Load Short Form
Entire House
HVAC Design Pros, LLC

Job:
Date: Sep 01, 2016
By:

167 Haywood Road, Asheville, NC 28806 Phone: 828-350-1155 Email: info@HvacDesignPros.com

Project Information

For: Eric Whetzel
708 N. Coolidge Avenue, Palatine, Illinois

Design Information

	Htg	Clg
Outside db (°F)	0	90
Inside db (°F)	70	75
Design TD (°F)	70	15
Daily range	-	L
Inside humidity (%)	35	50
Moisture difference (gr/lb)	35	34

Infiltration

Method	Blower door
Shielding / stories	3 (partial) / 1
Pressure / AVF	50 Pa / 326 cfm

HEATING EQUIPMENT

Make	(mixed)	
Trade		
Model		
AHRI ref		
Efficiency	0 HSPF	
Heating input		
Heating output	0	Btuh @ 47°F
Temperature rise	0	°F
Actual air flow	568	cfm
Air flow factor	0.036	cfm/Btuh
Static pressure	0	in H2O
Space thermostat		

Backup: (mixed)
Input = 5 kW, Output = 16912 Btuh, 100 AFUE

COOLING EQUIPMENT

Make	(mixed)	
Trade		
Cond		
Coil		
AHRI ref		
Efficiency	0 SEER	
Sensible cooling	0	Btuh
Latent cooling	0	Btuh
Total cooling	0	Btuh
Actual air flow	568	cfm
Air flow factor	0.046	cfm/Btuh
Static pressure	0	in H2O
Load sensible heat ratio	0.89	
Capacity balance point = 0 °F		

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
M. Bed	247	1643	2971	59	138
M. Bath	99	381	100	14	5
M. WIC	54	59	35	2	2
Bed 2	192	721	316	26	15
Bed 2 WIC	53	498	91	18	4
Bath 2	39	209	47	8	2
Hall/Sink	67	73	44	3	2
Foyer/Stairs	155	992	1553	36	72
Gathering	315	2257	3403	81	158
Kitchen	289	1265	2259	46	105
Laundry	124	921	422	33	20
Office WIC	53	477	16	17	1
Office	213	581	14	21	1
Basement	1246	5271	948	190	44

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

Mech	76	355	10	13	0
Bath 1	45	46	0	2	0
Entire House	3264	15749	12229	568	568
Other equip loads		1163	433		
Equip. @ 1.00 RSM			12662		
Latent cooling			1584		
TOTALS	3264	16912	14246	568	568

Building Analysis
Entire House
HVAC Design Pros, LLC

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Project Information

For: Eric Whetzel
708 N. Coolidge Avenue, Palatine, Illinois

Design Conditions

Location:
Chicago Midway AP, IL, US
Elevation: 617 ft
Latitude: 42°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	0	90
Daily range (°F)	-	16 (I)
Wet bulb (°F)	-	73
Wind speed (mph)	15.0	7.5

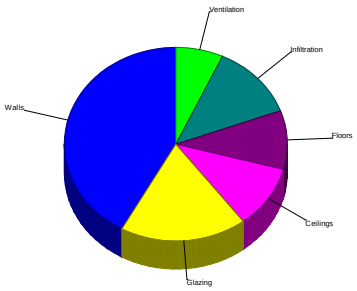
Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	70	15
Relative humidity (%)	35	50
Moisture difference (gr/lb)	34.6	34.1

Infiltration:

Method	Blower door
Shielding / stories	3 (partial) / 1
Pressure / AVF	50 Pa / 326 cfm

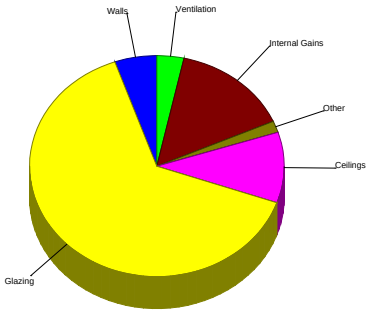
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	2.4	7095	42.0
Glazing	11.9	3107	18.4
Doors	0	0	0
Ceilings	1.1	1773	10.5
Floors	1.0	1656	9.8
Infiltration	1.1	2117	12.5
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		1163	6.9
Adjustments		0	
Total		**16912**	**100.0**



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	0.2	678	5.4
Glazing	31.2	8139	64.3
Doors	0	0	0
Ceilings	0.8	1308	10.3
Floors	0	0	0
Infiltration	0.1	213	1.7
Ducts		0	0
Ventilation		433	3.4
Internal gains		1890	14.9
Blower		0	0
Adjustments		0	
Total		**12662**	**100.0**



Latent Cooling Load = 1584 Btuh
Overall U-value = 0.030 Btuh/ft²-°F

Data entries checked.

Component Constructions
Entire House
HVAC Design Pros, LLC

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Location:
Chicago Midway AP, IL, US
Elevation: 617 ft
Latitude: 42°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	0	90
Daily range (°F)	-	16 (L)
Wet bulb (°F)	-	73
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	70	15
Relative humidity (%)	35	50
Moisture difference (gr/lb)	34.6	34.1

Infiltration:

Method	Blower door
Shielding / stories	3 (partial) / 1
Pressure / AVF	50 Pa / 326 cfm

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								
15B-20sfc-8: Bg wall, light dry soil, concrete wall, r-20 ins, 10" thk	n	480	0.037	20.0	2.70	1297	0.11	53
	e	340	0.037	20.0	2.70	919	0.11	37
	s	448	0.037	20.0	2.67	1196	0.08	35
	w	340	0.037	20.0	2.70	919	0.11	37
	all	1608	0.037	20.0	2.69	4330	0.10	163
Frm wall, wd ext, 1/2" wood shth, r-22 cav ins, 1/2" gypsum board int fnsh, r-16 ext bd ins, 2"x6" wood frm, 24" o.c. stud: Frm wall, wd ext, 1/2" wood shth, r-22 cav ins, 1/2" gypsum board int fnsh, r-16 ext bd ins, 2"x6" wood frm, 24" o.c. stud	n	451	0.029	38.0	2.03	915	0.38	171
	e	302	0.029	38.0	2.03	613	0.38	114
	s	364	0.029	38.0	2.03	739	0.38	138
	w	245	0.029	38.0	2.03	497	0.38	93
	all	1362	0.029	38.0	2.03	2764	0.38	515
Partitions								
(none)								
Windows								
1D-c2ow: 2 glazing, clr outr, air gas, wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.50); 6.67 ft head ht	n	15	0.170	0	11.9	179	12.1	181
	e	28	0.170	0	11.9	333	49.5	1385
	s	32	0.170	0	11.9	381	24.0	769
	w	85	0.170	0	11.9	1009	49.5	4192
	all	160	0.170	0	11.9	1901	40.9	6526
10B-w: 2 glazing, clr outr, air gas, wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.50); 2 ft overhang (8 ft window ht, 1.65 ft sep.); 6.67 ft head ht	s	24	0.170	0	11.9	286	13.1	314
1D-c2ow: 2 glazing, clr outr, air gas, wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.50); 2 ft overhang (4 ft window ht, 1.65 ft sep.); 6.67 ft head ht	s	20	0.170	0	11.9	238	13.4	268
1D-c2ow: 2 glazing, clr outr, air gas, wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.50); 2 ft overhang (4.71 ft window ht, 1.65 ft sep.); 6.67 ft head ht	s	42	0.170	0	11.9	504	15.0	636
1D-c2ow: 2 glazing, clr outr, air gas, wd frm mat, clr innr, 1/4" gap, 1/8" thk; NFRC rated (SHGC=0.50); 2 ft overhang (5 ft window ht, 1.65 ft sep.); 6.67 ft head ht	s	15	0.170	0	11.9	179	15.5	233

Doors

(none)

Ceilings

Attic ceiling, asphalt shingles roof mat, r-64 ceil ins, 1/2" gypsum board int fnsh: Attic ceiling, asphalt shingles roof mat, r-64 ceil ins, 1/2" gypsum board int fnsh	1632	0.016	65.0	1.09	1773	0.80	1308

Floors

Bg floor, heavy dry or light damp soil, full ext ins cov, 8' depth, r-16 ins: Bg floor, heavy dry or light damp soil, full ext ins cov, 8' depth, r-16 ins	1632	0.014	16.0	1.01	1656	0	0

Project Summary
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Project Information

For: Eric Whetzel
708 N. Coolidge Avenue, Palatine, Illinois

Notes:

Design Information

Weather: Chicago Midway AP, IL, US

Winter Design Conditions

Outside db	0	°F
Inside db	70	°F
Design TD	70	°F

Summer Design Conditions

Outside db	90	°F
Inside db	75	°F
Design TD	15	°F
Daily range	L	
Relative humidity	50	%
Moisture difference	34	gr/lb

Heating Summary

Structure	15749	Btuh
Ducts	0	Btuh
Central vent (55 cfm)	1163	Btuh
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	16912	Btuh

Sensible Cooling Equipment Load Sizing

Structure	12229	Btuh
Ducts	0	Btuh
Central vent (55 cfm)	433	Btuh
Blower	0	Btuh
Use manufacturer's data	y	
Rate/swing multiplier	1.00	
Equipment sensible load	12662	Btuh

Infiltration

Method	Blower door
Shielding / stories	3 (partial) / 1
Pressure / AVF	50 Pa / 326 cfm

	Heating	Cooling
Area (ft²)	3264	3264
Volume (ft³)	19454	19454
Air changes/hour	0.09	0.04
Equiv. AVF (cfm)	28	14

Latent Cooling Equipment Load Sizing

Structure	908	Btuh
Ducts	0	Btuh
Central vent (55 cfm)	676	Btuh
Equipment latent load	1584	Btuh
Equipment total load	14246	Btuh
Req. total capacity at 0.70 SHR	1.5	ton

Heating Equipment Summary

Make	(mixed)	
Trade		
Model		
AHRI ref		
Efficiency	0	HSPF
Heating input		
Heating output	0	Btuh @ 47°F
Temperature rise	0	°F
Actual air flow	568	cfm
Air flow factor	0.036	cfm/Btuh
Static pressure	0	in H2O
Space thermostat		

Backup: (mixed)
Input = 5 kW, Output = 16912 Btuh, 100 AFUE

Cooling Equipment Summary

Make	(mixed)	
Trade		
Cond		
Coil		
AHRI ref		
Efficiency	0	SEER
Sensible cooling	0	Btuh
Latent cooling	0	Btuh
Total cooling	0	Btuh
Actual air flow	568	cfm
Air flow factor	0.046	cfm/Btuh
Static pressure	0	in H2O
Load sensible heat ratio	0.89	

Capacity balance point = 0 °F

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

AED Assessment

Entire House

HVAC Design Pros, LLC

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Design Conditions

Location:

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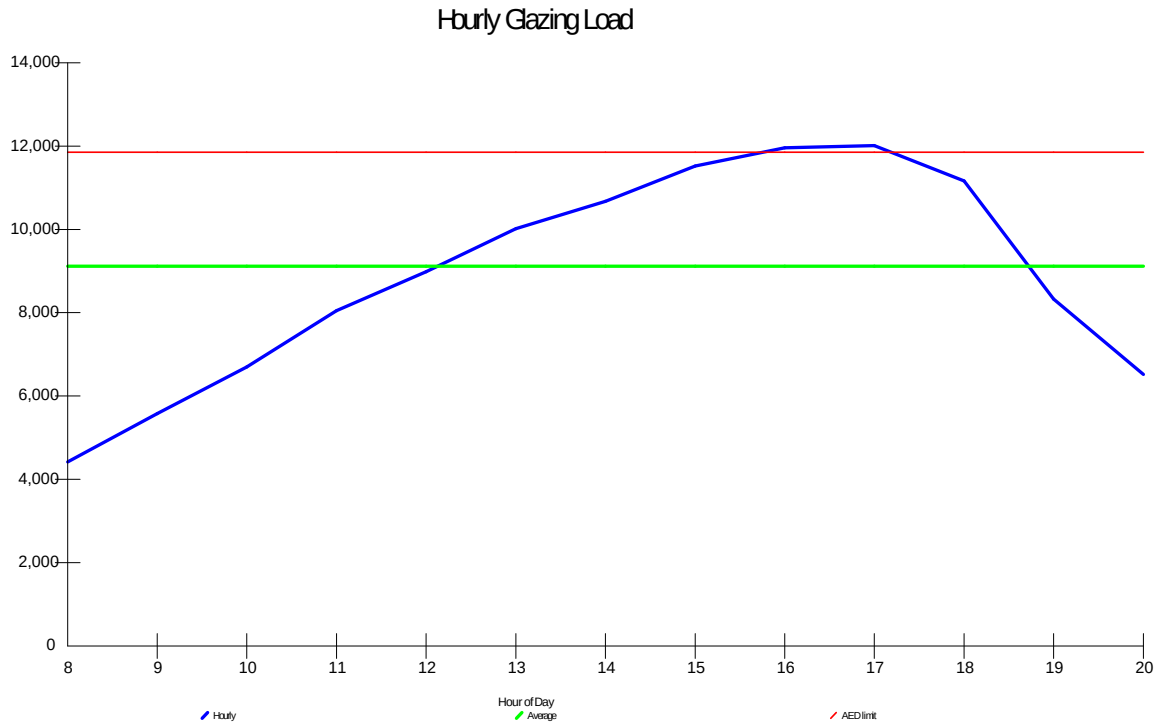
Elevation: 617 ft
Latitude: 42°N

Outdoor:	**Heating**	**Cooling**
Dry bulb (°F)	0	90
Daily range (°F)	-	16 (L)
Wet bulb (°F)	-	73
Wind speed (mph)	15.0	7.5

Indoor:	**Heating**	**Cooling**
Indoor temperature (°F)	70	75
Design TD (°F)	70	15
Relative humidity (%)	35	50
Moisture difference (gr/lb)	34.6	34.1

Infiltration:

Test for Adequate Exposure Diversity



Maximum hourly glazing load exceeds average by 31.8%.

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

AED excursion: 163 Btuh (PFG - 1.3*AFG)

Right-J® Worksheet
Entire House

HVAC Design Pros, LLC

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1	Room name	Entire House	M. Bed
2	Exposed wall	328.0 ft	31.5 ft
3	Room height	9.9 ft	9.7 ft heat/cool
4	Room dimensions		14.5 x 17.0 ft
5	Room area	3264.0 ft²	246.5 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²) Heat	HTM (Btuh/ft²) Cool	Area (ft²) or perimeter (ft) Gross	N/P/S	Load (Btuh) Heat	Load (Btuh) Cool	Area (ft²) or perimeter (ft) Gross	N/P/S	Load (Btuh) Heat	Load (Btuh) Cool
6	W	15B-20sfc-8	0.045	n	2.70	0.11	480	480	1297	53	0	0	0	0
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	466	451	915	171	141	141	286	53
.	G	1D-c2ow	0.170	n	11.90	12.05	15	0	179	181	0	0	0	0
.	W	15B-20sfc-8	0.045	e	2.70	0.11	340	340	919	37	0	0	0	0
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	330	302	613	114	0	0	0	0
	G	1D-c2ow	0.170	e	11.90	49.46	28	0	333	1385	0	0	0	0
	W	15B-20sfc-8	0.045	s	2.67	0.08	480	448	1196	35	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	24.02	32	0	381	769	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	466	364	739	138	0	0	0	0
	G	10B-w	0.170	s	11.90	13.10	24	11	286	314	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	13.40	20	18	238	268	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.00	42	32	504	636	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.53	15	11	179	233	0	0	0	0
	W	15B-20sfc-8	0.045	w	2.70	0.11	340	340	919	37	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	330	245	497	93	165	123	249	46
	G	1D-c2ow	0.170	w	11.90	49.46	85	0	1009	4192	42	0	504	2096
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	1632	1632	1773	1308	247	247	268	198
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	1632	1632	1656	0	0	0	0	0

6	c) AED excursion									163				544
	Envelope loss/gain								13632	10126			1306	2937
12	a) Infiltration								2117	213			337	34
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230				3			690	0			0
		Appliances/other								1200				0
	Subtotal (lines 6 to 13)								15749	12229			1643	2971
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								15749	12229			1643	2971
15	Duct loads						0%	0%	0	0	-0%	0%	0	0
	Total room load								15749	12229			1643	2971
	Air required (cfm)								568	568			59	138

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

Right-J® Worksheet
Entire House
HVAC Design Pros, LLC

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1	Room name						M. Bath				M. WIC			
2	Exposed wall						9.0 ft				0 ft			
3	Room height						9.7 ft		heat/cool		9.7 ft		heat/cool	
4	Room dimensions						9.0 x 11.0 ft				9.0 x 6.0 ft			
5	Room area						99.0 ft²				54.0 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	15B-20sfc-8	0.045	n	2.70	0.11	0	0	0	0	0	0	0	0
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	87	87	177	33	0	0	0	0
.	G	1D-c2ow	0.170	n	11.90	12.05	0	0	0	0	0	0	0	0
.	W	15B-20sfc-8	0.045	e	2.70	0.11	0	0	0	0	0	0	0	0
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	e	11.90	49.46	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	s	2.67	0.08	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	24.02	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	0	0	0	0	0	0	0	0
	G	10B-w	0.170	s	11.90	13.10	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	13.40	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.00	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.53	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	w	2.70	0.11	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	w	11.90	49.46	0	0	0	0	0	0	0	0
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	99	99	108	79	54	54	59	43
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-22				-8
	Envelope loss/gain								285	90			59	35
12	a) Infiltration								96	10			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)								381	100			59	35
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								381	100			59	35
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								381	100			59	35
	Air required (cfm)								14	5			2	2

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1	Room name						Bed 2				Bed 2 WIC			
2	Exposed wall						12.0 ft				14.5 ft			
3	Room height						9.7 ft		heat/cool		9.7 ft		heat/cool	
4	Room dimensions						1.0	x	191.8 ft		7.0	x	7.5 ft	
5	Room area						191.8 ft²				52.5 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	15B-20sfc-8	0.045	n	2.70	0.11	0	0	0	0	0	0	0	0
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	116	101	206	38	68	68	138	26
.	G	1D-c2ow	0.170	n	11.90	12.05	15	0	179	181	0	0	0	0
.	W	15B-20sfc-8	0.045	e	2.70	0.11	0	0	0	0	0	0	0	0
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	0	0	0	0	73	73	148	28
	G	1D-c2ow	0.170	e	11.90	49.46	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	s	2.67	0.08	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	24.02	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	0	0	0	0	0	0	0	0
	G	10B-w	0.170	s	11.90	13.10	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	13.40	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.00	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.53	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	w	2.70	0.11	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	w	11.90	49.46	0	0	0	0	0	0	0	0
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	192	192	208	154	53	53	57	42
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-70				-20
	Envelope loss/gain								593	303			343	75
12	a) Infiltration								128	13			155	16
	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)								721	316			498	91
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								721	316			498	91
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								721	316			498	91
	Air required (cfm)								26	15			18	4

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

Right-J® Worksheet
Entire House
HVAC Design Pros, LLC

Job:
Date: Sep 01, 2016
By:

167 Haywood Road, Asheville, NC 28806 Phone: 828-350-1155 Email: info@HvacDesignPros.com

1	Room name						Bath 2				Hall/Sink			
2	Exposed wall						5.5 ft				0 ft			
3	Room height						9.7 ft		heat/cool		9.7 ft		heat/cool	
4	Room dimensions						5.5 x 7.0 ft				1.0 x 67.3 ft			
5	Room area						38.5 ft²				67.3 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	15B-20sfc-8	0.045	n	2.70	0.11	0	0	0	0	0	0	0	0
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	53	53	108	20	0	0	0	0
.	G	1D-c2ow	0.170	n	11.90	12.05	0	0	0	0	0	0	0	0
.	W	15B-20sfc-8	0.045	e	2.70	0.11	0	0	0	0	0	0	0	0
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	e	11.90	49.46	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	s	2.67	0.08	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	24.02	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	0	0	0	0	0	0	0	0
	G	10B-w	0.170	s	11.90	13.10	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	13.40	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.00	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.53	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	w	2.70	0.11	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	w	11.90	49.46	0	0	0	0	0	0	0	0
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	39	39	42	31	67	67	73	54
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-10				-10
	Envelope loss/gain								150	41			73	44
12	a) Infiltration								59	6			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)								209	47			73	44
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								209	47			73	44
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								209	47			73	44
	Air required (cfm)								8	2			3	2

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Entire House
HVAC Design Pros, LLC

Job:
Date: Sep 01, 2016
By:

167 Haywood Road, Asheville, NC 28806 Phone: 828-350-1155 Email: info@HvacDesignPros.com

1	Room name						Foyer/Stairs				Gathering			
2	Exposed wall						18.0 ft				35.5 ft			
3	Room height						9.7 ft		heat/cool		9.7 ft		heat/cool	
4	Room dimensions						1.0 x		154.8 ft		18.5 x		17.0 ft	
5	Room area						154.8 ft²				314.5 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	15B-20sfc-8	0.045	n	2.70	0.11	0	0	0	0	0	0	0	0
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	0	0	0	0	0	0	0	0
.	G	1D-c2ow	0.170	n	11.90	12.05	0	0	0	0	0	0	0	0
.	W	15B-20sfc-8	0.045	e	2.70	0.11	0	0	0	0	0	0	0	0
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	175	147	298	55	0	0	0	0
	G	1D-c2ow	0.170	e	11.90	49.46	28	0	333	1385	0	0	0	0
	W	15B-20sfc-8	0.045	s	2.67	0.08	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	24.02	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	0	0	0	0	179	137	278	52
	G	10B-w	0.170	s	11.90	13.10	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	13.40	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.00	0	0	0	0	42	32	504	636
	G	1D-c2ow	0.170	s	11.90	15.53	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	w	2.70	0.11	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	0	0	0	0	165	123	249	46
	G	1D-c2ow	0.170	w	11.90	49.46	0	0	0	0	42	0	504	2096
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	155	155	168	124	315	315	342	252
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-31				53
	Envelope loss/gain								799	1533			1877	3135
12	a) Infiltration								193	19			380	38
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230				0			0	1			230
		Appliances/other								0				0
	Subtotal (lines 6 to 13)								992	1553			2257	3403
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								992	1553			2257	3403
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								992	1553			2257	3403
	Air required (cfm)								36	72			81	158

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Entire House
HVAC Design Pros, LLC

Job:
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167 Haywood Road, Asheville, NC 28806 Phone: 828-350-1155 Email: info@HvacDesignPros.com

1	Room name						Kitchen				Laundry			
2	Exposed wall						17.0 ft				21.0 ft			
3	Room height						9.7 ft		heat/cool		9.7 ft		heat/cool	
4	Room dimensions						17.0 x 17.0 ft				1.0 x 124.3 ft			
5	Room area						289.0 ft²				124.3 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	15B-20sfc-8	0.045	n	2.70	0.11	0	0	0	0	0	0	0	0
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	0	0	0	0	0	0	0	0
.	G	1D-c2ow	0.170	n	11.90	12.05	0	0	0	0	0	0	0	0
.	W	15B-20sfc-8	0.045	e	2.70	0.11	0	0	0	0	0	0	0	0
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	0	0	0	0	82	82	167	31
	G	1D-c2ow	0.170	e	11.90	49.46	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	s	2.67	0.08	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	24.02	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	165	121	245	46	121	106	216	40
	G	10B-w	0.170	s	11.90	13.10	24	11	286	314	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	13.40	20	18	238	268	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.00	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.53	0	0	0	0	15	11	179	233
	W	15B-20sfc-8	0.045	w	2.70	0.11	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	w	11.90	49.46	0	0	0	0	0	0	0	0
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	289	289	314	232	124	124	135	100
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	0	0	0	0	0	0	0	0
6	c) AED excursion									-279				-5
	Envelope loss/gain								1083	581			697	399
12	a) Infiltration								182	18			225	23
	b) Room ventilation								0	0			0	0
13	Internal gains:	Occupants @	230				2			460	0			0
		Appliances/other								1200				0
	Subtotal (lines 6 to 13)								1265	2259			921	422
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								1265	2259			921	422
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								1265	2259			921	422
	Air required (cfm)								46	105			33	20

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Right-J® Worksheet
Entire House
HVAC Design Pros, LLC

Job:
Date: Sep 01, 2016
By:

167 Haywood Road, Asheville, NC 28806 Phone: 828-350-1155 Email: info@HvacDesignPros.com

1	Room name						Office WIC				Office			
2	Exposed wall						14.5 ft				12.5 ft			
3	Room height						10.0 ft		heat/cool		10.0 ft		heat/cool	
4	Room dimensions						7.0 x 7.5 ft				12.5 x 17.0 ft			
5	Room area						52.5 ft²				212.5 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	15B-20sfc-8	0.045	n	2.70	0.11	70	70	189	8	125	125	338	14
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	0	0	0	0	0	0	0	0
.	G	1D-c2ow	0.170	n	11.90	12.05	0	0	0	0	0	0	0	0
.	W	15B-20sfc-8	0.045	e	2.70	0.11	75	75	203	8	0	0	0	0
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	e	11.90	49.46	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	s	2.67	0.08	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	24.02	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	0	0	0	0	0	0	0	0
	G	10B-w	0.170	s	11.90	13.10	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	13.40	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.00	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	s	11.90	15.53	0	0	0	0	0	0	0	0
	W	15B-20sfc-8	0.045	w	2.70	0.11	0	0	0	0	0	0	0	0
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	0	0	0	0	0	0	0	0
	G	1D-c2ow	0.170	w	11.90	49.46	0	0	0	0	0	0	0	0
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	0	0	0	0	0	0	0	0
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	53	53	53	0	213	213	216	0
6	c) AED excursion									-3				-3
	Envelope loss/gain								445	13			553	11
12	a) Infiltration								32	3			28	3
	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)								477	16			581	14
	Less external load								0	0			0	0
	Less transfer								0	0			0	0
	Redistribution								0	0			0	0
14	Subtotal								477	16			581	14
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0
	Total room load								477	16			581	14
	Air required (cfm)								17	1			21	1

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Entire House
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Job:
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1	Room name						Basement				Mech				
2	Exposed wall						127.5 ft				9.5 ft				
3	Room height						10.0 ft		heat/cool		10.0 ft		heat/cool		
4	Room dimensions						1.0	x	1246.0 ft		9.5	x	8.0 ft		
5	Room area						1246.0 ft²				76.0 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	15B-20sfc-8	0.045	n	2.70	0.11	190	190	513	21	95	95	257	10	
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	0	0	0	0	0	0	0	0	
.	G	1D-c2ow	0.170	n	11.90	12.05	0	0	0	0	0	0	0	0	
.	W	15B-20sfc-8	0.045	e	2.70	0.11	265	265	716	29	0	0	0	0	
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	0	0	0	0	0	0	0	0	
	G	1D-c2ow	0.170	e	11.90	49.46	0	0	0	0	0	0	0	0	
	W	15B-20sfc-8	0.045	s	2.67	0.08	480	448	1196	35	0	0	0	0	
	G	1D-c2ow	0.170	s	11.90	24.02	32	0	381	769	0	0	0	0	
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	0	0	0	0	0	0	0	0	
	G	10B-w	0.170	s	11.90	13.10	0	0	0	0	0	0	0	0	
	G	1D-c2ow	0.170	s	11.90	13.40	0	0	0	0	0	0	0	0	
	G	1D-c2ow	0.170	s	11.90	15.00	0	0	0	0	0	0	0	0	
	G	1D-c2ow	0.170	s	11.90	15.53	0	0	0	0	0	0	0	0	
	W	15B-20sfc-8	0.045	w	2.70	0.11	340	340	919	37	0	0	0	0	
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	0	0	0	0	0	0	0	0	
	G	1D-c2ow	0.170	w	11.90	49.46	0	0	0	0	0	0	0	0	
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	0	0	0	0	0	0	0	0	
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	1246	1246	1265	0	76	76	77	0	

6	c) AED excursion									28				-2	
	Envelope loss/gain								4990	919			334	8	
12	a) Infiltration								281	28			21	2	
	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)								5271	948			355	10	
	Less external load								0	0			0	0	
	Less transfer								0	0			0	0	
	Redistribution								0	0			0	0	
14	Subtotal								5271	948			355	10	
15	Duct loads						-0%	0%	0	0	-0%	0%	0	0	
	Total room load								5271	948			355	10	
	Air required (cfm)								190	44			13	0	

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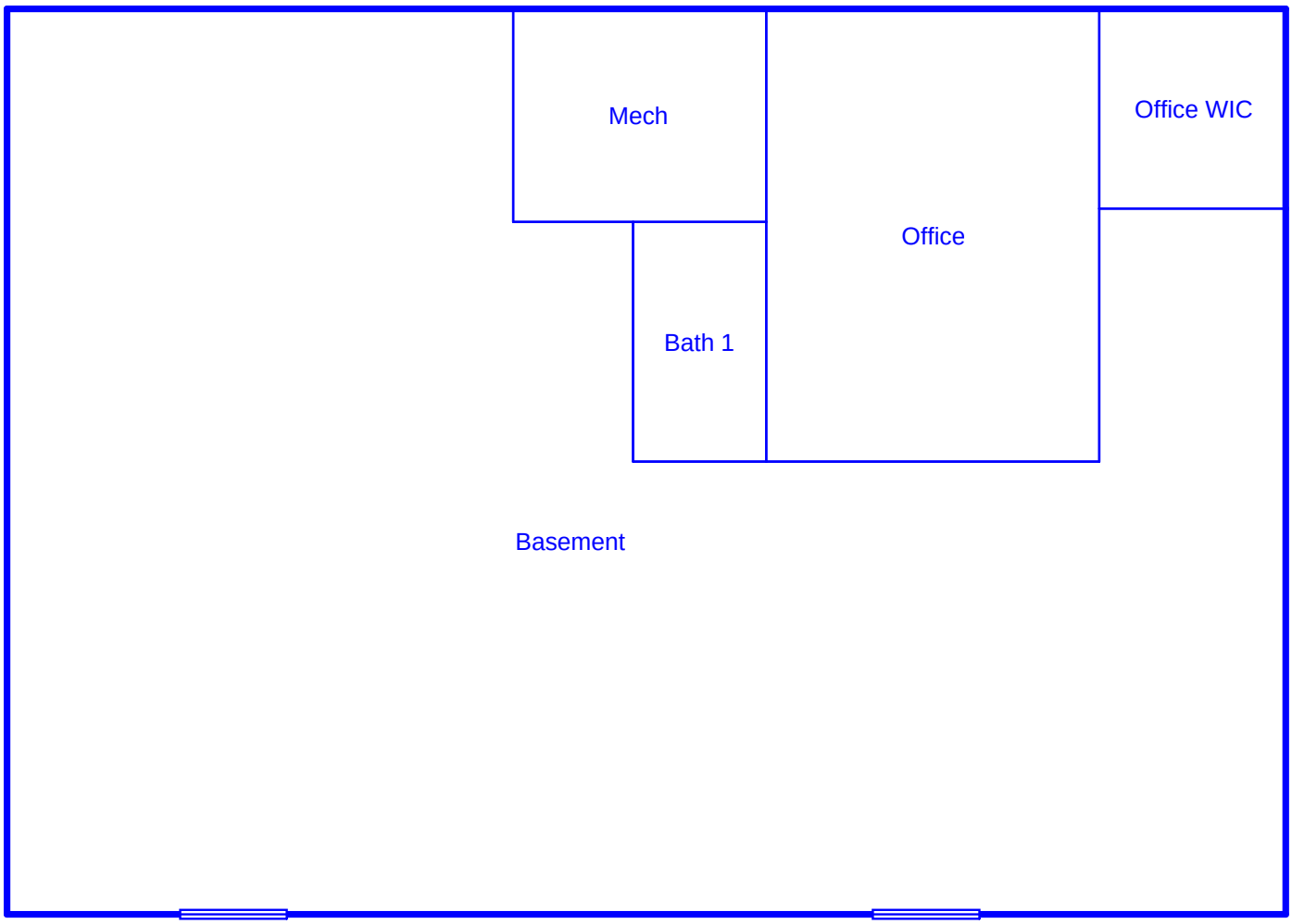
1	Room name	Bath 1
2	Exposed wall	0 ft
3	Room height	10.0 ft heat/cool
4	Room dimensions	5.0 x 9.0 ft
5	Room area	45.0 ft²

	Ty	Construction number	U-value (Btuh/ft²-°F)	Or	HTM (Btuh/ft²) Heat	HTM (Btuh/ft²) Cool	Area (ft²) or perimeter (ft) Gross	Area (ft²) or perimeter (ft) N/P/S	Load (Btuh) Heat	Load (Btuh) Cool	Area or perimeter Gross	Area or perimeter N/P/S	Load Heat	Load Cool
6	W	15B-20sfc-8	0.045	n	2.70	0.11	0	0	0	0				
.	W	Frm wall, wd ext, 1/	0.029	n	2.03	0.38	0	0	0	0				
.	G	1D-c2ow	0.170	n	11.90	12.05	0	0	0	0				
.	W	15B-20sfc-8	0.045	e	2.70	0.11	0	0	0	0				
11	W	Frm wall, wd ext, 1/	0.029	e	2.03	0.38	0	0	0	0				
	G	1D-c2ow	0.170	e	11.90	49.46	0	0	0	0				
	W	15B-20sfc-8	0.045	s	2.67	0.08	0	0	0	0				
	G	1D-c2ow	0.170	s	11.90	24.02	0	0	0	0				
	W	Frm wall, wd ext, 1/	0.029	s	2.03	0.38	0	0	0	0				
	G	10B-w	0.170	s	11.90	13.10	0	0	0	0				
	G	1D-c2ow	0.170	s	11.90	13.40	0	0	0	0				
	G	1D-c2ow	0.170	s	11.90	15.00	0	0	0	0				
	G	1D-c2ow	0.170	s	11.90	15.53	0	0	0	0				
	W	15B-20sfc-8	0.045	w	2.70	0.11	0	0	0	0				
	W	Frm wall, wd ext, 1/	0.029	w	2.03	0.38	0	0	0	0				
	G	1D-c2ow	0.170	w	11.90	49.46	0	0	0	0				
	C	Attic ceiling, aspha	0.016	-	1.09	0.80	0	0	0	0				
	F	Bg floor, heavy dry	0.014	-	1.01	0.00	45	45	46	0				

6	c) AED excursion				0		
	Envelope loss/gain			46	0		
12	a) Infiltration			0	0		
	b) Room ventilation			0	0		
13	Internal gains:	Occupants @ 230	0		0		
		Appliances/other			0		
	Subtotal (lines 6 to 13)			46	0		
	Less external load			0	0		
	Less transfer			0	0		
	Redistribution			0	0		
14	Subtotal			46	0		
15	Duct loads		-0% 0%	0	0		
	Total room load			46	0		
	Air required (cfm)			2	0		

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

Sheet 1



Job #:
Performed for:
Eric Whetzel
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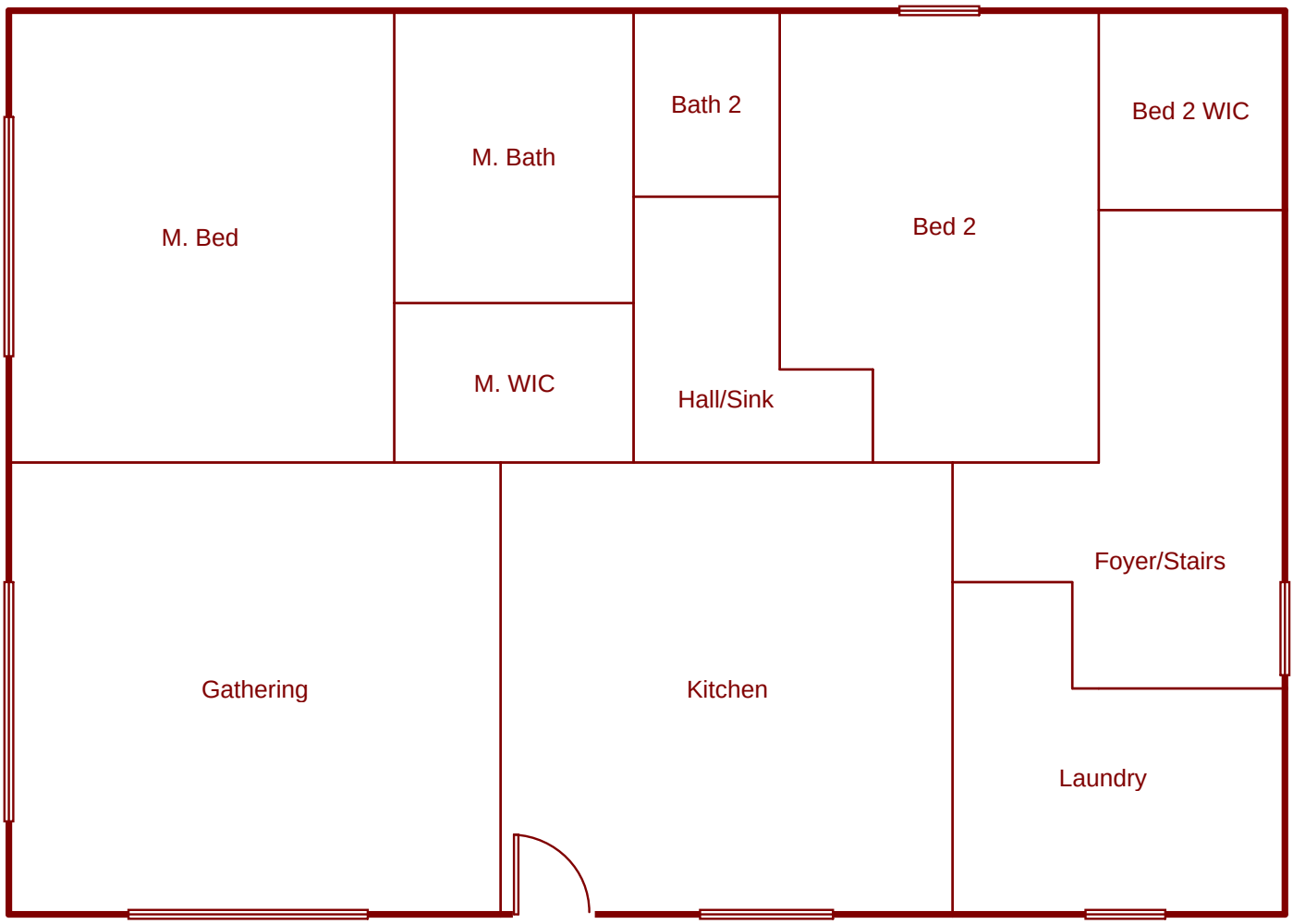
Sheet 2



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