

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 # 1M9000731 BUILDING PERMIT #
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BUILDING ADDRESS: 840 Windriver Drive, Sykesville MD SUBDIVISION: 21784 CENSUS TRACT: SECTION: AREA: PARCEL: LOT: TAX MAP: PARCEL: BLOCK: ZONE:	OWNERS NAME: Brandon + Megan Strojny ADDRESS: 840 Windriver Drive Sykesville MD CITY: STATE: ZIP CODE: 21784 HOME PHONE: 414-232-6082 WORK PHONE:
PROPERTY ID: MAP COORDINATES: TYPE OF IMPROVEMENTS: USE:	

<table border="0"> <tr> <th><u>CHECK ONE</u></th> <th><u>HOW MANY</u></th> </tr> <tr> <td>SINGLE FAMILY DWELLING ☒</td> <td><u>1</u> ZONES</td> </tr> <tr> <td>SINGLE FAMILY TOWNHOUSE ☐</td> <td><u> </u> ZONES</td> </tr> <tr> <td>MULTI-FAMILY / HOTEL/MOTEL ☐</td> <td><u> </u> ROOMS</td> </tr> <tr> <td>ASSISTED LIVING HOMES (16 OR FEWER RESIDENTS) ☐</td> <td><u> </u> ROOMS</td> </tr> </table>	<u>CHECK ONE</u>	<u>HOW MANY</u>	SINGLE FAMILY DWELLING ☒	<u>1</u> ZONES	SINGLE FAMILY TOWNHOUSE ☐	<u> </u> ZONES	MULTI-FAMILY / HOTEL/MOTEL ☐	<u> </u> ROOMS	ASSISTED LIVING HOMES (16 OR FEWER RESIDENTS) ☐	<u> </u> 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
<u>CHECK ONE</u>	<u>HOW MANY</u>										
SINGLE FAMILY DWELLING ☒	<u>1</u> ZONES										
SINGLE FAMILY TOWNHOUSE ☐	<u> </u> ZONES										
MULTI-FAMILY / HOTEL/MOTEL ☐	<u> </u> ROOMS										
ASSISTED LIVING HOMES (16 OR FEWER RESIDENTS) ☐	<u> </u> ROOMS										

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 4-TON ND2049	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 = <u>\$40.00</u> Technology Fee (10% of Permit Fee) = <u>4.00</u> Plus Application Fee <u>\$50.00</u> Total Fees Due = <u>\$94.00</u>	Rooms Permit Fee = # of Rooms x \$80 = <u> </u> Technology Fee (10% of Permit Fee) = <u> </u> Plus Application Fee \$50 <u>\$50.00</u> Total Fees Due = <u> </u>
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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.

SIGNATURE OF LICENSEE

MICHAEL CULLUM

PRINT NAME OF LICENSEE

finn @groundloop.com

Email Address

Make check payable to: DIRECTOR OF FINANCE OF HOWARD COUNTY

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

Validation

Check Number: **25742**
 Cash:
 Receipt Number: **587422**

DATE

Approved Septic System Plan
Howard County Health Department
Signature **Date** **6/19/19**

WATER & SEWER

WELLS / Septic



Load Short Form Entire House

M19000731

Job:
Date: May 15, 2014
By:

Project Information

For: Strojny

Design Information

	Htg	Clg	Infiltration	Simplified
Outside db (°F)	12	94	Method	Average
Inside db (°F)	72	70	Construction quality	
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 1632 cfm
Air flow factor 0.039 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 1632 cfm
Air flow factor 0.051 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	1861	42118	31817	1632	1632
Entire House	1861	42118	31817	1632	1632
Other equip loads		0	0		
Equip. @ 1.00 RSM			31817		
Latent cooling			4893		
TOTALS	1861	42118	36710	1632	1632

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

Project Information

For: Strojny

Design Conditions

Location:

Baltimore, MD, US
Elevation: 154 ft
Latitude: 39°N

Outdoor:

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

Heating

12
-
-
15.0

Cooling

94
19 (M)
75
7.5

Indoor:

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

Heating

72
60
30
26.8

Cooling

70
24
50
47.0

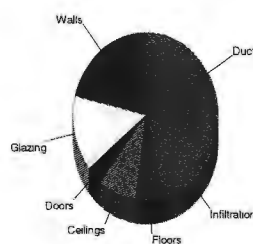
Infiltration:

Method
Construction quality
Fireplaces

Simplified
Average
0

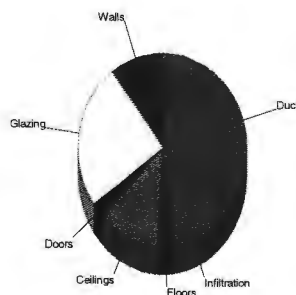
Heating

Component	Btuh/ft²	Btuh	% of load
Walls	5.8	8872	21.1
Glazing	34.0	6159	14.6
Doors	23.3	1467	3.5
Ceilings	1.9	3555	8.4
Floors	1.4	2698	6.4
Infiltration	3.2	5672	13.5
Ducts		13695	32.5
Piping		0	0
Humidification		0	0
Ventilation		0	0
Adjustments		0	0
Total		42118	100.0



Cooling

Component	Btuh/ft²	Btuh	% of load
Walls	2.1	3262	10.3
Glazing	43.4	7854	24.7
Doors	13.9	878	2.8
Ceilings	1.9	3528	11.1
Floors	0.6	1067	3.4
Infiltration	1.3	2242	7.0
Ducts		12986	40.8
Ventilation		0	0
Internal gains		0	0
Blower		0	0
Adjustments		0	0
Total		31817	100.0



Latent Cooling Load = 4893 Btuh
Overall U-value = 0.186 Btuh/ft²·°F

Data entries checked.

Project Information

For: Strojny

Design Conditions

Location:		Indoor:		Heating	Cooling
Baltimore, MD, US		Indoor temperature (°F)		72	70
Elevation:	154 ft	Design TD (°F)		60	24
Latitude:	39°N	Relative humidity (%)		30	50
Outdoor:		Moisture difference (gr/lb)		26.8	47.0
Dry bulb (°F)	12	Infiltration:			
Daily range (°F)	-	Method		Simplified	
Wet bulb (°F)	-	Construction quality		Average	
Wind speed (mph)	15.0	Fireplaces		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
Walls								
12B-0bw: Fm wall, brk 4" ext, 3/8" wood shth, r-11 cav ins, 1/2" gypsum board int fnsh, 2"x4" wood frm, 16" o.c. stud	n	426	0.097	11.0	5.79	2467	2.13	907
	e	368	0.097	11.0	5.79	2131	2.13	784
	s	395	0.097	11.0	5.79	2287	2.13	841
	w	343	0.097	11.0	5.79	1986	2.13	730
	all	1532	0.097	11.0	5.79	8872	2.13	3262
Partitions								
(none)								
Windows								
1D-c2ow: 2 glazing, clr outr, air gas, wd frm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	n	62	0.570	0	34.0	2110	24.4	1510
	e	32	0.570	0	34.0	1089	66.4	2124
	s	51	0.570	0	34.0	1735	35.9	1829
	w	36	0.570	0	34.0	1225	66.4	2390
	all	181	0.570	0	34.0	6159	43.4	7854
Doors								
11D0: Door, wd sc type	s	42	0.390	0	23.3	978	13.9	586
	w	21	0.390	0	23.3	489	13.9	293
	all	63	0.390	0	23.3	1467	13.9	878
Ceilings								
16B-30ad: Attic ceiling, asphalt shingles roof mat, r-30 cell ins, 1/2" gypsum board int fnsh		1861	0.032	30.0	1.91	3555	1.90	3528
Floors								
19C-0bswp: Flr floor, frm flr, 10" thkns, hrd wd flr fnsh, tight bsmt ovr, r-11 wall insul		1861	0.368	11.0	1.45	2698	0.57	1067

Project Information

For: Strojny

Design Conditions

Location:		Indoor:		Heating	Cooling
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
Outdoor:	Heating	Cooling	Infiltration:		
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			

Construction descriptions

	Or	Area ft²	U-value Btu/hft²·°F	Insul R ft²·°F/Btu/h	Htg HTM Btu/hft²	Loss Btu/h	Clg HTM Btu/hft²	Gain Btu/h
Walls								
12B-0bw: Frm wall, brk 4" ext, 3/8" wood shth, r-11 cav ins, 1/2" gypsum board int fnsh, 2"x4" wood frm, 16" o.c. stud	n	426	0.097	11.0	5.79	2467	2.13	907
	e	368	0.097	11.0	5.79	2131	2.13	784
	s	395	0.097	11.0	5.79	2287	2.13	841
	w	343	0.097	11.0	5.79	1986	2.13	730
	all	1532	0.097	11.0	5.79	8872	2.13	3262
Partitions								
(none)								
Windows								
1D-c2ow: 2 glazing, clr outr, air gas, wd frm mat, clr innr, 1/4" gap, 1/4" thk; 6.67 ft head ht	n	62	0.570	0	34.0	2110	24.4	1510
	e	32	0.570	0	34.0	1089	66.4	2124
	s	51	0.570	0	34.0	1735	35.9	1829
	w	36	0.570	0	34.0	1225	66.4	2390
	all	181	0.570	0	34.0	6159	43.4	7854
Doors								
11D0: Door, wd sc type	s	42	0.390	0	23.3	978	13.9	586
	w	21	0.390	0	23.3	489	13.9	293
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Ceilings								
16B-30ad: Attic ceiling, asphalt shingles roof mat, r-30 cell ins, 1/2" gypsum board int fnsh		1861	0.032	30.0	1.91	3555	1.90	3528
Floors								
19C-0bswp: Flr floor, frm flr, 10" thkns, hrd wd flr fnsh, tight bsmt ovr, r-11 wall insul		1861	0.368	11.0	1.45	2698	0.57	1067

Project Information

For: Strojny

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	28423 Btuh
Ducts	13695 Btuh
Central vent (0 cfm)	0 Btuh
Humidification	0 Btuh
Piping	0 Btuh
Equipment load	42118 Btuh

Sensible Cooling Equipment Load Sizing

Structure	18831 Btuh
Ducts	12986 Btuh
Central vent (0 cfm)	0 Btuh
Blower	0 Btuh
Use manufacturer's data	y
Rate/swing multiplier	1.00
Equipment sensible load	31817 Btuh

Infiltration

Method	Simplified
Construction quality	Average
Fireplaces	0

	Heating	Cooling
Area (ft²)	1861	1861
Volume (ft³)	14888	14888
Air changes/hour	0.35	0.35
Equiv. AVF (cfm)	87	87

Latent Cooling Equipment Load Sizing

Structure	2762 Btuh
Ducts	2132 Btuh
Central vent (0 cfm)	0 Btuh
Equipment latent load	4893 Btuh
Equipment total load	36710 Btuh
Req. total capacity at 0.70 SHR	3.8 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	1632 cfm
Air flow factor	0.039 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	1632 cfm
Air flow factor	0.051 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

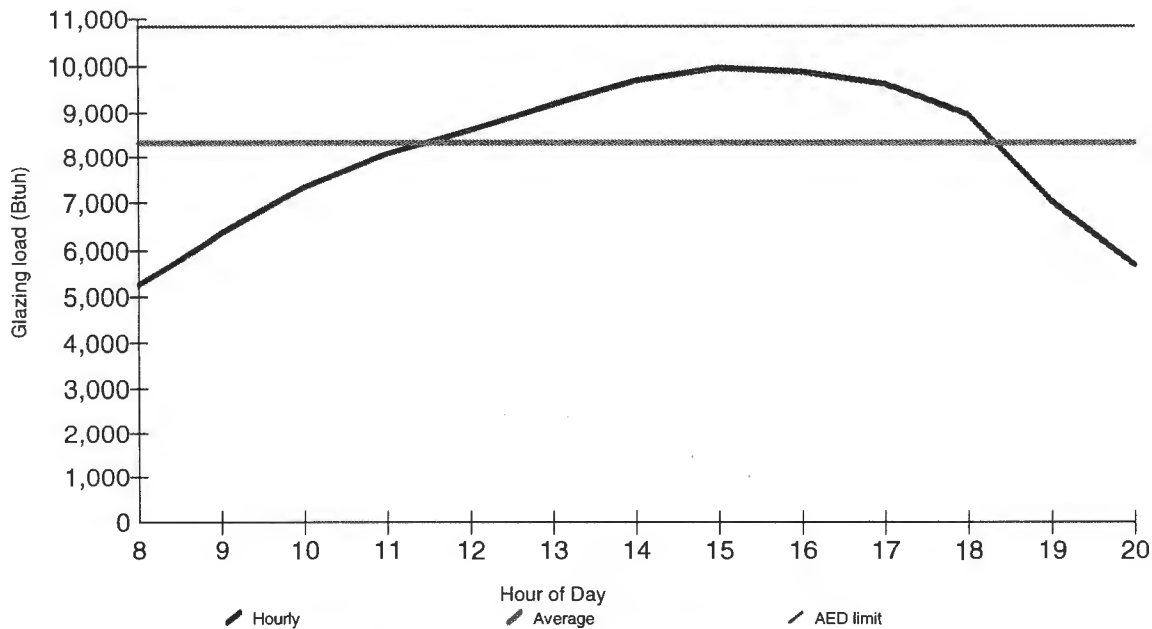
For: Strojny

Design Conditions

Location:		Indoor:		Heating	Cooling
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
Outdoor:		Heating	Cooling	Infiltration:	
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 19.5%.

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

AED excursion: 0 Btuh

Right-J® Worksheet Entire House

Job:

Date: May 15, 2014

By:

1	Room name				Entire House				Room1						
2	Exposed wall				222.0 ft				222.0 ft						
3	Room height				8.0 ft				8.0 ft						
4	Room dimensions				1.0 x 1861.0 ft				1.0 x 1861.0 ft						
5	Room area				1861.0 ft²				1861.0 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	12B-0bw	0.097	n	5.79	2.13	488	426	2467	907	488	426	2467	907	
	G	1D-c2ow	0.570	e	34.03	24.35	62	0	2110	1510	62	0	2110	1510	
	W	12B-0bw	0.097	e	5.79	2.13	400	368	2131	784	400	368	2131	784	
	G	1D-c2ow	0.570	s	34.03	66.39	32	0	1089	2124	32	0	1089	2124	
11	W	12B-0bw	0.097	s	5.79	2.13	488	395	2287	841	488	395	2287	841	
	G	1D-c2ow	0.570	s	34.03	35.87	51	0	1735	1829	51	0	1735	1829	
	D	11D0	0.390	s	23.28	13.94	42	42	978	586	42	42	978	586	
	W	12B-0bw	0.097	w	5.79	2.13	400	343	1986	730	400	343	1986	730	
	G	1D-c2ow	0.570	w	34.03	66.39	36	0	1225	2390	36	0	1225	2390	
	D	11D0	0.390	w	23.28	13.94	21	21	489	293	21	21	489	293	
	C	16B-30ad	0.032	-	1.91	1.90	1861	1861	3555	3528	1861	1861	3555	3528	
	F	19C-0bswp	0.368	-	1.45	0.57	1861	1861	2698	1067	1861	1861	2698	1067	
6	c) AED excursion									0				0	
	Envelope loss/gain								22751	16589			22751	16589	
12	a) Infiltration								5672	2242			5672	2242	
	b) Room ventilation								0	0			0	0	
13	Internal gains:				Occupants @	230	0			0	0	0		0	0
					Appliances/other					0				0	0
	Subtotal (lines 6 to 13)								28423	18831			28423	18831	
	Less external load								0	0			0	0	
	Less transfer								0	0			0	0	
	Redistribution								0	0			0	0	
14	Subtotal								28423	18831			28423	18831	
15	Duct loads						48%	69%	13695	12986	48%	69%	13695	12986	
	Total room load								42118	31817			42118	31817	
	Air required (cfm)								1632	1632			1632	1632	

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

Loads for Multiple Orientations Entire House

Job:
Date: May 15, 2014
By:

Project Information

For: Strojny

Design Conditions

Location:

Baltimore, MD, US
Elevation: 154 ft
Latitude: 39°N

Outdoor:

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

Heating

12
-
-
15.0

Cooling

94
19 (M)
75
7.5

Indoor:

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

Heating

72
60
30
26.8

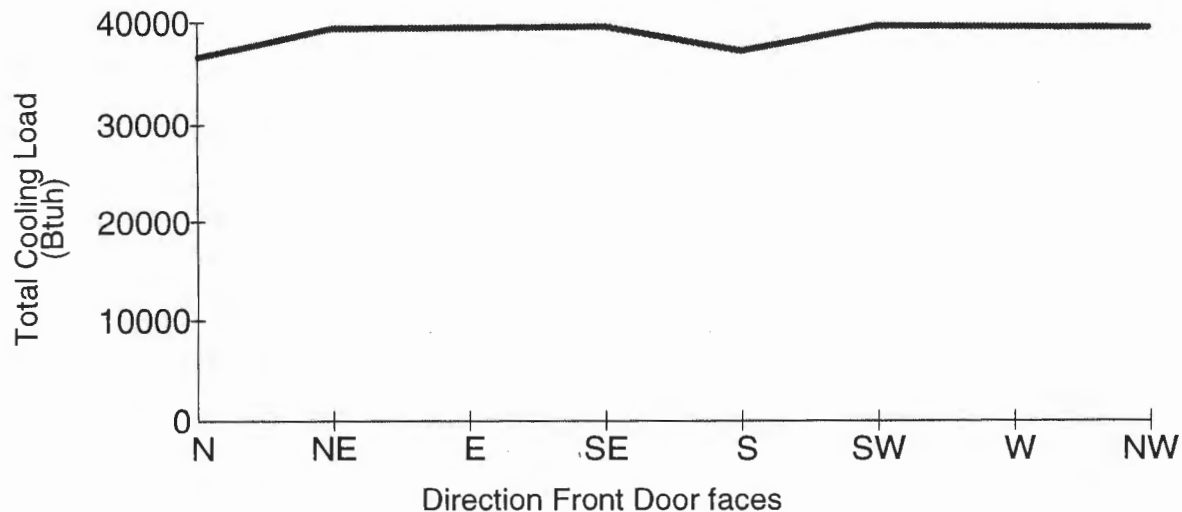
Cooling

70
24
50
47.0

Infiltration:

Front Door	North	Northeast	East	Southeast	South	Southwest	West	Northwest
Sensible Load (Btuh)	31817	34420	34451	34540	32308	34576	34519	34455
Latent Load (Btuh)	4893	5052	5052	5055	4952	5055	5055	5052
Total Load (Btuh)	36710	39471	39503	39595	37261	39631	39575	39507
Heating AVF (cfm)	1632	1777	1779	1781	1658	1784	1780	1779
Cooling AVF (cfm)	1632	1777	1779	1781	1658	1784	1780	1779

Building Orientation Cooling Load



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

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



Loads for Multiple Orientations Entire House

Job:
Date: May 15, 2014
By:

Project Information

For: Strojny

Design Conditions

Location:		Indoor:		Heating	Cooling
Baltimore, MD, US		Indoor temperature (°F)		72	70
Elevation: 154 ft		Design TD (°F)		60	24
Latitude: 39°N		Relative humidity (%)		30	50
Outdoor:	Heating	Cooling	Moisture difference (gr/lb)		
Dry bulb (°F)	12	94	26.8		47.0
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)	31817	34420	34451	34540	32308	34576	34519	34455
Latent Load (Btuh)	4893	5052	5052	5055	4952	5055	5055	5052
Total Load (Btuh)	36710	39471	39503	39595	37261	39631	39575	39507
Heating AVF (cfm)	1632	1777	1779	1781	1658	1784	1780	1779
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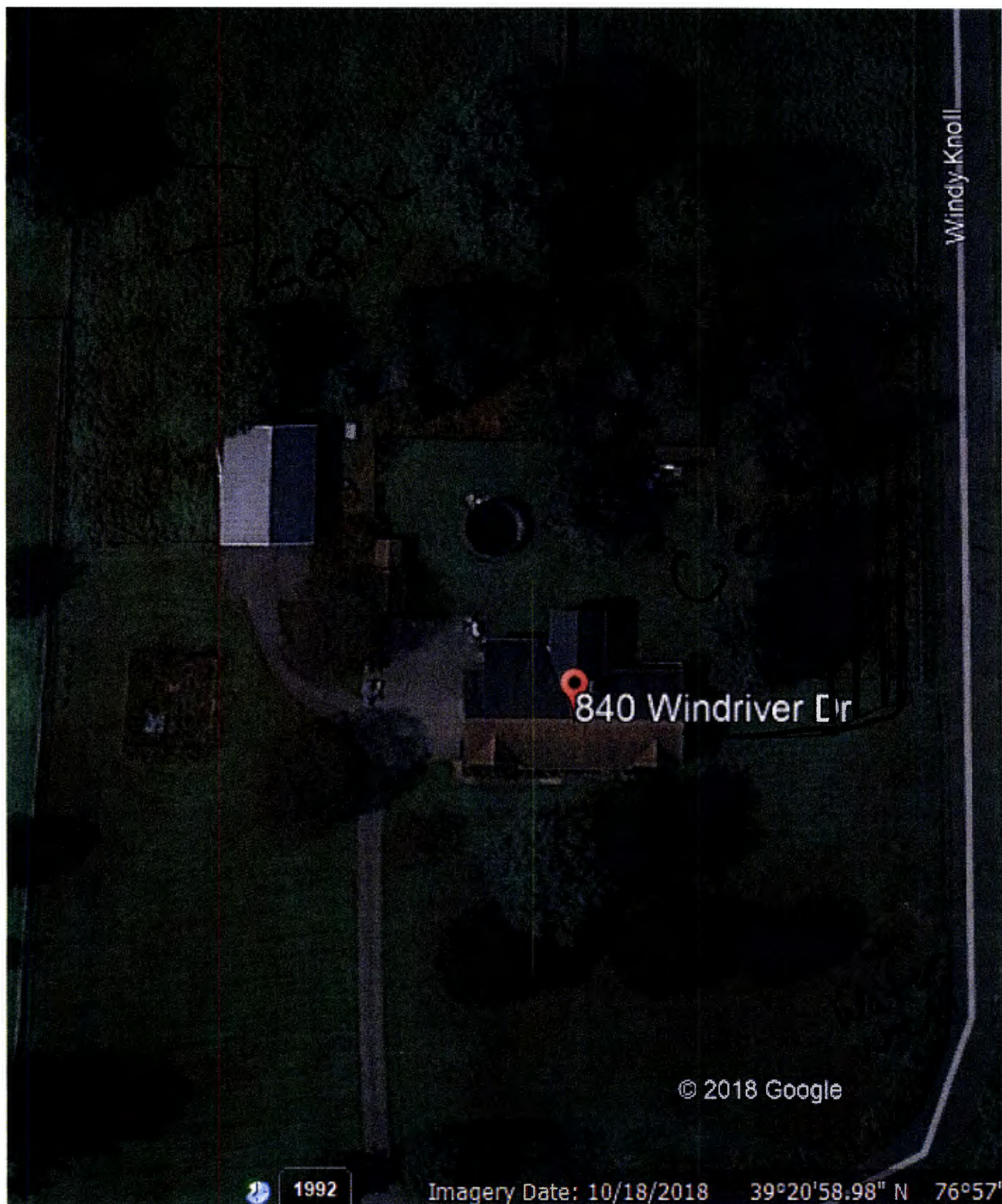
Building Orientation Cooling Load



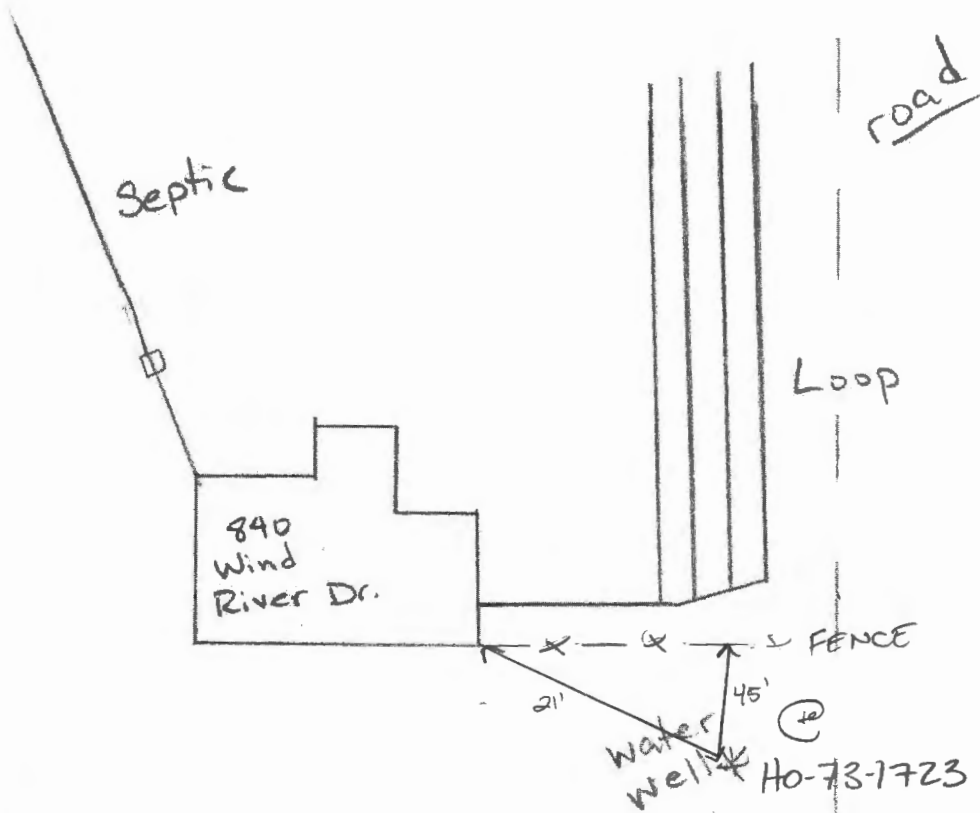
Current Orientation: Front Door faces North
Highest Cooling Load: Front Door faces Southwest

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

M19000731



Strojny
840 Windriver

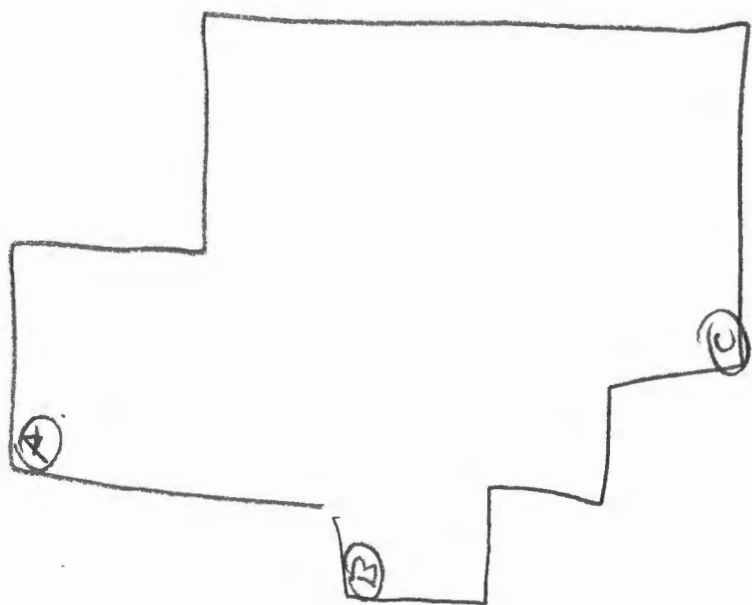


$2.75'' = 150'$
NOT TO SCALE ©

FILE INQUIRY NOTES

840 WIND RIVER DRIVE

[illegible]



1

2

3

3	2	1
	4	4
	50	8
	29	C

Wolf, Kevin

From: Wolf, Kevin
Sent: Thursday, September 05, 2019 2:59 PM
To: Tina Wallace
Subject: RE: Permits
Attachments: WS_WindriverDrive_840_Well-73-1723.pdf; WS_WindriverDrive_840_Building.pdf; WS_WindriverDrive_840_SepticPermit_1976.pdf

Tina,
(M19000731) 840 Windriver I need a site plan to scale showing the location of the loops, distance to existing well and septic components. I have attached the property file for your reference.

(M19000711) 8076 Hunterbrooke Lane I have approved.

Thanks,

Kevin M. Wolf, LEHS, REHS/RS
Groundwater Mgmt. Sec. Supervisor
Well & Septic Program
Bureau of Environmental Health
8930 Stanford Blvd.
Columbia, MD 21045
(o) 410-313-2645
(f) 410-313-2648



kwolf@howardcountymd.gov

CONFIDENTIALITY NOTICE

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From: Tina Wallace <tina@groundloop.com>
Sent: Thursday, September 05, 2019 7:07 AM
To: Wolf, Kevin <KWolf@howardcountymd.gov>
Subject: RE: Permits

[Note: This email originated from outside of the organization. Please only click on links or attachments if you know the sender.]

Good morning,

840 Windriver is horizontal loops and 8076 Hunterbrooke has existing vertical loops. We are just trying to expedite these 2 jobs in particular. Are you able to call with when the permits should be ready?

Thank you very much,

Tina Wallace
Service Administrator
Ground Loop Heating & Air, Inc.
410-836-1706
tina@groundloop.com

From: Wolf, Kevin <KWolf@howardcountymd.gov>
Sent: Wednesday, September 4, 2019 4:45 PM
To: tina@groundloop.com
Subject: Permits

Tina,
840 Windriver Drive and 8076 Hunterbrook Lane mechanical permits. Can you tell me if these are associated with vertical or horizontal loops?

Thanks,

Kevin M. Wolf, LEHS, REHS/RS
Groundwater Mgmt. Sec. Supervisor
Well & Septic Program
Bureau of Environmental Health
8930 Stanford Blvd.
Columbia, MD 21045
(o) 410-313-2645
(f) 410-313-2648



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