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 # M18000595

BUILDING PERMIT # Geothermal

BUILDING ADDRESS: 6441 Lochridge Rd. SUITE/APT:

SUBDIVISION:
CENSUS TRACT: SECTION: AREA:
LOT: TAX MAP: PARCEL:
BLOCK: ZONE:

PROPERTY ID: MAP COORDINATES:

TYPE OF IMPROVEMENTS: USE:

OWNERS NAME: Woody Medina
ADDRESS: 6441 Lochridge, Rd.
CITY: Columbia
STATE: MD. ZIP CODE: 21044
HOME PHONE: 240-475-3526 WORK PHONE:

	CHECK ONE	HOW MANY
SINGLE FAMILY DWELLING	☑	1 ZONES
SINGLE FAMILY TOWNHOUSE	☐	____ ZONES
MULTI-FAMILY / HOTEL/MOTEL	☐	____ ROOMS
ASSISTED LIVING HOMES (16 OR FEWER RESIDENTS)	☐	____ ROOMS

COMPANY NAME: Waterdale Heating & A.C.
LICENSEE NAME: Joseph F. Opdyke
ADDRESS: 2116 Waterdale Rd.
CITY: Fallston
STATE: MD. ZIP CODE: 21047
PHONE: 410-879-0292 HVACR LICENSE NO: 7629

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

Water Furnace Geothermal Unit
NDV049H102CTL0BN
4 TON

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 = ____
Technology Fee (10% of Permit Fee) = ____
Plus Application Fee $50.00
Total Fees Due = ____

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.

Joseph F. Opdyke
SIGNATURE OF LICENSEE DATE

Joseph F. Opdyke
PRINT NAME OF LICENSEE

waterdale geo@gmail.com
Email Address

Make check payable to: DIRECTOR OF FINANCE OF HOWARD COUNTY

Validation
Check Number: 25252
Cash: ____
Receipt Number: 5405761

Approved HVAC System Plan
Howard County Health Department
Signature
11/18/10
Date

RECEIVED
NOV 17 2010
LICENSES & PERMITS DIVISION

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

M18000595

Woody Medina
HVAC Load Calculations

for

Woody Medina
6441 Lochridge, Rd.
Colimbia, Md. 21044

Elite Software

RHVAC RESIDENTIAL HVAC LOADS

Prepared By:

Monday, June 18, 2018

Project Report

General Project Information

Project Title:	Woody Medina
Project Date:	Monday, June 18, 2018
Client Name:	Woody Medina
Client Address:	6441 Lochridge, Rd.
Client City:	Colimbia, Md. 21044
Client Phone:	240-475-3526

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:	1,071	CFM Per Square ft.:	0.380
Square ft. of Room Area:	2,816	Square ft. Per Ton:	1,081
Volume (ft³) of Cond. Space:	22,528	Air Turnover Rate (per hour):	2.9

Building Loads

Total Heating Required With Outside Air:	35,431 Btuh	35.431	MBH
Total Sensible Gain:	23,442 Btuh	92	%
Total Latent Gain:	2,072 Btuh	8	%
Total Cooling Required With Outside Air:	25,514 Btuh	2.13	Tons (Based On Sensible + Latent)
		2.60	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.² /Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building		2.13	2.60	1,081	2,816	23,442	2,072	25,514	35,431	463	1,071	1,071	
System 1	No	2.13	2.60	1,081	2,816	23,442	2,072	25,514	35,431	463	1,071	1,071	12x16
Zone 1					1,408	2,409	221	2,630	11,423	149	110	110	5x5
1-Basement					1,408	2,409	221	2,630	11,423	149	110	110	1-6
Zone 2					1,408	23,426	1,851	25,277	24,008	313	1,071	1,071	12x16
2-First Floor					1,408	23,426	1,851	25,277	24,008	313	1,071	1,071	10-6

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:	44.0	ft.	System Number:	1	
Room Width:	32.0	ft.	Zone Number:	1	
Area:	1,408.0	sq.ft.	Supply Air:	110	CFM
Ceiling Height:	8.0	ft.	Supply Air Changes:	0.6	AC/hr
Volume:	11,264.0	cu.ft.	Required Vent.:	0	CFM
Number of Registers:	1		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:	561	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	561	ft./min.	Actual Winter Infil.:	19	CFM
Actual Loss:	0.200	in.wg./100 ft.	Actual Summer Infil.:	10	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-15A-2sffc-6 39 X 1	39	0.084	5.6	219	0.0	0	0
N -Wall-15A-2sffc-6 32 X 8	256	0.084	7.4	1,887	1.1	0	270
W -Wall-15A-2sffc-6 44 X 8	352	0.084	7.4	2,594	1.1	0	371
S -Wall-15A-2sffc-6 32 X 8	256	0.084	7.4	1,887	1.1	0	270
E -Wall-13AA-0oc 5 X 8	11	0.584	39.1	430	13.1	0	144
E -Door-11J 3 X 7	21	0.600	40.2	844	18.6	0	391
E -Gls-1D-cw-o shgc-0.56 0%S	8	0.570	38.2	306	86.6	0	693
Floor-21A-32 32 X 44	1408	0.020	1.3	1,887	0.0	0	0
Subtotals for Structure:				10,054		0	2,139
Infil.: Win.: 18.7, Sum.: 9.5	256		5.348	1,369	0.816	221	209
AED Excursion:							61
Room Totals:				11,423		221	2,409

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:	44.0	ft.	System Number:	1	
Room Width:	32.0	ft.	Zone Number:	2	
Area:	1,408.0	sq.ft.	Supply Air:	1,071	CFM
Ceiling Height:	8.0	ft.	Supply Air Changes:	5.7	AC/hr
Volume:	11,264.0	cu.ft.	Required Vent.:	0	CFM
Number of Registers:	10		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:	545	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	545	ft./min.	Actual Winter Infil.:	89	CFM
Actual Loss:	0.189	in.wg./100 ft.	Actual Summer Infil.:	45	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-12B-0sw 44 X 8	291	0.097	6.5	1,891	2.8	0	821
N -Wall-12B-0sw 32 X 8	256	0.097	6.5	1,664	2.8	0	723
W -Wall-12B-0sw 44 X 8	250	0.097	6.5	1,625	2.8	0	706
S -Wall-12B-0sw 32 X 8	214	0.097	6.5	1,391	2.8	0	604
S -Door-11J 6 X 7	42	0.600	40.2	1,688	18.6	0	781
W -Gls-1D-cw-o shgc-0.56 0%S	42	0.570	38.2	1,604	99.9	0	4,194
E -Gls-1D-cw-o shgc-0.56 0%S	61	0.570	38.2	2,330	41.3	0	2,520
W -Gls-1D-cw-o shgc-0.56 0%S	60	0.570	38.2	2,291	99.9	0	5,991
UP-Ceil-16A-30 44 X 32	1408	0.032	2.1	3,019	2.4	0	3,379
Subtotals for Structure:				17,503		0	19,719
Infil.: Win.: 88.7, Sum.: 45.4	1,216		5.350	6,505	0.816	1,051	992
AED Excursion:							595
People: 200 lat/per, 230 sen/per:	4					800	920
Equipment:						0	1,200
Room Totals:				24,008		1,851	23,426

M 18000595

Waterwise Geothermal
410-879-0292

H02-
Geothermal
Loops.

4- 100'
long
Trenches.
6' Deep