

DEPARTMENT OF INSPECTIONS,  
 LICENSES & PERMITS  
 3430 COURT HOUSE DRIVE  
 ELLICOTT CITY, MD 21043  
 PERMITS (410) 313-2455  
 INSPECTIONS (410) 313-1850

**HOWARD COUNTY  
 RESIDENTIAL  
 HEATING-VENTILATION-AIR  
 CONDITIONING AND  
 REFRIGERATION PERMIT  
 APPLICATION**

HVACR PERMIT # M18000958  
 BUILDING PERMIT #

BUILDING ADDRESS: SUITE/APT:  
 SUBDIVISION:  
 CENSUS TRACT: SECTION: AREA:  
 LOT: TAX MAP: PARCEL:  
 BLOCK: ZONE:  
 PROPERTY ID: MAP COORDINATES:  
 TYPE OF IMPROVEMENTS: USE:

OWNERS NAME: David Benson  
 ADDRESS: 6198 Fairbourne Court  
 CITY: Hanover  
 STATE: MD ZIP CODE: 21076  
 HOME PHONE: 208-339-6559 WORK PHONE:

CHECK ONE	HOW MANY
SINGLE FAMILY DWELLING <input checked="" type="checkbox"/>	<u>2</u> ZONES
SINGLE FAMILY TOWNHOUSE <input type="checkbox"/>	___ ZONES
MULTI-FAMILY / HOTEL/MOTEL <input type="checkbox"/>	___ ROOMS
ASSISTED LIVING HOMES (16 OR FEWER RESIDENTS) <input type="checkbox"/>	___ ROOMS

COMPANY NAME: Ground Loop Heating & Air Cond., Inc.  
 LICENSEE NAME: Michael E. Cullum  
 ADDRESS: 1701 Whiteford Road  
 CITY: Darlington  
 STATE: MD ZIP CODE: 21034  
 PHONE: 410-836-1706 HVACR LICENSE NO: 6539

- New  
 Heating and Air Conditioning  
 Geo Thermal System  
 Heating System Only  
 Ductless Mini Splits  
 Other Work (Describe):  
 Thru The Wall Systems
- Replacement  
 Heating  
 Air Conditioning  
 Heating and Air Conditioning
- Equipment:  
WATER FURNACE 3 TON  
NVVO36  
Loops - Vertical.
- Additions and Alterations  
 Heating  
 Air Conditioning  
 Heating and Air Conditioning

\*\*\*\*Replacement Geo Thermal Systems are not required; However, if a tax credit is being sought a permit is required\*\*\*\*

Zones  
 Permit Fee = # of Zones x \$40 = 80.00  
 Technology Fee (10% of Permit Fee) = 8.00  
 Plus Application Fee 50.00  
 Total Fees Due = 138.00

Rooms  
 Permit Fee = # of Rooms x \$80 = \_\_\_\_\_  
 Technology Fee (10% of Permit Fee) = \_\_\_\_\_  
 Plus Application Fee \$50 50.00  
 Total Fees Due = \_\_\_\_\_

I HAVE CAREFULLY EXAMINED AND READ THIS APPLICATION AND KNOW IT IS TRUE AND CORRECT. THE WORK DESCRIBED HEREIN WILL BE PERFORMED BY A STATE HVACR LICENSED PERSON(S), AND ALL WORK WILL BE PERFORMED IN COMPLIANCE WITH APPLICABLE CODES AND STANDARDS OF HOWARD COUNTY THE STATE OF MARYLAND.

Michael Cullum 11/8/18  
 SIGNATURE OF LICENSEE DATE

MICHAEL CULLUM  
 PRINT NAME OF LICENSEE

linda @ ground loop . com  
 Email Address

Make check payable to: DIRECTOR OF FINANCE OF HOWARD COUNTY

Word doc: T:\Updated Forms\hvac application  
 Rev:10.2009

NOV 13 2018

LICENSES & PERMITS  
 DIVISION

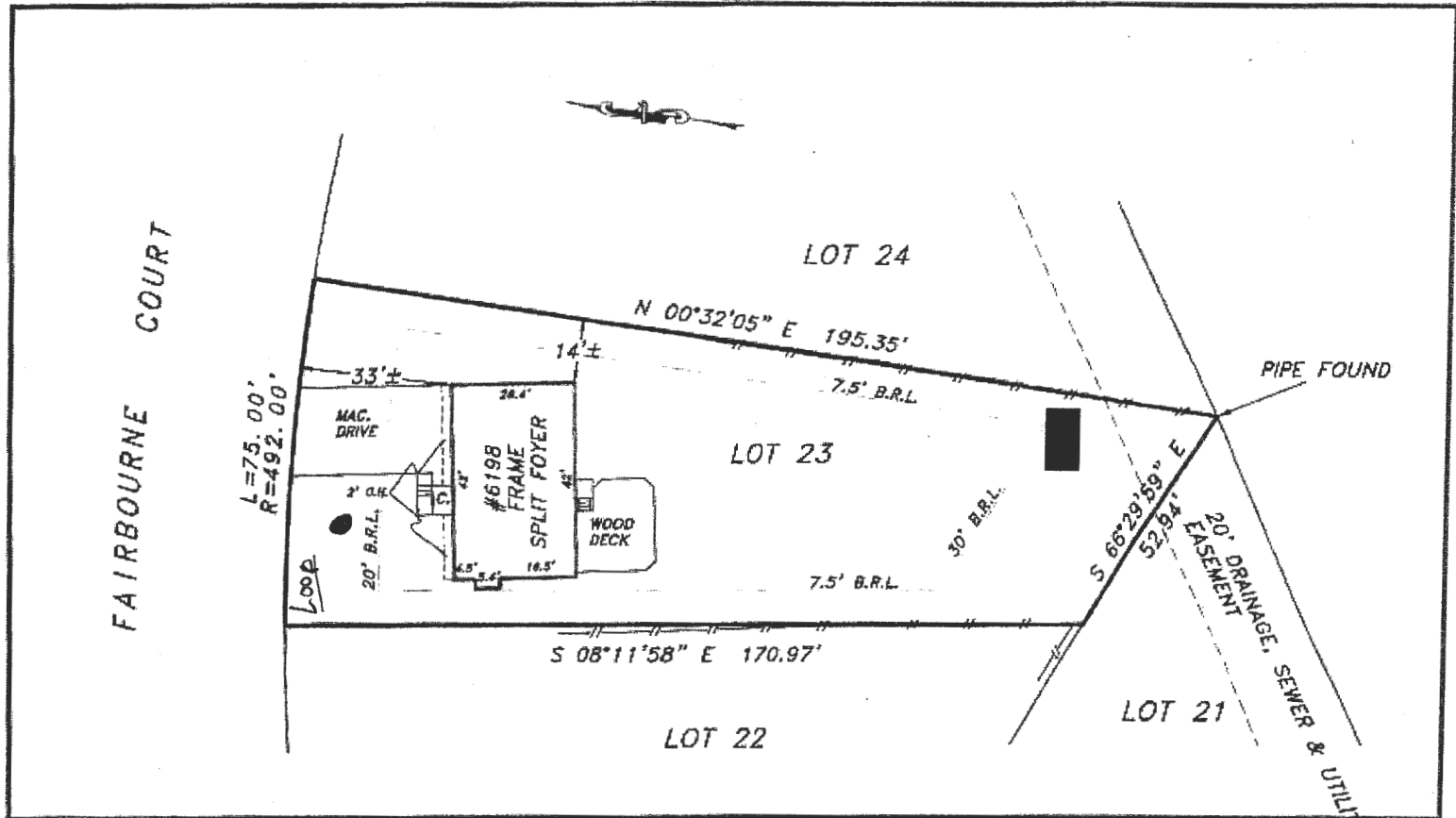
Heath

Validation  
 Check Number: 25161  
 Cash: \_\_\_\_\_  
 Receipt Number: 555105


CITY WATER & SEWER

WELLS  
[Signature]

M 18000958



The purpose of this drawing is to locate, describe, and represent the positions of buildings and substantial improvements affecting the property shown hereon, being known as:  
**LOT 23 SECTION 1 AREA 1**  
**CANBURY WOODS**  
 recorded among the land records of Howard County, Maryland in  
**PLAT # 6983**

PREPARED FOR:  
  
 Continental Title Group

This is page one of a two page document. The advice found on the affixed page is an integral part of this drawing, and is not valid without all pages.



**LOCATION DRAWING**  
**6198 FAIRBOURNE COURT**  
**1ST ELECTION DISTRICT**  
**HOWARD COUNTY, MARYLAND**

**NTT Associates, Inc.**  
 16205 Old Frederick Rd.  
 Mt. Airy, Maryland 21771  
 Phone: (410) 442-2031  
 Fax: (410) 442-1315  
 www.nttsurveyors.com

Scale:	1" = 30'
Date:	6/29/18
Field By:	RIK
Drawn By:	JCH
File No.:	HOC12949
Page No.:	1 of 2

M18000958



**Load Short Form  
Entire House**

Job:  
Date: May 15, 2014  
By:

**Project Information**

For: David Benson

**Design Information**

	Htg	Clg	Infiltration	
Outside db (°F)	12	94	Method	Simplified
Inside db (°F)	72	70	Construction quality	Average
Design TD (°F)	60	24	Fireplaces	0
Daily range	-	M		
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	27	47		

**HEATING EQUIPMENT**

Make  
Trade  
Model  
AHRI ref

Efficiency 80 AFUE

Heating input 0 Btuh  
Heating output 0 Btuh  
Temperature rise 0 °F  
Actual air flow 822 cfm  
Air flow factor 0.035 cfm/Btuh  
Static pressure 0 in H2O  
Space thermostat

**COOLING EQUIPMENT**

Make  
Trade  
Cond  
Coil  
AHRI ref

Efficiency 0 SEER

Sensible cooling 0 Btuh  
Latent cooling 0 Btuh  
Total cooling 0 Btuh  
Actual air flow 822 cfm  
Air flow factor 0.061 cfm/Btuh  
Static pressure 0 in H2O  
Load sensible heat ratio 0.87

ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Room1	1016	17804	11491	619	700
Room2	572	5830	1995	203	122
Entire House	1588	23634	13486	822	822
Other equip loads		0	0		
Equip. @ 1.00 RSM			13486		
Latent cooling			1987		
<b>TOTALS</b>	<b>1588</b>	<b>23634</b>	<b>15473</b>	<b>822</b>	<b>822</b>

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

**Project Information**

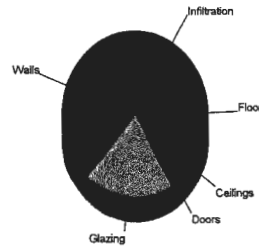
For: David Benson

**Design Conditions**

<b>Location:</b>		<b>Indoor:</b>		<b>Heating</b>	<b>Cooling</b>
Baltimore, MD, US		Indoor temperature (°F)	72	70	
Elevation: 154 ft		Design TD (°F)	60	24	
Latitude: 39°N		Relative humidity (%)	30	50	
		Moisture difference (gr/lb)	26.8	47.0	
<b>Outdoor:</b>	<b>Heating</b>	<b>Cooling</b>	<b>Infiltration:</b>		
Dry bulb (°F)	12	94	Method	Simplified	
Daily range (°F)	-	19 ( M )	Construction quality	Average	
Wet bulb (°F)	-	75	Fireplaces	0	
Wind speed (mph)	15.0	7.5			

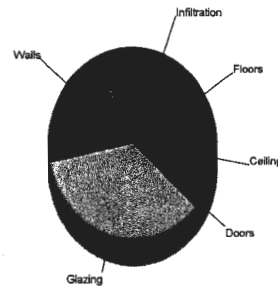
**Heating**

Component	Btuh/ft²	Btuh	% of load
Walls	5.3	9080	38.4
Glazing	34.0	4628	19.6
Doors	23.3	489	2.1
Ceilings	1.9	1933	8.2
Floors	3.4	3423	14.5
Infiltration	2.8	4081	17.3
Ducts		0	0
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
<b>Total</b>		<b>23634</b>	<b>100.0</b>



**Cooling**

Component	Btuh/ft²	Btuh	% of load
Walls	2.2	3821	28.3
Glazing	34.5	4690	34.8
Doors	13.9	293	2.2
Ceilings	1.9	1919	14.2
Floors	1.1	1151	8.5
Infiltration	1.1	1613	12.0
Ducts		0	0
Ventilation		0	0
Internal gains		0	0
Blower		0	0
Adjustments		0	0
<b>Total</b>		<b>13486</b>	<b>100.0</b>



Latent Cooling Load = 1987 Btuh  
Overall U-value = 0.102 Btuh/ft²-°F

Data entries checked.

**Project Information**

For: David Benson

**Design Conditions**

<b>Location:</b> Baltimore, MD, US Elevation: 154 ft Latitude: 39°N			<b>Indoor:</b> Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	<b>Heating</b> 72 60 30 26.8	<b>Cooling</b> 70 24 50 47.0
<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> 12 - - 15.0	<b>Cooling</b> 94 19 ( M ) 75 7.5	<b>Infiltration:</b> Method Construction quality Fireplaces	Simplified Average 0	

**Construction descriptions**

	Or	Area ft²	U-value Btu/ft²·°F	Insul R ft²·F/Btu/h	Htg HTM Btu/ft²	Loss Btu/h	Clg HTM Btu/ft²	Gain Btu/h
<b>Walls</b>								
12B-0sw: Fm wall, vnl ext, 3/8" wood shth, r-11 cav ins, 1/2" gypsum board intfnsh, 2"x4" wood fm, 16" o.c. stud	n	315	0.097	11.0	5.79	1824	3.23	1019
	e	172	0.097	11.0	5.79	996	3.23	556
	s	297	0.097	11.0	5.79	1720	3.23	961
	w	167	0.097	11.0	5.79	967	3.23	540
	all	951	0.097	11.0	5.79	5507	3.23	3076
15B11-0wc-4: Bg wall, heavy damp soil, 2"x4" wood int fm, concrete wall, r-11 cav ins, 8" thk, 1/2" gypsum board intfnsh	n	208	0.062	11.0	4.81	1000	1.02	213
	e	176	0.062	11.0	4.81	846	1.02	180
	s	188	0.062	11.0	4.69	881	0.91	172
	w	176	0.062	11.0	4.81	846	1.02	180
	all	748	0.062	11.0	4.78	3573	0.99	744
<b>Partitions</b> (none)								
<b>Windows</b>								
1D-c2ow: 2 glazing, clr out, air gas, wd fm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	n	18	0.570	0	34.0	613	24.4	438
	n	35	0.570	0	34.0	1191	24.4	852
	e	4	0.570	0	34.0	136	66.4	266
	s	50	0.570	0	34.0	1701	35.9	1794
	s	20	0.570	0	34.0	681	35.9	717
	w	9	0.570	0	34.0	306	66.4	597
	all	136	0.570	0	34.0	4628	34.3	4665
<b>Doors</b>								
11D0: Door, wd sc type	s	21	0.390	0	23.3	489	13.9	293
<b>Ceilings</b>								
16B-30ad: Attic ceiling, asphalt shingles roof mat, r-30 ceil ins, 1/2" gypsum board intfnsh		1012	0.032	30.0	1.91	1933	1.90	1919
<b>Floors</b>								
19A-0bswp: Part floor, hrd wd flr fnsh, frm flr, 10" thkns, 1/2" gypsum board intfnsh		440	0.295	0	6.62	2911	2.62	1151

21B-28t Bg floor, light dry soil, prm int ins cov, 6.5' depth, r-3 ins

572 0.015 3.0 0.90 512 0 0

**Project Information**

For: David Benson

**Design Conditions**

<b>Location:</b> Baltimore, MD, US Elevation: 154 ft Latitude: 39°N			<b>Indoor:</b> Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	<b>Heating</b> 72 60 30 26.8	<b>Cooling</b> 70 24 50 47.0
<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> 12 - - 15.0	<b>Cooling</b> 94 19 ( M ) 75 7.5	<b>Infiltration:</b> Method Construction quality Fireplaces	Simplified Average 0	

**Construction descriptions**

	Or	Area ft²	U-value Btu/ft²·°F	Insul R ft²·°F/Btu	Htg HTM Btu/ft²	Loss Btu	Clg HTM Btu/ft²	Gain Btu
<b>Walls</b>								
12B-0sw: Fm wall, vnl ext, 3/8" wood shth, r-11 cav ins, 1/2" gypsum board int fnsh, 2"x4" wood frm, 16" o.c. stud	n	315	0.097	11.0	5.79	1824	3.23	1019
	e	172	0.097	11.0	5.79	996	3.23	556
	s	297	0.097	11.0	5.79	1720	3.23	961
	w	167	0.097	11.0	5.79	967	3.23	540
	all	951	0.097	11.0	5.79	5507	3.23	3076
<b>Partitions</b> (none)								
<b>Windows</b>								
1D-c2ow: 2 glazing, clr out, air gas, wd frm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	n	18	0.570	0	34.0	613	24.4	438
	n	35	0.570	0	34.0	1191	24.4	852
	e	4	0.570	0	34.0	136	66.4	266
	s	50	0.570	0	34.0	1701	35.9	1794
	w	9	0.570	0	34.0	306	66.4	597
	all	116	0.570	0	34.0	3947	34.0	3947
<b>Doors</b>								
11D0: Door, wd sc lype	s	21	0.390	0	23.3	489	13.9	293
<b>Ceilings</b>								
16B-30ad: Attic ceiling, asphalt shingles roof mat, r-30 ceil ins, 1/2" gypsum board int fnsh		1012	0.032	30.0	1.91	1933	1.90	1919
<b>Floors</b>								
19A-0bswp: Part floor, hrd wd flr fnsh, frm flr, 10" thkns, 1/2" gypsum board int fnsh		440	0.295	0	6.62	2911	2.62	1151

**Project Information**

For: David Benson

**Design Conditions**

<b>Location:</b> Baltimore, MD, US Elevation: 154 ft Latitude: 39°N		<b>Indoor:</b> Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	<b>Heating</b> 72 60 30 26.8	<b>Cooling</b> 70 24 50 47.0
<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> 12 - - 15.0	<b>Cooling</b> 94 19 ( M ) 75 7.5	<b>Infiltration:</b> Method Construction quality Fireplaces	Simplified Average 0

**Construction descriptions**

	Or	Area ft²	U-value Btu/ft²·°F	Insul R ft²·F/Btu	Htg HTM Btu/ft²	Loss Btu/h	Clg HTM Btu/ft²	Gain Btu/h
<b>Walls</b>								
15B11-0wc-4: Bg wall, heavy damp soil, 2"x4" wood intfrm, concrete wall, r-11 cav ins, 8" thk, 1/2" gypsum board intfnsh	n	208	0.062	11.0	4.81	1000	1.02	213
	e	176	0.062	11.0	4.81	846	1.02	180
	s	188	0.062	11.0	4.69	881	0.91	172
	w	176	0.062	11.0	4.81	846	1.02	180
	all	748	0.062	11.0	4.78	3573	0.99	744
<b>Partitions</b> (none)								
<b>Windows</b>								
1D-c2ow. 2 glazing, clr out, air gas, wd frm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	s	20	0.570	0	34.0	681	35.9	717
<b>Doors</b> (none)								
<b>Ceilings</b> (none)								
<b>Floors</b>								
21B-28t Bg floor, light dry soil, prm int ins cov, 6.5' depth, r-3 ins		572	0.015	3.0	0.90	512	0	0

**Project Information**

For: David Benson

Notes:

**Design Information**

Weather: Baltimore, MD, US

**Winter Design Conditions**

Outside db 12 °F  
Inside db 72 °F  
Design TD 60 °F

**Summer Design Conditions**

Outside db 94 °F  
Inside db 70 °F  
Design TD 24 °F  
Daily range M  
Relative humidity 50 %  
Moisture difference 47 gr/lb

**Heating Summary**

Structure 23634 Btuh  
Ducts 0 Btuh  
Central vent (0 cfm) 0 Btuh  
Humidification 0 Btuh  
Piping 0 Btuh  
Equipment load 23634 Btuh

**Sensible Cooling Equipment Load Sizing**

Structure 13486 Btuh  
Ducts 0 Btuh  
Central vent (0 cfm) 0 Btuh  
Blower 0 Btuh  
Use manufacturer's data y  
Rate/swing multiplier 1.00  
Equipment sensible load 13486 Btuh

**Infiltration**

Method Simplified  
Construction quality Average  
Fireplaces 0

	Heating	Cooling
Area (ft²)	1588	1588
Volume (ft³)	10415	10415
Air changes/hour	<b>0.36</b>	<b>0.36</b>
Equiv. AVF (cfm)	62	62

**Latent Cooling Equipment Load Sizing**

Structure 1987 Btuh  
Ducts 0 Btuh  
Central vent (0 cfm) 0 Btuh  
Equipment latent load 1987 Btuh  
Equipment total load 15473 Btuh  
Req. total capacity at 0.70 SHR 1.6 ton

**Heating Equipment Summary**

Make  
Trade  
Model  
AHRI ref

Efficiency 80 AFUE  
Heating input 0 Btuh  
Heating output 0 Btuh  
Temperature rise 0 °F  
Actual air flow 822 cfm  
Air flow factor 0.035 cfm/Btuh  
Static pressure 0 in H2O  
Space thermostat

**Cooling Equipment Summary**

Make  
Trade  
Cond  
Coil  
AHRI ref  
Efficiency 0 SEER  
Sensible cooling 0 Btuh  
Latent cooling 0 Btuh  
Total cooling 0 Btuh  
Actual air flow 822 cfm  
Air flow factor 0.061 cfm/Btuh  
Static pressure 0 in H2O  
Load sensible heat ratio 0.87

*Bold/italic values have been manually overridden*

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

**Project Information**

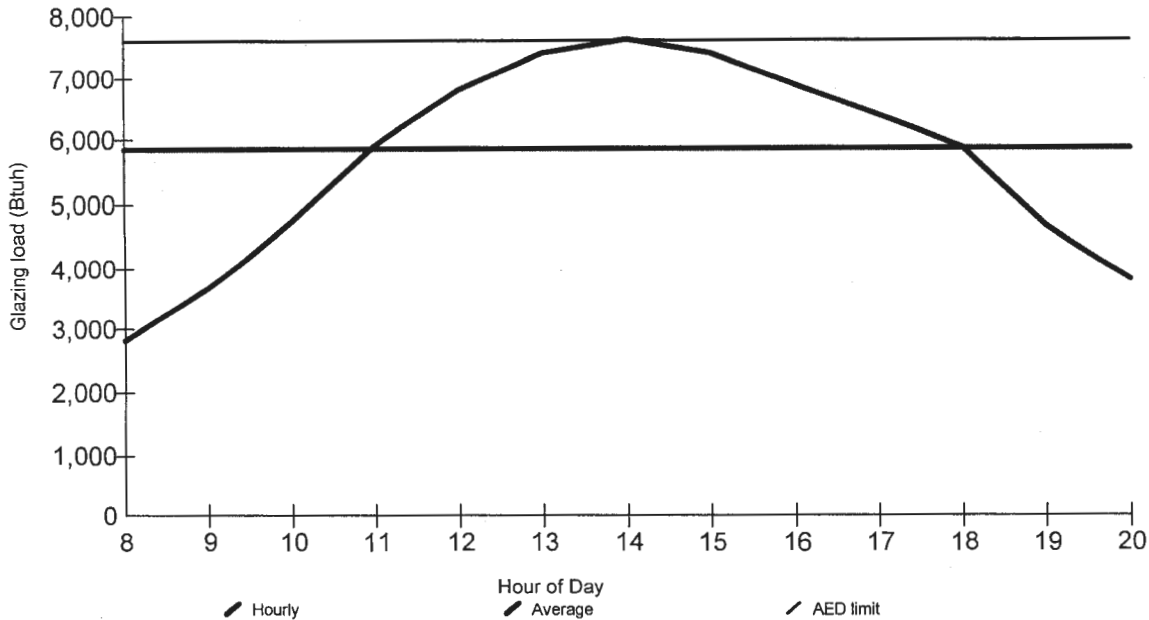
For: David Benson

**Design Conditions**

<b>Location:</b>		<b>Indoor:</b>		<b>Heating</b>	<b>Cooling</b>
Baltimore, MD, US		Indoor temperature (°F)		72	70
Elevation:	154 ft	Design TD (°F)		60	24
Latitude:	39°N	Relative humidity (%)		30	50
<b>Outdoor:</b>		Moisture difference (gr/lb)		26.8	47.0
	<b>Heating</b>	<b>Cooling</b>	<b>Infiltration:</b>		
Dry bulb (°F)	12	94			
Daily range (°F)	-	19 ( M )			
Wet bulb (°F)	-	75			
Wind speed (mph)	15.0	7.5			

**Test for Adequate Exposure Diversity**

**Hourly Glazing Load**



Maximum hourly glazing load exceeds average by 30.4%.

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

AED excursion: 26 Btuh (PFG - 1.3\*AFG)

1 Room name				Entire House 232.0 ft				Room1 136.0 ft							
2 Exposed wall				8.0 ft				8.0 ft heat/cool							
3 Room height								46.0 x 22.1 ft							
4 Room dimensions															
5 Room area				1587.8 ft²				1015.8 ft²							
6	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	NP/S	Heat	Cool	Gross	NP/S	Heat	Cool	
6	W	12B-0sw	0.097	n	5.79	3.23	368	315	1824	1019	368	315	1824	1019	
	G	1D-c2ow	0.570	n	34.03	24.35	18	0	613	438	18	0	613	438	
	G	1D-c2owd	0.570	n	34.03	24.35	35	0	1191	852	35	0	1191	852	
	W	15B11-0wc-4	0.099	n	4.81	1.02	208	208	1000	213	0	0	0	0	
	11	W	12B-0sw	0.097	e	5.79	3.23	176	172	996	556	176	172	996	556
		G	1D-c2ow	0.570	e	34.03	66.39	4	0	136	266	4	0	136	266
	W	15B11-0wc-4	0.099	e	4.81	1.02	176	176	846	180	0	0	0	0	
	W	12B-0sw	0.097	s	5.79	3.23	368	297	1720	961	368	297	1720	961	
	G	1D-c2ow	0.570	s	34.03	35.87	50	0	1701	1794	50	0	1701	1794	
	D	11D0	0.390	s	23.28	13.94	21	21	489	293	21	21	489	293	
	W	15B11-0wc-4	0.099	s	4.69	0.91	208	188	881	172	0	0	0	0	
G	1D-c2ow	0.570	s	34.03	35.87	20	0	681	717	0	0	0	0		
W	12B-0sw	0.097	w	5.79	3.23	176	167	967	540	176	167	967	540		
G	1D-c2ow	0.570	w	34.03	66.39	9	0	306	597	9	0	306	597		
W	15B11-0wc-4	0.099	w	4.81	1.02	176	176	846	180	0	0	0	0		
C	16B-30ad	0.032	-	1.91	1.90	1012	1012	1933	1919	1012	1012	1933	1919		
F	19A-0bswp	0.295	-	6.62	2.62	440	440	2911	1151	440	440	2911	1151		
F	21B-28t	0.015	-	0.90	0.00	572	572	512	0	0	0	0	0		
6	c) AED excursion								26				-87		
	Envelope loss/gain								19553	11873			14788	10299	
12	a) Infiltration								4081	1613			3016	1192	
	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)								23634	13486			17804	11491	
14	Less external load								0	0			0	0	
	Less transfer								0	0			0	0	
	Redistribution								0	0			0	0	
	Subtotal									23634	13486			17804	11491
15	Duct loads					0%	0%		0	0		0%	0%	0	0
	Total room load								23634	13486			17804	11491	
	Air required (cfm)								822	822			619	700	

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

						Room2								
1	Room name						96.0 ft							
2	Exposed wall						8.0 ft		heat/cool					
3	Room height						26.0		x 22.0					
4	Room dimensions						572.0 ft²							
5	Room area													
	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	12B-0sw	0.097	n	5.79	3.23	0	0	0	0				
	G	1D-c2ow	0.570	n	34.03	24.35	0	0	0	0				
	G	1D-c2owd	0.570	n	34.03	24.35	0	0	0	0				
	W	15B11-0wc-4	0.099	n	4.81	1.02	208	208	1000	213				
11	W	12B-0sw	0.097	e	5.79	3.23	0	0	0	0				
	G	1D-c2ow	0.570	e	34.03	66.39	0	0	0	0				
	W	15B11-0wc-4	0.099	e	4.81	1.02	176	176	846	180				
	W	12B-0sw	0.097	s	5.79	3.23	0	0	0	0				
	G	1D-c2ow	0.570	s	34.03	35.87	0	0	0	0				
	D	11D0	0.390	s	23.28	13.94	0	0	0	0				
	W	15B11-0wc-4	0.099	s	4.69	0.91	208	188	881	172				
	G	1D-c2ow	0.570	s	34.03	35.87	20	0	681	717				
	W	12B-0sw	0.097	w	5.79	3.23	0	0	0	0				
	G	1D-c2ow	0.570	w	34.03	66.39	0	0	0	0				
	W	15B11-0wc-4	0.099	w	4.81	1.02	176	176	846	180				
	C	16B-30ad	0.032	-	1.91	1.90	0	0	0	0				
	F	19A-0bswp	0.295	-	6.62	2.62	0	0	0	0				
	F	21B-28t	0.015	-	0.90	0.00	572	572	512	0				
6	c) AED excursion									112				
	Envelope loss/gain								4765	1574				
12	a) Infiltration								1065	421				
	b) Room ventilation								0	0				
13	Internal gains:		Occupants @	230			0			0				
			Appliances/other							0				
	Subtotal (lines 6 to 13)								5830	1995				
	Less external load								0	0				
	Less transfer								0	0				
	Redistribution								0	0				
14	Subtotal								5830	1995				
15	Duct loads						-0%	0%	0	0				
	Total room load								5830	1995				
	Air required (cfm)								203	122				

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

**Project Information**

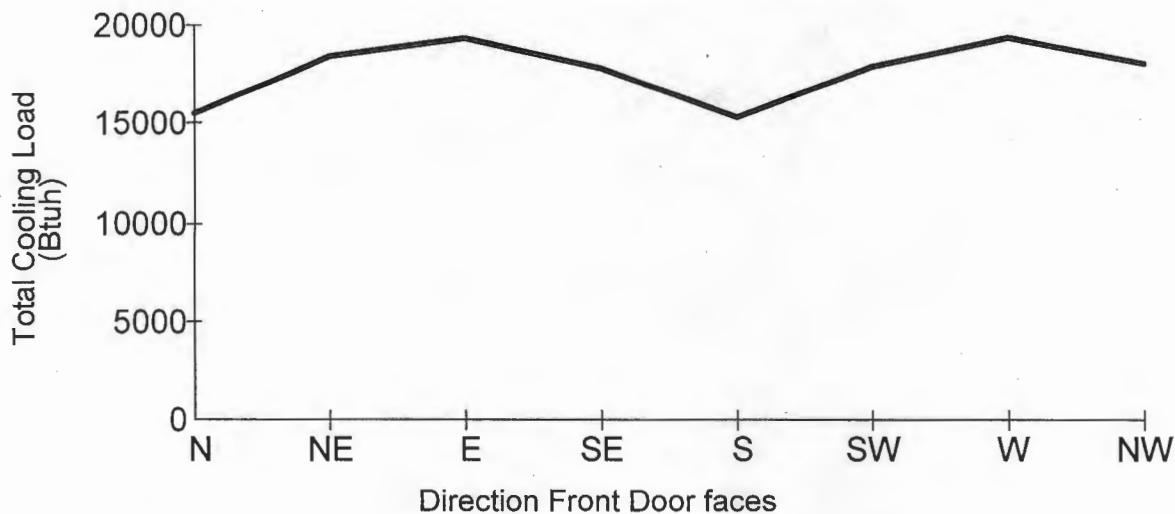
For: David Benson

**Design Conditions**

<b>Location:</b> Baltimore, MD, US Elevation: 154 ft Latitude: 39°N		<b>Indoor:</b> Indoor temperature (°F) Design TD (°F) Relative humidity (%) Moisture difference (gr/lb)	<b>Heating</b> 72 60 30 26.8	<b>Cooling</b> 70 24 50 47.0
<b>Outdoor:</b> Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	<b>Heating</b> 12 - - 15.0	<b>Cooling</b> 94 19 ( M ) 75 7.5	<b>Infiltration:</b>	

Front Door	North	Northeast	East	Southeast	South	Southwest	West	Northwest
Sensible Load (Btuh)	13486	16485	17358	15883	13265	15927	17382	16078
Latent Load (Btuh)	1987	1987	1987	1987	1987	1987	1987	1987
Total Load (Btuh)	15473	18472	19345	17870	15252	17914	19369	18065
Heating AVF (cfm)	822	1005	1058	968	808	971	1059	980
Cooling AVF (cfm)	822	1005	1058	968	808	971	1059	980

**Building Orientation Cooling Load**



Current Orientation: Front Door faces North  
Highest Cooling Load: Front Door faces West

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**Project Information**

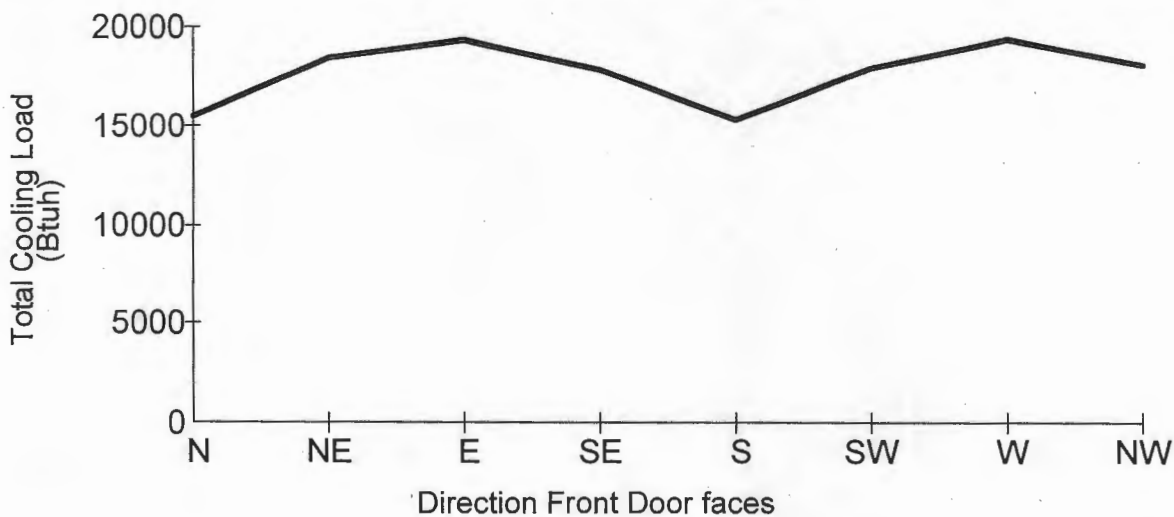
For: David Benson

**Design Conditions**

<b>Location:</b>		<b>Indoor:</b>		<b>Heating</b>	<b>Cooling</b>
Baltimore, MD, US		Indoor temperature (°F)		72	70
Elevation: 154 ft		Design TD (°F)		60	24
Latitude: 39°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		26.8	47.0
<b>Outdoor:</b>	<b>Heating</b>	<b>Cooling</b>	<b>Infiltration:</b>		
Dry bulb (°F)	12	94			
Daily range (°F)	-	19 ( M )			
Wet bulb (°F)	-	75			
Wind speed (mph)	15.0	7.5			

Front Door	North	Northeast	East	Southeast	South	Southwest	West	Northwest
Sensible Load (Btuh)	13486	16485	17358	15883	13265	15927	17382	16078
Latent Load (Btuh)	1987	1987	1987	1987	1987	1987	1987	1987
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**Building Orientation Cooling Load**



Current Orientation: Front Door faces North  
 Highest Cooling Load: Front Door faces West

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