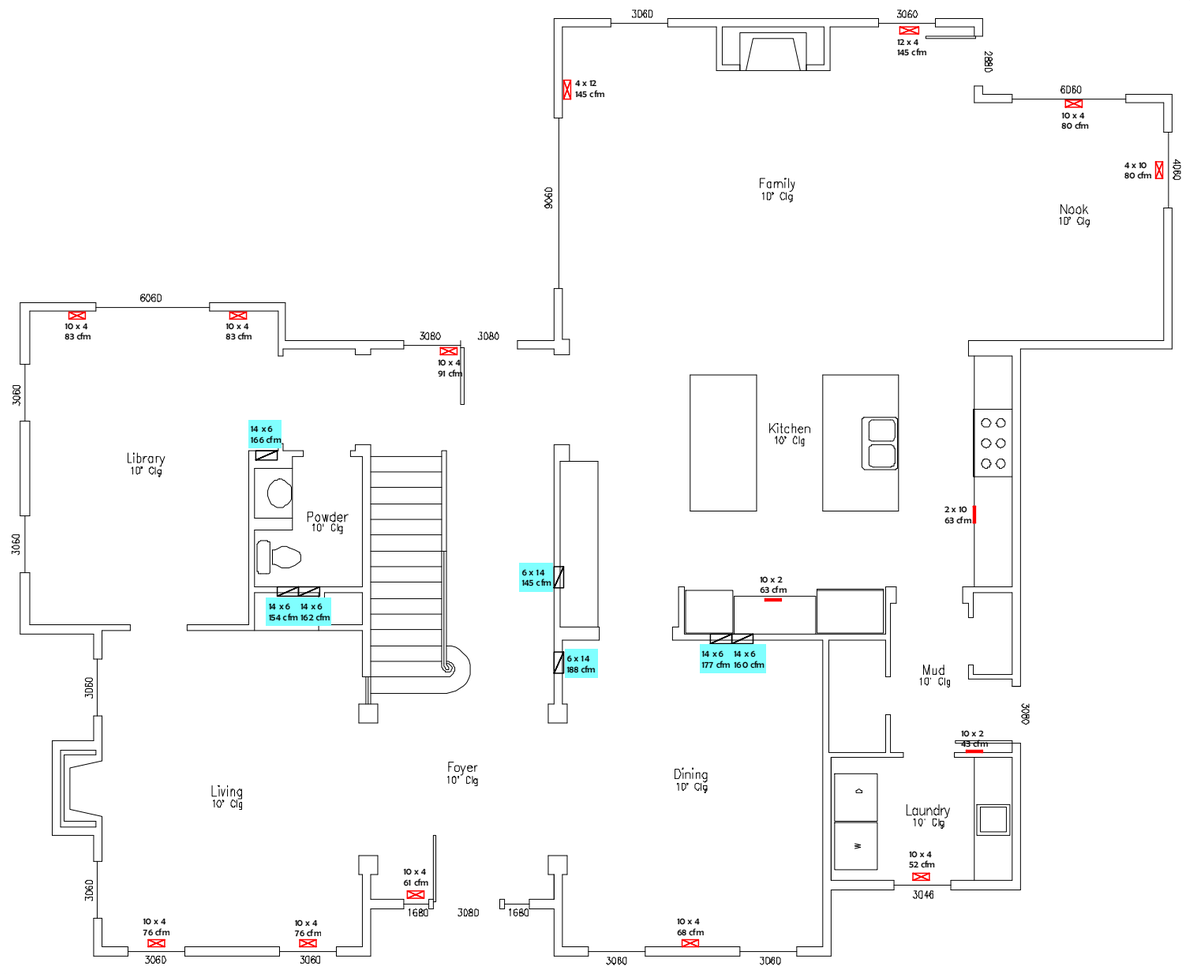
Job #: Sample
Performed by Joe Colburn for:
Sample Design One
123 ABC St.
Westminster, CO 80020
Phone: (303) 428-3378
Projects@AuthorityAir.com

Authority Air Designs, LLC.
6608 West 95th Place
Westminster, CO 80020
Phone: (303) 428-3378
www.AuthorityAir.com Projects@AuthorityAir.com

Scale: 1/8" = 1'0"
Page 1
Uponor System Design Software
12.0.03 RSU09203
2012-Feb-12 20:10:16
...cuments\Downloads\Sample One....

N

Main Floor



Job #: Sample
Performed by Joe Colburn for:
Sample Design One
123 ABC St.
Westminster, CO 80020
Phone: (303) 428-3378
Projects@AuthorityAir.com

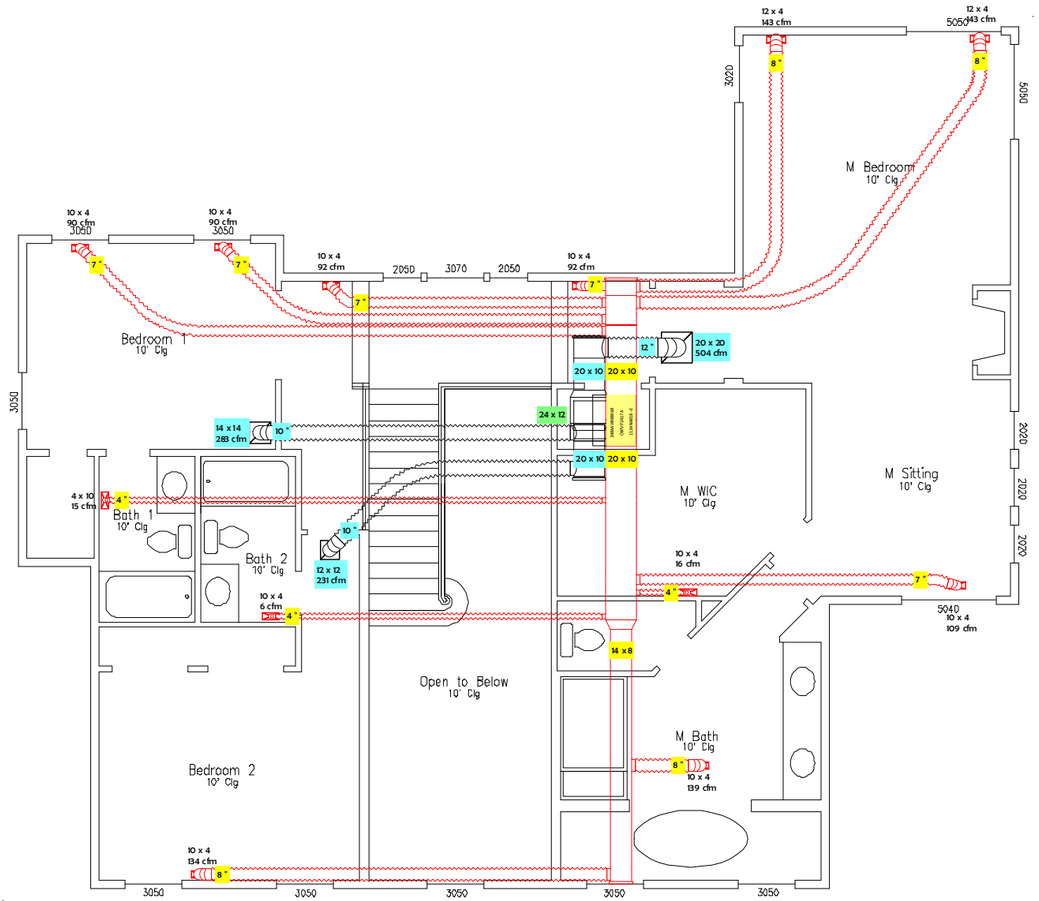
Authority Air Designs, LLC.
6608 West 95th Place
Westminster, CO 80020
Phone: (303) 428-3378
www.AuthorityAir.com Projects@AuthorityAir.com

Scale: 1/8" = 1'0"

Uponor System Design Software
12.0.03 RSU09203
2012-Feb-12 20:10:16
...cuments\Downloads\Sample One....

N

Upper Floor



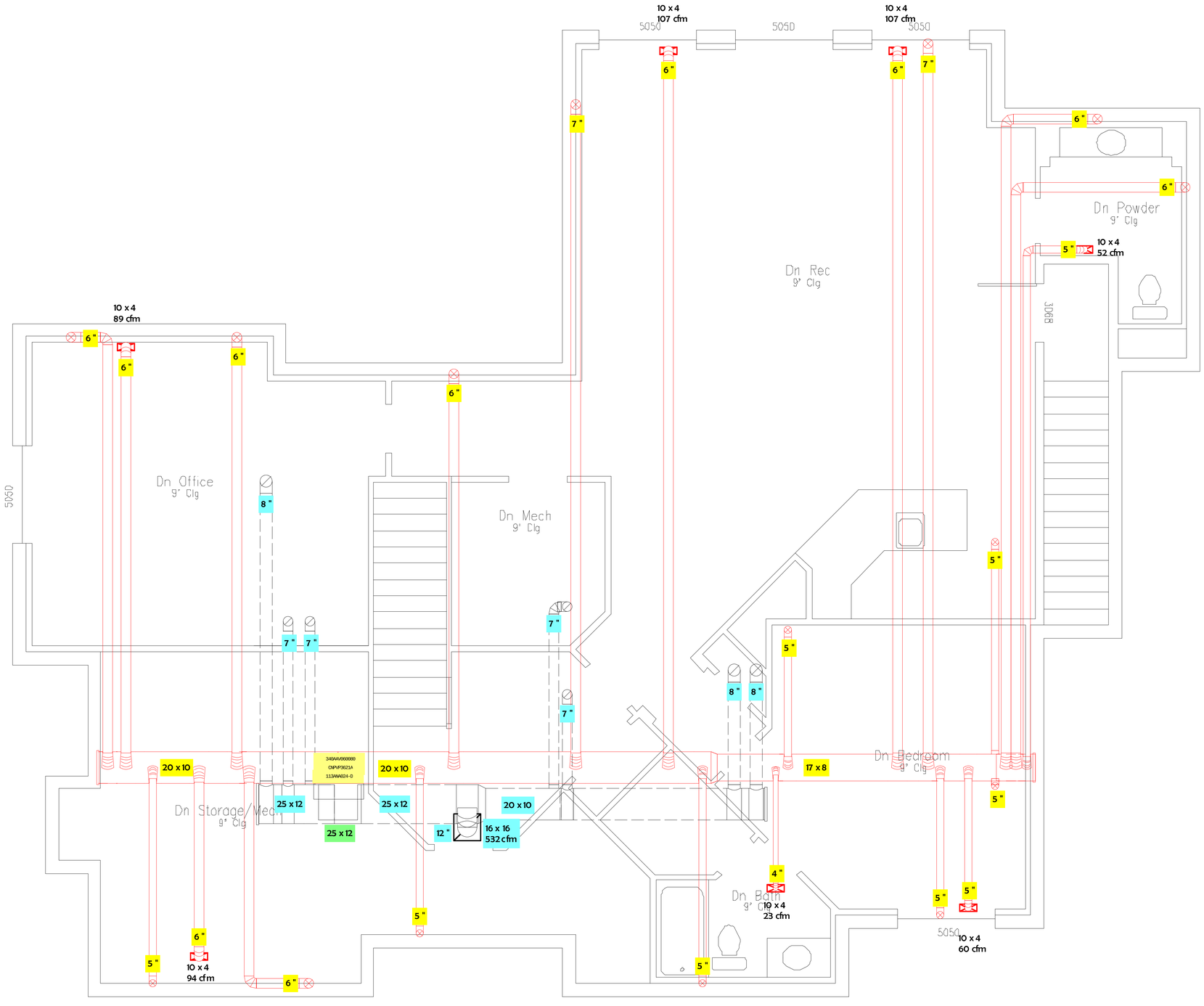
Job #: Sample
Performed by Joe Colburn for:
Sample Design One
123 ABC St.
Westminster, CO 80020
Phone: (303) 428-3378
Projects@AuthorityAir.com

Authority Air Designs, LLC.
6608 West 95th Place
Westminster, CO 80020
Phone: (303) 428-3378
www.AuthorityAir.com Projects@AuthorityAir.com

Scale: 1/8" = 1'0"

Uponor System Design Software
12.0.03 RSU09203
2012-Feb-12 20:10:16
...cuments\Downloads\Sample One....

Basement

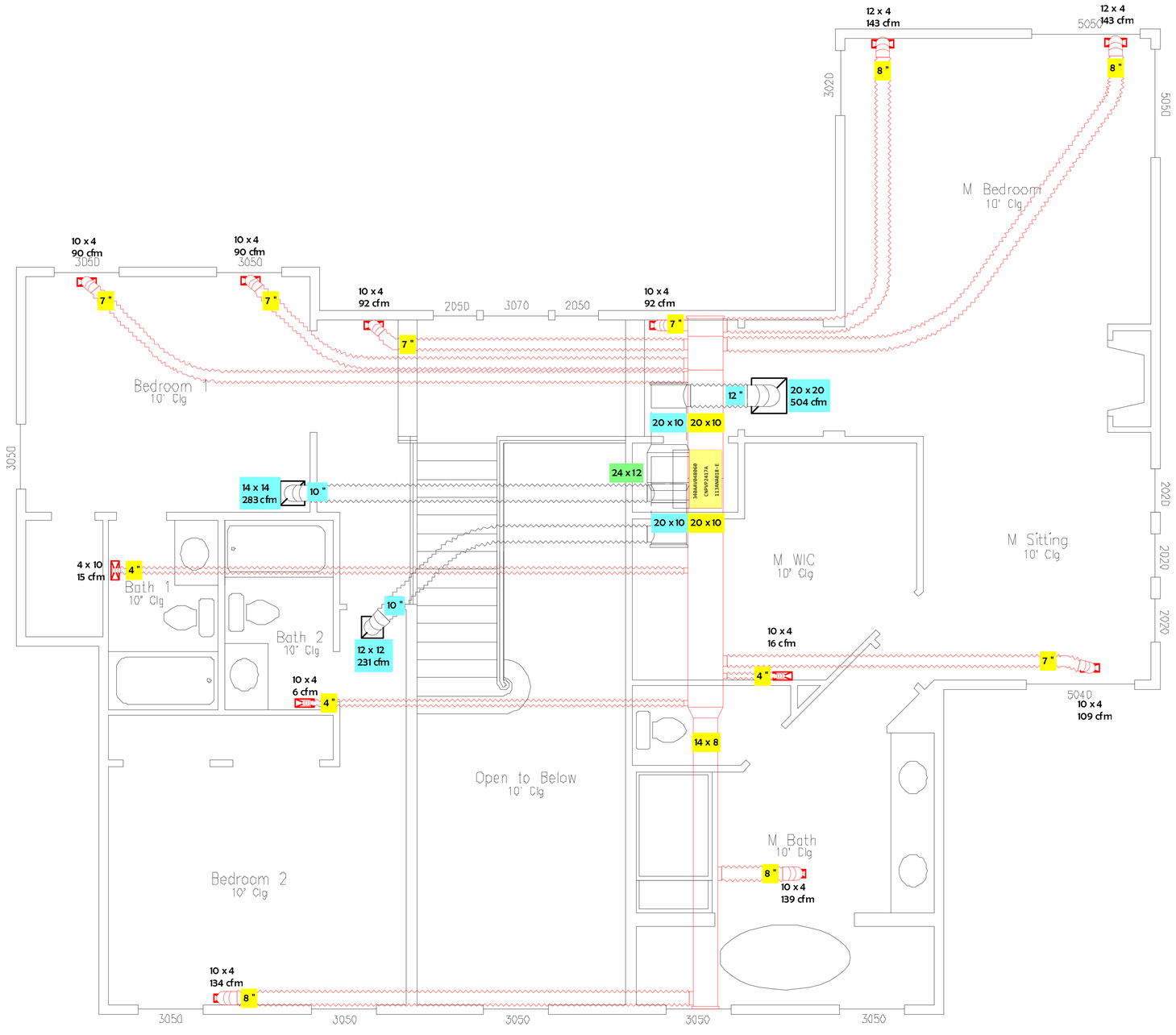


Job #: Sample **Performed by Joe Colburn for:** Sample Design One 123 ABC St. Westminster, CO 80020 Phone: (303) 428-3378 Projects@AuthorityAir.com	**Authority Air Designs, LLC.** 6608 West 95th Place Westminster, CO 80020 Phone: (303) 428-3378 www.AuthorityAir.com Projects@AuthorityAir.com	Scale: 3/8" = 1'0" Page 1 Uponor System Design Software 12.0.03 RS1U00003 2012-Feb-12 20:12:18 ...cuments\Downloads\Sample One.rup

Main Floor

Job #: Sample **Performed by Joe Colburn for:** Sample Design One 123 ABC St. Westminster, CO 80020 Phone: (303) 428-3378 Projects@AuthorityAir.com	**Authority Air Designs, LLC.** 6608 West 95th Place Westminster, CO 80020 Phone: (303) 428-3378 www.AuthorityAir.com Projects@AuthorityAir.com	Scale: 3/8" = 1'0" Page 2 Uponor System Design Software 12.0.03 RSU06033 2012-Feb-12 20:12:18 ...cuments\Downloads\Sample One.sup

Upper Floor



Job #: Sample **Performed by Joe Colburn for:** Sample Design One 123 ABC St. Westminster, CO 80020 Phone: (303) 428-3378 Projects@AuthorityAir.com	**Authority Air Designs, LLC.** 6608 West 95th Place Westminster, CO 80020 Phone: (303) 428-3378 www.AuthorityAir.com Projects@AuthorityAir.com	Scale: 3/8" = 1'0" Page 3 Uponor System Design Software 12.0.03 RSU.00203 2012-Feb-12 20:12:18 ...cuments\Downloads\Sample One.sup

RES*check* Software Version 4.4.2

Compliance Certificate

Project Title: Sample One

Energy Code:	**2009 IECC**
Location:	**Westminster, Colorado**
Construction Type:	**Single Family**
Building Orientation:	**Bldg. faces 0 deg. from North**
Glazing Area Percentage:	**18%**
Heating Degree Days:	**6020**
Climate Zone:	**5**

Construction Site:

123 ABC St.
Westminster, CO 80020
Permit Date: Feb. 12, 2012

Owner/Agent:

Sample Design One
Sample Design One
123 ABC St.
Westminster, CO 80020
(303) 428-3378
Projects@AuthorityAir.com

Designer/Contractor:

Authority Air Designs, LLC.
Authority Air Designs, LLC.
6608 West 95th Place
Westminster, CO 80020
(303) 428-3378
Projects@AuthorityAir.com

Compliance: **Passes using UA trade-off**

Compliance: **5.4% Better Than Code** Maximum UA: **701** Your UA: **663**

The % Better or Worse Than Code index reflects how close to compliance the house is based on code trade-off rules.
It DOES NOT provide an estimate of energy use or cost relative to a minimum-code home.

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Glazing or Door U-Factor	UA
N Walls: Wood Frame, 16" o.c. Orientation: Front	1158	19.0	0.0		56
N Doors: Solid Orientation: Front	28			0.390	11
N Window: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Front	205			0.300	62
E Wall 2: Wood Frame, 16" o.c. Orientation: Right Side	1015	19.0	0.0		52
E Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Right Side	147			0.300	44
S Walls: Wood Frame, 16" o.c. Orientation: Back	1158	19.0	0.0		54
S Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Back	228			0.300	68
S Glass Doors: U-30 SHGC-22 GD:U-30 SHGC-22 - Glass Door; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Back	24			0.300	7
W Walls: Wood Frame, 16" o.c. Orientation: Left Side	1015	19.0	0.0		55
W Doors: Solid Orientation: Left Side	24			0.390	9
W Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Left Side	61			0.300	18

W Glass Doors: U-30 SHGC-22 GD:U-30 SHGC-22 - Glass Door; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Left Side	21			0.300	6
N Basement Walls: Solid Concrete or Masonry Orientation: Front Wall height: 9.0' Depth below grade: 8.0' Insulation depth: 9.0'	567	13.0	0.0		31
N Basement Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Front	25			0.300	8
E Basement Walls: Solid Concrete or Masonry Orientation: Right Side Wall height: 9.0' Depth below grade: 8.0' Insulation depth: 9.0'	536	13.0	0.0		29
E Basement Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Right Side	25			0.300	8
S Basement Walls: Solid Concrete or Masonry Orientation: Back Wall height: 9.0' Depth below grade: 8.0' Insulation depth: 9.0'	567	13.0	0.0		28
S Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22) SHGC: 0.22 Orientation: Back	75			0.300	23
W Basement Walls: Solid Concrete or Masonry Orientation: Left Side Wall height: 9.0' Depth below grade: 8.0' Insulation depth: 9.0'	536	13.0	0.0		29
W Basement Doors: Solid Orientation: Left Side	21			0.390	8
Floors Over Outside Air: All-Wood Joist/Truss:Over Outside Air	43	30.0	0.0		1
Ceilings: Flat Ceiling or Scissor Truss	2173	21.0	17.0		56

Compliance Statement: The proposed building design described here is consistent with the building plans, specifications, and other calculations submitted with the permit application. The proposed building has been designed to meet the 2009 IECC requirements in RES*check* Version 4.4.2 and to comply with the mandatory requirements listed in the RES*check* Inspection Checklist.

Name - Title	Signature	Date

Project Notes:

Job Number: Sample

Inspection Checklist

Ceilings:

❑ Ceilings: Flat Ceiling or Scissor Truss, R-21.0 cavity + R-17.0 continuous insulation
Comments: _____

Above-Grade Walls:

❑ N Walls: Wood Frame, 16" o.c., R-19.0 cavity insulation
Comments: _____

❑ E Wall 2: Wood Frame, 16" o.c., R-19.0 cavity insulation
Comments: _____

❑ S Walls: Wood Frame, 16" o.c., R-19.0 cavity insulation
Comments: _____

❑ W Walls: Wood Frame, 16" o.c., R-19.0 cavity insulation
Comments: _____

Basement Walls:

❑ N Basement Walls: Solid Concrete or Masonry, 9.0' ht / 8.0' bg / 9.0' insul, R-13.0 cavity insulation
Comments: _____

❑ E Basement Walls: Solid Concrete or Masonry, 9.0' ht / 8.0' bg / 9.0' insul, R-13.0 cavity insulation
Comments: _____

❑ S Basement Walls: Solid Concrete or Masonry, 9.0' ht / 8.0' bg / 9.0' insul, R-13.0 cavity insulation
Comments: _____

❑ W Basement Walls: Solid Concrete or Masonry, 9.0' ht / 8.0' bg / 9.0' insul, R-13.0 cavity insulation
Comments: _____

Windows:

❑ N Window: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes _____ Frame Type _____ Thermal Break? _____ Yes _____ No
Comments: _____

❑ E Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes _____ Frame Type _____ Thermal Break? _____ Yes _____ No
Comments: _____

❑ S Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes _____ Frame Type _____ Thermal Break? _____ Yes _____ No
Comments: _____

❑ S Glass Doors: U-30 SHGC-22 GD:U-30 SHGC-22 - Glass Door; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes _____ Frame Type _____ Thermal Break? _____ Yes _____ No
Comments: _____

❑ W Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes _____ Frame Type _____ Thermal Break? _____ Yes _____ No

Comments: _____

❑ W Glass Doors: U-30 SHGC-22 GD:U-30 SHGC-22 - Glass Door; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes ____ Frame Type _____ Thermal Break? ____ Yes ____ No
Comments: _____

❑ N Basement Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes ____ Frame Type _____ Thermal Break? ____ Yes ____ No
Comments: _____

❑ E Basement Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes ____ Frame Type _____ Thermal Break? ____ Yes ____ No
Comments: _____

❑ S Windows: U-30 SHGC-22:U-30 SHGC-22 - Windows; NFRC rated (SHGC=0.22), U-factor: 0.300
For windows without labeled U-factors, describe features:
#Panes ____ Frame Type _____ Thermal Break? ____ Yes ____ No
Comments: _____

Doors:

❑ N Doors: Solid, U-factor: 0.390
Comments: _____
This door is exempt from the U-factor requirement.

❑ W Doors: Solid, U-factor: 0.390
Comments: _____

❑ W Basement Doors: Solid, U-factor: 0.390
Comments: _____

Floors:

❑ Floors Over Outside Air: All-Wood Joist/Truss:Over Outside Air, R-30.0 cavity insulation
Comments: _____
Floor insulation is installed in permanent contact with the underside of the subfloor decking.

Air Leakage:

❑ Joints (including rim joist junctions), attic access openings, penetrations, and all other such openings in the building envelope that are sources of air leakage are sealed with caulk, gasketed, weatherstripped or otherwise sealed with an air barrier material, suitable film or solid material.

❑ Air barrier and sealing exists on common walls between dwelling units, on exterior walls behind tubs/showers, and in openings between window/door jambs and framing.

❑ Recessed lights in the building thermal envelope are 1) type IC rated and ASTM E283 labeled and 2) sealed with a gasket or caulk between the housing and the interior wall or ceiling covering.

❑ Access doors separating conditioned from unconditioned space are weather-stripped and insulated (without insulation compression or damage) to at least the level of insulation on the surrounding surfaces. Where loose fill insulation exists, a baffle or retainer is installed to maintain insulation application.

❑ Wood-burning fireplaces have gasketed doors and outdoor combustion air.

❑ Automatic or gravity dampers are installed on all outdoor air intakes and exhausts.

Air Sealing and Insulation:

❑ Building envelope air tightness and insulation installation complies by either 1) a post rough-in blower door test result of less than 7 ACH at 50 pascals OR 2) the following items have been satisfied:

(a) Air barriers and thermal barrier: Installed on outside of air-permeable insulation and breaks or joints in the air barrier are filled or repaired.

(b) Ceiling/attic: Air barrier in any dropped ceiling/soffit is substantially aligned with insulation and any gaps are sealed.

(c) Above-grade walls: Insulation is installed in substantial contact and continuous alignment with the building envelope air barrier.

(d) Floors: Air barrier is installed at any exposed edge of insulation.

(e) Plumbing and wiring: Insulation is placed between outside and pipes. Batt insulation is cut to fit around wiring and plumbing, or sprayed/blown insulation extends behind piping and wiring.

(f) Corners, headers, narrow framing cavities, and rim joists are insulated.

(g) Shower/tub on exterior wall: Insulation exists between showers/tubs and exterior wall.

Sunrooms:

❑ Sunrooms that are thermally isolated from the building envelope have a maximum fenestration U-factor of 0.50 and the maximum skylight U-factor of 0.75. New windows and doors separating the sunroom from conditioned space meet the building thermal envelope requirements.

Materials Identification and Installation:

❑ Materials and equipment are installed in accordance with the manufacturer's installation instructions.

❑ Insulation is installed in substantial contact with the surface being insulated and in a manner that achieves the rated R-value.

❑ Materials and equipment are identified so that compliance can be determined.

❑ Manufacturer manuals for all installed heating and cooling equipment and service water heating equipment have been provided.

❑ Insulation R-values, glazing U-factors, and heating and cooling equipment efficiency are clearly marked on the building plans or specifications.

Duct Insulation:

❑ Supply ducts in attics are insulated to a minimum of R-8. All other ducts in unconditioned spaces or outside the building envelope are insulated to at least R-6.

Duct Construction and Testing:

❑ Building framing cavities are not used as supply ducts.

❑ All joints and seams of air ducts, air handlers, filter boxes, and building cavities used as return ducts are substantially airtight by means of tapes, mastics, liquid sealants, gasketing or other approved closure systems. Tapes, mastics, and fasteners are rated UL 181A or UL 181B and are labeled according to the duct construction. Metal duct connections with equipment and/or fittings are mechanically fastened. Crimp joints for round metal ducts have a contact lap of at least 1 1/2 inches and are fastened with a minimum of three equally spaced sheet-metal screws.
Exceptions:

Joint and seams covered with spray polyurethane foam.

Where a partially inaccessible duct connection exists, mechanical fasteners can be equally spaced on the exposed portion of the joint so as to prevent a hinge effect.

Continuously welded and locking-type longitudinal joints and seams on ducts operating at less than 2 in. w.g. (500 Pa).

❑ Duct tightness test has been performed and meets one of the following test criteria:

(1) Postconstruction leakage to outdoors test: Less than or equal to 480.2 cfm (8 cfm per 100 ft2 of conditioned floor area).

(2) Postconstruction total leakage test (including air handler enclosure): Less than or equal to 720.2 cfm (12 cfm per 100 ft2 of conditioned floor area).

(3) Rough-in total leakage test with air handler installed: Less than or equal to 360.1 cfm (6 cfm per 100 ft2 of conditioned floor area).

(4) Rough-in total leakage test without air handler installed: Less than or equal to 240.1 cfm (4 cfm per 100 ft2 of conditioned floor area).

Temperature Controls:

❑ Where the primary heating system is a forced air-furnace, at least one programmable thermostat is installed to control the primary heating system and has set-points initialized at 70 degree F for the heating cycle and 78 degree F for the cooling cycle.

❑ Heat pumps having supplementary electric-resistance heat have controls that prevent supplemental heat operation when the compressor can meet the heating load.

Heating and Cooling Equipment Sizing:

❑ Additional requirements for equipment sizing are included by an inspection for compliance with the International Residential Code.

❑ For systems serving multiple dwelling units documentation has been submitted demonstrating compliance with 2009 IECC Commercial Building Mechanical and/or Service Water Heating (Sections 503 and 504).

Circulating Service Hot Water Systems:

❑ Circulating service hot water pipes are insulated to R-2.

❑ Circulating service hot water systems include an automatic or accessible manual switch to turn off the circulating pump when the system is not in use.

Heating and Cooling Piping Insulation:

❑ HVAC piping conveying fluids above 105 degrees F or chilled fluids below 55 degrees F are insulated to R-3.

Swimming Pools:

❑ Heated swimming pools have an on/off heater switch.

❑ Pool heaters operating on natural gas or LPG have an electronic pilot light.

❑ Timer switches on pool heaters and pumps are present.
Exceptions:

Where public health standards require continuous pump operation.

Where pumps operate within solar- and/or waste-heat-recovery systems.

❑ Heated swimming pools have a cover on or at the water surface. For pools heated over 90 degrees F (32 degrees C) the cover has a minimum insulation value of R-12.
Exceptions:

Covers are not required when 60% of the heating energy is from site-recovered energy or solar energy source.

Lighting Requirements:

❑ A minimum of 50 percent of the lamps in permanently installed lighting fixtures can be categorized as one of the following:

(a) Compact fluorescent

(b) T-8 or smaller diameter linear fluorescent

(c) 40 lumens per watt for lamp wattage <= 15

(d) 50 lumens per watt for lamp wattage > 15 and <= 40

(e) 60 lumens per watt for lamp wattage > 40

Other Requirements:

❑ Snow- and ice-melting systems with energy supplied from the service to a building shall include automatic controls capable of shutting off the system when a) the pavement temperature is above 50 degrees F, b) no precipitation is falling, and c) the outdoor temperature is above 40 degrees F (a manual shutoff control is also permitted to satisfy requirement 'c').

Certificate:

❑ A permanent certificate is provided on or in the electrical distribution panel listing the predominant insulation R-values; window U-factors; type and efficiency of space-conditioning and water heating equipment. The certificate does not cover or obstruct the visibility of the circuit directory label, service disconnect label or other required labels.

NOTES TO FIELD: (Building Department Use Only)

2009 IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Ceiling / Roof	38.00
Wall	19.00
Floor / Foundation	13.00
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	0.30	0.22
Door	0.39	NA

Heating & Cooling Equipment	Efficiency
Heating System:_____	_____
Cooling System:_____	_____
Water Heater:_____	_____

Name: _____ Date: _____

Comments: