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 # M18000227

BUILDING PERMIT #

BUILDING ADDRESS: 12905 Linden Church Road **SUITE/APT:**

SUBDIVISION: 0000
CENSUS TRACT: **SECTION:** **AREA:**
LOT: **TAX MAP:** **PARCEL:** 0130
BLOCK: **ZONE:**

PROPERTY ID: 57446 **MAP COORDINATES:**

TYPE OF IMPROVEMENTS: **USE:**

OWNERS NAME: Marius Nefliu

ADDRESS: 12905 Linden Church Road
Clarksville, MD 21029

CITY:

STATE: **ZIP CODE:**

HOME PHONE: **WORK PHONE:**

	CHECK ONE	HOW MANY
SINGLE FAMILY DWELLING	☐	2 ZONES
SINGLE FAMILY TOWNHOUSE	☐	____ ZONES
MULTI-FAMILY / HOTEL/MOTEL	☐	____ ROOMS
ASSISTED LIVING HOMES (16 OR FEWER RESIDENTS)	☐	____ ROOMS

COMPANY NAME: Tri-State Home Services LLC
LICENSEE NAME: Steven Norwood
ADDRESS: 82A Wormans Mill Road
CITY: Frederick
STATE: MD **ZIP CODE:** 21701
PHONE: 301-624-5970 **HVACR LICENSE NO:** 4551

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

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
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.

SIGNATURE OF LICENSEE — DATE 4/2/18

Steven Norwood
PRINT NAME OF LICENSEE

lisa.spielman@tristatehomeservices.com
Email Address

Make check payable to: DIRECTOR OF FINANCE OF HOWARD COUNTY

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

Approved Septic System Plan
Howard County Health Department

4/12/18
Date

Signature

Validation
Check Number: 3024
Cash:
Receipt Number: 527838

RECEIVED
APR 02 2018
LICENSES & PERMITS DIVISION

Health* * John Vogt LEHS

M18000227

Nefilu

12905 Linden Church Rd
Clarksville, MD 21701

Climate Master Geo

2 TON Heat Pump - SP-CTEP026AGD02 ANN

2 " Air Handler - CTAH026CGSMAS

3 Ton - Heat Pump - CTEP038BGD02ANNS

3 TON - Air Handler -

CTAH038CGSMBS

M18000227

HVAC Load Calculations

for

Nefilu
12905 Linden Church Rd
Clarksville, MD 21029

Prepared By:

Steven Norwood - MD HVAC 4551
Tri-State Home Services
82 Wormans Mill Ct. Suite A
Frederick, MD 21701
301-624-5970
Wednesday, March 28, 2018

Rhvac is an ACCA approved Manual J and Manual D computer program.
Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.

Project Report

General Project Information

Project Title:	
Client Name:	Nefilu
Client Address:	12905 Linden Church Rd
Client City:	Clarksville, MD 21029
Company Name:	Tri-State Home Services
Company Representative:	Steven Norwood - MD HVAC 4551
Company Address:	82 Wormans Mill Ct. Suite A
Company City:	Frederick, MD 21701
Company Phone:	301-624-5970
Company Fax:	301-624-5978
Company E-Mail Address:	bert.jr@tristatehomeservices.com
Company Website:	www.TriStateHomeServices.com

Design Data

Reference City:		Balitimore AP, Maryland
Building Orientation:		Front door faces North
Daily Temperature Range:		Medium
Latitude:	39	Degrees
Elevation:	148	ft.
Altitude Factor:	0.995	

	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel.Hum	Indoor Rel.Hum	Indoor Dry Bulb	Grains Difference
Winter:	15	13.77	n/a	n/a	70	n/a
Summer:	91	74	45%	50%	75	35

Check Figures

Total Building Supply CFM:	1,600	CFM Per Square ft.:	0.403
Square ft. of Room Area:	3,968	Square ft. Per Ton:	1,027
Volume (ft³):	32,551		

Building Loads

Total Heating Required Including Ventilation Air:	58,453	Btuh	58.453	MBH
Total Sensible Gain:	41,213	Btuh	89	%
Total Latent Gain:	5,130	Btuh	11	%
Total Cooling Required Including Ventilation Air:	46,343	Btuh	3.86	Tons (Based On Sensible + Latent)

Notes

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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 according to the manufacturer's performance data at your design conditions.

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
4A-6-o: Glazing-Double pane low-e (e = 0.20 or less), high performance, operable window, e=0.05 on surface 2, any frame, light color drapes with medium weave with 25% coverage, u-value 0.33, SHGC 0.33	637.7	11,574	0	14,815	14,815
8E20-swi: Glazing-Skylight, Flat double pane low-e (e = 0.20), small curb, wood sash, curb R-6 or more, light shaft R-6 or more, horizontal, u-value 0.5, SHGC 0.61	32	880	0	4,300	4,300
11G: Door-Wood - Panel	37.8	1,123	0	552	552
12B-0bw: Wall-Frame, R-11 insulation in 2 x 4 stud cavity, no board insulation, brick finish, wood studs	2467.5	13,161	0	3,281	3,281
15B11-0w-4: Wall-Basement, , framing with R-11 sill to floor in 2 x 4 cavity, core, no board insulation, plus interior finish, wood studs, 4' floor depth	1156.9	5,188	0	748	748
16B-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic, No Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	1956	2,799	0	2,594	2,594
20P-19: Floor-Over open crawl space or garage, Passive, R-19 blanket insulation, any cover	567.1	1,559	0	311	311
Subtotals for structure:		36,284	0	26,601	26,601
People:	7		1,400	1,610	3,010
Equipment:			0	2,400	2,400
Lighting:	0			0	0
Ductwork:		10,088	1,312	7,865	9,177
Infiltration: Winter CFM: 201, Summer CFM: 103		12,081	2,418	1,804	4,222
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	933	933
Total Building Load Totals:		58,453	5,130	41,213	46,343

Check Figures

Total Building Supply CFM:	1,600	CFM Per Square ft.:	0.403
Square ft. of Room Area:	3,968	Square ft. Per Ton:	1,027
Volume (ft³):	32,551		

Building Loads

Total Heating Required Including Ventilation Air:	58,453 Btuh	58.453 MBH	
Total Sensible Gain:	41,213 Btuh	89 %	
Total Latent Gain:	5,130 Btuh	11 %	
Total Cooling Required Including Ventilation Air:	46,343 Btuh	3.86	Tons (Based On Sensible + Latent)

Notes

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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 according to the manufacturer's performance data at your design conditions.

System 1 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
4A-6-o: Glazing-Double pane low-e (e = 0.20 or less), high performance, operable window, e=0.05 on surface 2, any frame, light color drapes with medium weave with 25% coverage, u-value 0.33, SHGC 0.33	436.8	7,926	0	10,068	10,068
8E20-swl: Glazing-Skylight, Flat double pane low-e (e = 0.20), small curb, wood sash, curb R-6 or more, light shaft R-6 or more, horizontal, u-value 0.5, SHGC 0.61	32	880	0	4,300	4,300
11G: Door-Wood - Panel	37.8	1,123	0	552	552
12B-0bw: Wall-Frame, R-11 insulation in 2 x 4 stud cavity, no board insulation, brick finish, wood studs	1050.6	5,604	0	1,396	1,396
15B11-0w-4: Wall-Basement, , framing with R-11 sill to floor in 2 x 4 cavity, core, no board insulation, plus interior finish, wood studs, 4' floor depth	1156.9	5,188	0	748	748
16B-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic, No Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	287.5	411	0	381	381
20P-19: Floor-Over open crawl space or garage, Passive, R-19 blanket insulation, any cover	276.5	760	0	151	151
Subtotals for structure:		21,892	0	17,596	17,596
People:	7		1,400	1,610	3,010
Equipment:			0	1,200	1,200
Lighting:	0			0	0
Ductwork:		0	0	0	0
Infiltration: Winter CFM: 108, Summer CFM: 56		6,506	1,303	972	2,275
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	910	910
System 1 Load Totals:		28,398	2,703	22,288	24,991

Check Figures

Supply CFM:	800	CFM Per Square ft.:	0.348
Square ft. of Room Area:	2,299	Square ft. Per Ton:	1,104
Volume (ft³):	17,534		

System Loads

Total Heating Required Including Ventilation Air:	28,398 Btuh	28.398 MBH	
Total Sensible Gain:	22,288 Btuh	89 %	
Total Latent Gain:	2,703 Btuh	11 %	
Total Cooling Required Including Ventilation Air:	24,991 Btuh	2.08	Tons (Based On Sensible + Latent)

Notes

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Calculations are performed per ACCA Manual J 8th Edition, Version 2, and ACCA Manual D.
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 according to the manufacturer's performance data at your design conditions.

System 2 Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
4A-6-o: Glazing-Double pane low-e (e = 0.20 or less), high performance, operable window, e=0.05 on surface 2, any frame, light color drapes with medium weave with 25% coverage, u-value 0.33, SHGC 0.33	200.9	3,648	0	4,747	4,747
12B-0bw: Wall-Frame, R-11 insulation in 2 x 4 stud cavity, no board insulation, brick finish, wood studs	1416.8	7,557	0	1,885	1,885
16B-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Vented Attic, No Radiant Barrier, Dark Asphalt Shingles or Dark Metal, Tar and Gravel or Membrane, R-38 insulation	1668.5	2,388	0	2,213	2,213
20P-19: Floor-Over open crawl space or garage, Passive, R-19 blanket insulation, any cover	290.6	799	0	160	160
Subtotals for structure:		14,392	0	9,005	9,005
People:	0		0	0	0
Equipment:			0	1,200	1,200
Lighting:	0			0	0
Ductwork:		10,088	1,312	7,865	9,177
Infiltration: Winter CFM: 93, Summer CFM: 48		5,575	1,115	832	1,947
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	23	23
System 2 Load Totals:		30,055	2,427	18,925	21,352

Check Figures

Supply CFM:	800	CFM Per Square ft.:	0.479
Square ft. of Room Area:	1,669	Square ft. Per Ton:	938
Volume (ft³):	15,017		

System Loads

Total Heating Required Including Ventilation Air:	30,055	Btuh	30.055	MBH
Total Sensible Gain:	18,925	Btuh	89	%
Total Latent Gain:	2,427	Btuh	11	%
Total Cooling Required Including Ventilation Air:	21,352	Btuh	1.78	Tons (Based On Sensible + Latent)

Notes

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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 according to the manufacturer's performance data at your design conditions.

System 1 Room Load Summary

No	Room Name	Area SF	Htg Sens Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Act Sys CFM
---Zone 1---										
1	Great Room	1,225	12,138	158	5-6	530	14,487	1,974	662	520
2	Mudroom	78	2,576	34	1-4	530	1,288	114	59	46
3	PDR	37	1,297	17	1-4	393	956	59	44	34
4	Dining	161	3,537	46	1-5	614	2,331	132	107	84
5	Basement	798	8,850	116	2-4	663	3,226	424	147	116
	System 1 total	2,299	28,398	371			22,288	2,703	1,019	800

System 1 Main Trunk Size: 10x15 in.
Velocity: 768 ft./min
Loss per 100 ft.: 0.104 in.wg

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	2.08	89% / 11%	22,288	2,703	24,991

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh

System 2 Room Load Summary

No	Room Name	Area SF	Htg Sens Btuh	Min Htg CFM	Run Duct Size	Run Duct Vel	Clg Sens Btuh	Clg Lat Btuh	Min Clg CFM	Act Sys CFM
---Zone 1---										
6	Master Bedroom	380	5,125	67	2-5	487	2,425	220	111	133
7	MWIC	41	737	10	1-4	131	209	39	10	11
8	Master Bath	160	3,152	41	1-5	568	1,413	146	65	77
9	WC	22	492	6	1-4	84	134	26	6	7
10	Bedroom 4	198	2,107	28	1-5	626	1,558	71	71	85
11	WIC 4	38	732	10	1-4	128	204	39	9	11
12	Bedroom 3	217	4,992	65	2-4	701	2,231	225	102	122
13	Bedroom 2	149	4,115	54	2-5	488	2,428	144	111	133
14	WIC 2	40	1,463	19	1-4	224	357	73	16	20
15	J&J Baht	70	135	2	1-4	77	123	0	6	7
16	Bath 2	45	835	11	1-4	146	233	34	11	13
17	Laundry	307	2,786	36	2-6	458	3,280	98	150	180
	Duct Latent							248		
	Return Duct		3,384				4,332	1,064		
	System 2 total	1,669	30,055	348			18,925	2,427	667	800

System 2 Main Trunk Size: 10x15 in.
Velocity: 768 ft./min
Loss per 100 ft.: 0.104 in.wg

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.78	89% / 11%	18,925	2,427	21,352

Equipment Data

	Heating System	Cooling System
Type:	Natural Gas Furnace	Standard Air Conditioner
Model:		
Indoor Model:		
Brand:		
Efficiency:	0 AFUE	0 SEER
Sound:	0	0
Capacity:	0 Btuh	0 Btuh
Sensible Capacity:	n/a	0 Btuh
Latent Capacity:	n/a	0 Btuh