

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

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

HVACR PERMIT # M15000582  
BUILDING PERMIT #

BUILDING ADDRESS: SUITE/APT: OWNERS NAME: Keith Soldavin  
ADDRESS: 12840 Highland Rd.  
CITY: Highland  
STATE: MD ZIP CODE: 20777  
HOME PHONE: 240-381-4184 WORK PHONE:  
PROPERTY ID: MAP COORDINATES:  
TYPE OF IMPROVEMENTS: USE:

CHECK ONE	HOW MANY	COMPANY NAME:
SINGLE FAMILY DWELLING <input checked="" type="checkbox"/>	<u>1</u> ZONES	<u>Watervale Heating &amp; Air cond.</u>
SINGLE FAMILY TOWNHOUSE <input type="checkbox"/>	_____ ZONES	LICENSEE NAME: <u>Joseph F. Oplyke</u>
MULTI-FAMILY / HOTEL/MOTEL <input type="checkbox"/>	_____ ROOMS	ADDRESS: <u>2116 Watervale Rd.</u>
ASSISTED LIVING HOMES (16 OR FEWER RESIDENTS) <input type="checkbox"/>	_____ ROOMS	CITY: <u>Fallston</u>
		STATE: <u>MD</u> ZIP CODE: <u>21047</u>
		PHONE: <u>410-879-0292</u> HVACR LICENSE NO: <u>7629</u>

New  
 Heating and Air Conditioning  
 Geo Thermal System  
 Heating System Only  
 Ductless Mini Splits  
 Other Work (Describe):  
 Thru The Wall Systems

Water Furnace NVV060 (ston) geothermal unit Replacement

Heating  
 Air Conditioning  
 Heating and Air Conditioning

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	Rooms
Permit Fee = # of Zones x \$40 = <u>40.00</u>	Permit Fee = # of Rooms x \$80 = _____
Technology Fee (10% of Permit Fee) = <u>4.00</u>	Technology Fee (10% of Permit Fee) = _____
Plus Application Fee <u>50.00</u>	Plus Application Fee \$50 <u>50.00</u>
Total Fees Due = <u>94.00</u>	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.

Joseph F. Oplyke  
SIGNATURE OF LICENSEE DATE \_\_\_\_\_  
Joseph F. Oplyke  
PRINT NAME OF LICENSEE  
watervale hvac@verizon.net  
Email Address

**Validation**  
 Check Number: 22254  
 Cash: \_\_\_\_\_  
 Receipt Number: 705499

**RECEIVED**  
 JUN 12 2015  
 LICENSES & PERMITS  
 DIVISION

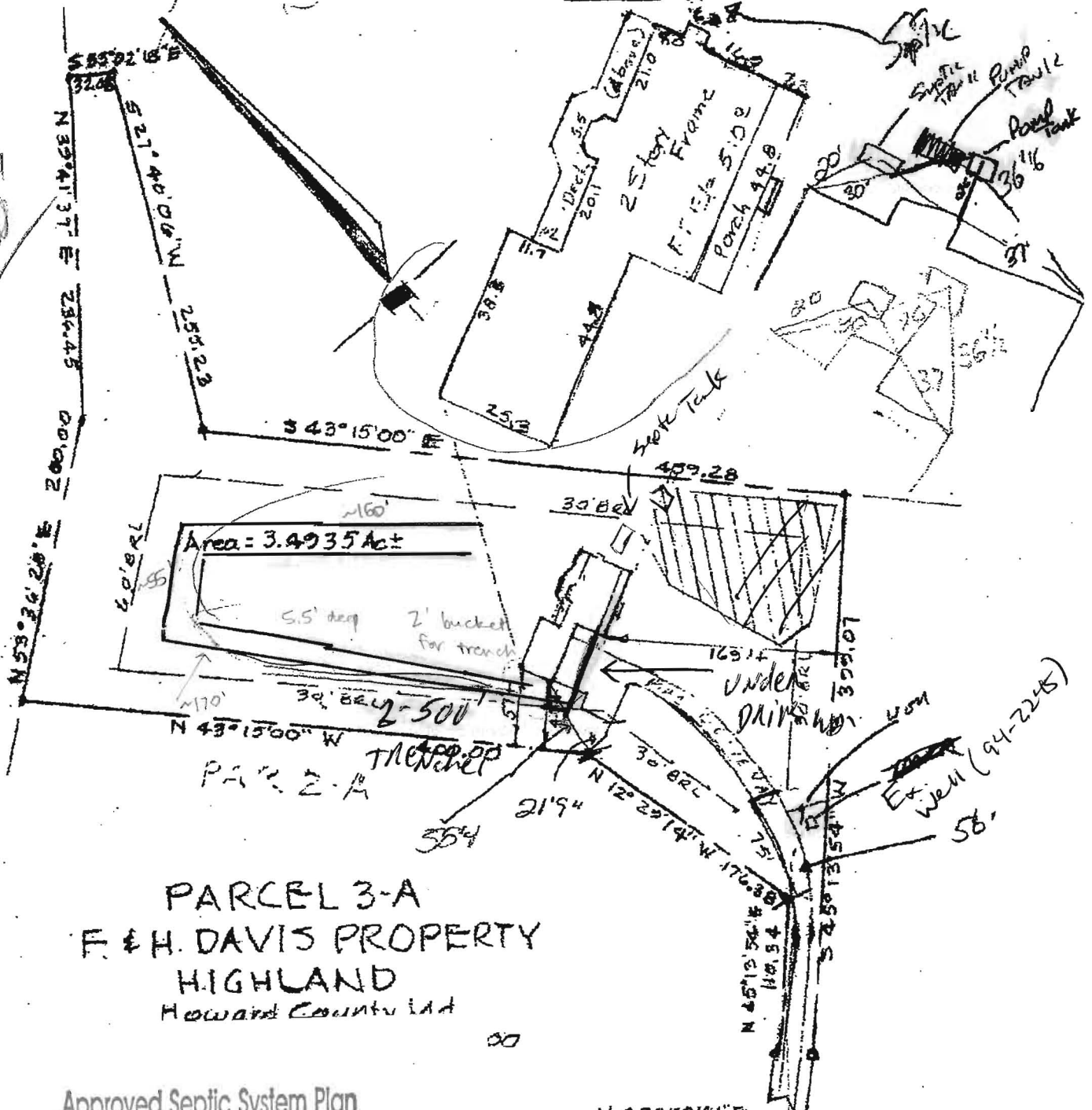
Make check payable to: DIRECTOR OF FINANCE OF HOWARD COUNTY

Word doc: T:\Updated Formshvac application  
Rev: 10.2609

John M. Hoff, well + septic  
LENS

MIS000580 2

Note: This is a building and improvement plat only and should not be used to establish property lines.



PARCEL 3-A  
 F. & H. DAVIS PROPERTY  
 HIGHLAND  
 Howard County Md

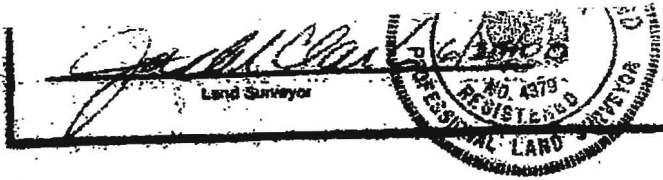
Approved Septic System Plan  
 Howard County Health Department

*[Signature]*  
 Signature      7/15/15  
 Date

HIGHLAND ROAD  
 520± to M.D. RTE 108

**THE J. E. CLARK COMPANY**  
 LAND SURVEYING ENGINEERING

P.O. BOX 147 • LAUREL, MARYLAND 20707



M15000584

*Keith Soldavin*  
*HVAC Load Calculations*

for

Keith Soldavin  
12840 Highland , Rd.  
Highland, Md. 20777

**Elite Software**

RHVAC RESIDENTIAL  
HVAC LOADS

Prepared By:

Joe Opdyke  
Watervale Heating & A.C.  
2116 Watervale, Rd.  
Fallston, Md. 21047  
410-879-0292  
Tuesday, June 09, 2015



## Project Report

### General Project Information

Project Title: Keith Soldavin  
 Designed By: Joe Opdyke  
 Project Date: Tuesday, May 26, 2015  
 Client Name: Keith Soldavin  
 Client Address: 12840 Highland , Rd.  
 Client City: Highland, Md. 20777  
 Client Phone: 240-381-4148  
 Company Name: Watervale Heating & A.C.  
 Company Representative: Joe Opdyke  
 Company Address: 2116 Watervale, Rd.  
 Company City: Fallston, Md. 21047  
 Company Phone: 410-879-0292  
 Company Fax: 410-803-0223

### Design Data

Reference City: Baltimore, Maryland  
 Daily Temperature Range: Medium  
 Latitude: 39 Degrees  
 Elevation: 148 ft.  
 Altitude Factor: 0.995  
 Elevation Sensible Adj. Factor: 1.000  
 Elevation Total Adj. Factor: 1.000  
 Elevation Heating Adj. Factor: 1.000  
 Elevation Heating Adj. Factor: 1.000

	Outdoor Dry Bulb	Outdoor Wet Bulb	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	5	0	30	72	29
Summer:	95	75	50	75	34

### Check Figures

Total Building Supply CFM:	2,723	CFM Per Square ft.:	0.763
Square ft. of Room Area:	3,569	Square ft. Per Ton:	539
Volume (ft <sup>3</sup> ) of Cond. Space:	32,121	Air Turnover Rate (per hour):	5.1

### Building Loads

Total Heating Required With Outside Air:	66,932 Btuh	66.932 MBH
Total Sensible Gain:	59,584 Btuh	94 %
Total Latent Gain:	3,894 Btuh	6 %
Total Cooling Required With Outside Air:	63,478 Btuh	5.29 Tons (Based On Sensible + Latent)
		6.62 Tons (Based On 75% Sensible Capacity)

### Notes

Calculations are based on 8th edition of ACCA Manual J.  
 All computed results are estimates as building use and weather may vary.  
 Be sure to select a unit that meets both sensible and latent loads.



Load Preview Report

Scope	Has AED	Net Ton	Rec Ton	ft. <sup>2</sup> /Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building		5.29	6.62	539	3,569	59,584	3,894	63,478	66,932	874	2,723	2,723	
System 1	Yes	2.76	3.51	638	2,236	31,562	1,616	33,178	32,275	421	1,442	1,442	14x17
Zone 1					1,118	6,012	194	6,206	9,739	127	275	275	7x7
1-Basement					1,118	6,012	194	6,206	9,739	127	275	275	2-7
Zone 2					1,118	30,476	1,422	31,898	22,536	294	1,393	1,393	12x19
2-First Floor					1,118	30,476	1,422	31,898	22,536	294	1,393	1,393	13-6
System 2	Yes	2.53	3.11	428	1,333	28,022	2,278	30,300	34,657	453	1,281	1,281	12x18
Duct Latent							1,213	1,213					
Zone 1					1,333	28,022	1,065	29,087	34,657	453	1,281	1,281	12x18
3-Second Floor					1,333	28,022	1,065	29,087	34,657	453	1,281	1,281	12-6

Sum of room airflows may be greater than system airflow because system has multiple zones.



Detailed Room Loads - Room 1 - Basement (Peak Fenestration Gain Procedure)

General

Room is in zone 1, which peaks at 10 am

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	43.0 ft.	System Number:	1
Room Width:	26.0 ft.	Zone Number:	1
Area:	1,118.0 sq.ft.	Supply Air:	275 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	1.6 AC/hr
Volume:	10,062.0 cu.ft.	Required Vent.:	0 CFM
Number of Registers:	2	Actual Winter Vent.:	0 CFM
Runout Air:	0 CFM	Percent of Supply.:	0 %
Runout Duct Size:	7 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	514 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	514 ft./min.	Actual Winter Infil.:	16 CFM
Actual Loss:	0.136 in.wg./100 ft.	Actual Summer Infil.:	8 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
N -Wall-15A-8sffc-10 26 X 9	234	0.044	2.9	690	0.0	0	0
W -Wall-15A-6sffc-10 43 X 9	387	0.049	3.3	1,271	0.0	0	0
S -Wall-15A-6sffc-10 26 X 9	234	0.049	3.3	768	0.0	0	0
E -Wall-13CB-0ocw 43 X 9	325	0.083	5.6	1,807	1.4	0	459
E -Gls-1D-cw-o shgc-0.56 0%S	20	0.570	38.2	764	86.6	0	1,732
E -Gls-1D-cw-o shgc-0.56 0%S	42	0.570	38.2	1,604	86.6	0	3,638
Floor-21A-28 26 X 43	1118	0.022	1.5	1,648	0.0	0	0
Subtotals for Structure:				8,552		0	5,829
Infil.: Win.: 16.2, Sum.: 8.4	387		3.067	1,187	0.473	194	183
Room Totals:				9,739		194	6,012



*Detailed Room Loads - Room 2 - First Floor (Peak Fenestration Gain Procedure)*

**General**

Room is in zone 2, which peaks at 5 pm

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	43.0 ft.	System Number:	1
Room Width:	26.0 ft.	Zone Number:	2
Area:	1,118.0 sq.ft.	Supply Air:	1,393 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	8.3 AC/hr
Volume:	10,062.0 cu.ft.	Required Vent.:	0 CFM
Number of Registers:	13	Actual Winter Vent.:	0 CFM
Runout Air:	0 CFM	Percent of Supply.:	0 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	546 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	546 ft./min.	Actual Winter Infil.:	52 CFM
Actual Loss:	0.190 in.wg./100 ft.	Actual Summer Infil.:	27 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-12E-0sw 43 X 9	239	0.068	4.6	1,089	1.5	0	364
N -Wall-12E-0sw 26 X 9	234	0.068	4.6	1,066	1.5	0	356
W -Wall-12E-0sw 43 X 9	191	0.068	4.6	870	1.5	0	291
S -Wall-12E-0sw 26 X 9	192	0.068	4.6	875	1.5	0	292
S -Door-11J 6 X 7	42	0.600	40.2	1,688	18.6	0	781
E -Gls-1D-cw-o shgc-0.56 0%S	148	0.570	38.2	5,652	41.3	0	6,115
W -Gls-1D-cw-o shgc-0.56 0%S	148	0.570	38.2	5,652	99.8	0	14,777
W -Gls-1D-cw-o shgc-0.56 0%S	48	0.570	38.2	1,833	99.9	0	4,793
Subtotals for Structure:				18,725		0	27,769
Infil.: Win.: 52.0, Sum.: 26.8	1,242		3.068	3,811	0.473	622	587
People: 200 lat/per, 230 sen/per:	4					800	920
Equipment:						0	1,200
Room Totals:				22,536		1,422	30,476



*Detailed Room Loads - Room 3 - Second Floor (Average Load Procedure)*

**General**

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	43.0 ft.	System Number:	2
Room Width:	31.0 ft.	Zone Number:	1
Area:	1,333.0 sq.ft.	Supply Air:	1,281 CFM
Ceiling Height:	9.0 ft.	Supply Air Changes:	6.4 AC/hr
Volume:	11,997.0 cu.ft.	Required Vent.:	0 CFM
Number of Registers:	12	Actual Winter Vent.:	0 CFM
Runout Air:	0 CFM	Percent of Supply:	0 %
Runout Duct Size:	6 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	543 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	543 ft./min.	Actual Winter Infil.:	90 CFM
Actual Loss:	0.188 in.wg./100 ft.	Actual Summer Infil.:	46 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-12E-0sw 43 X 9	277	0.068	4.6	1,262	1.5	0	422
N -Wall-12E-0sw 31 X 9	279	0.068	4.6	1,271	1.5	0	425
W -Wall-12E-0sw 43 X 9	276	0.068	4.6	1,257	1.5	0	420
S -Wall-12E-0sw 31 X 9	279	0.068	4.6	1,271	1.5	0	425
E -Gls-1D-cw-o shgc-0.56 0%S	110	0.570	38.2	4,201	64.4	0	7,079
W -Gls-1D-cw-o shgc-0.56 0%S	111	0.570	38.2	4,239	64.4	0	7,143
UP-Ceil-16A-30 43 X 31	1333	0.032	2.1	2,858	2.4	0	3,199
Floor-20P-19 17 X 13	221	0.050	3.4	740	0.8	0	166
Subtotals for Structure:				17,099		0	19,279
Infil.: Win.: 90.0, Sum.: 46.0	1,332		4.952	6,596	0.755	1,065	1,006
Ductwork:				10,962			7,737
Room Totals:				34,657		1,065	28,022