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 # M21000558
BUILDING PERMIT # B19004315

BUILDING ADDRESS: 8228 HUNTER BROOKE LN. SUITE/APT:
SUBDIVISION: FULTON, MD. 20759
CENSUS TRACT: SECTION: AREA:
LOT: TAX MAP: PARCEL:
BLOCK: ZONE:
PROPERTY ID: MAP COORDINATES:
TYPE OF IMPROVEMENTS: USE:

OWNERS NAME: GILL KIRANDEER K
ADDRESS: 6513 Kells Ct.
CITY: CLARKSville, MD. 21029
STATE: MD. ZIP CODE: 21029
HOME PHONE: 410-997-9595 WORK PHONE:

	CHECK ONE	HOW MANY
SINGLE FAMILY DWELLING	☑	9 ZONES
SINGLE FAMILY TOWNHOUSE	☐	____ ZONES
MULTI-FAMILY / HOTEL/MOTEL	☐	____ ROOMS
ASSISTED LIVING HOMES (16 OR FEWER RESIDENTS)	☐	____ ROOMS

COMPANY NAME: WATERVALE HEATING & A.C.
LICENSEE NAME: Joseph Opdyke
ADDRESS: 2116 WATERVALE 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

5+ GeoThermAL SYSTEMS.
No OUTSIDE WORK
VERTICAL BORE & TRENCH
TO HOUSE by JONES well DRILLING

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 =	$ 360
Technology Fee (10% of Permit Fee) =	36
Plus Application Fee	$50.00
Total Fees Due =	$ ~~446.00~~

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.

Joseph Opdyke 6-15-21
SIGNATURE OF LICENSEE DATE

Joseph Opdyke
PRINT NAME OF LICENSEE

WATERVALE Geo @ gmail.com
Email Address

Validation
Check Number: 216184
Cash: ____
Receipt Number: 604340

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
Date
Signature
RECEIVED
2021

LICENSES & PERMITS
DIVISION

M21000558

Gill Kirandeer
HVAC Load Calculations

for

Gill Kirandeer
8228 Hunterbrooke, Ln.
Fulton, Md. 20758

Elite Software

RHVAC RESIDENTIAL HVAC LOADS

Prepared By:

Watervale Heating & A.C.
2116 Watervale, Rd.
Fallston, Md. 21047
410-879-0292
Wednesday, June 16, 2021

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

Project Report

Project Information

Project Title:	Gill Kirandeer
Project Date:	Tuesday, May 4, 2021
Client Name:	Gill Kirandeer
Client Address:	8228 Hunterbrooke, Ln.
Client City:	Fulton, Md. 20758
Client Phone:	410-977-9595
Company Name:	Watervale Heating & A.C.
Company Address:	2116 Watervale, Rd.
Company City:	Fallston, Md. 21047
Company Phone:	410-879-0292
Company Fax:	410-803-0223
Company E-Mail Address:	watervalegeo@gmail.com

Design Info

Reference City:		Baltimore, 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:	5	11.86	n/a	n/a	70	n/a
Summer:	95	75	40%	50%	75	34

Other Parameters

Total Building Supply CFM:	7,919	CFM Per Square ft.:	0.533
Square ft. of Room Area:	14,868	Square ft. Per Ton:	984
Volume (ft³):	162,960		

Block Loads

Total Heating Required Including Ventilation Air:	174,497	Btuh	174.497	MBH
Total Sensible Gain:	174,963	Btuh	96	%
Total Latent Gain:	6,441	Btuh	4	%
Total Cooling Required Including Ventilation Air:	181,404	Btuh	15.12	Tons (Based On Sensible + Latent)

Notes

Rhvac is an ACCA approved Manual J, D and S computer program.
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.

Miscellaneous Report

System 1 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel Hum	Indoor Rel Hum	Indoor Dry Bulb	Grains Difference
Winter:	5	11.86	100%	n/a	70	n/a
Summer:	95	75	40%	50%	75	34.25

System 2 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel Hum	Indoor Rel Hum	Indoor Dry Bulb	Grains Difference
Winter:	5	11.86	100%	n/a	70	n/a
Summer:	95	75	40%	50%	75	34.25

System 3 Copy of system 1 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel Hum	Indoor Rel Hum	Indoor Dry Bulb	Grains Difference
Winter:	5	11.86	100%	n/a	70	n/a
Summer:	95	75	40%	50%	75	34.25

System 4 Copy of system 1 Input Data	Outdoor Dry Bulb	Outdoor Wet Bulb	Outdoor Rel Hum	Indoor Rel Hum	Indoor Dry Bulb	Grains Difference
Winter:	5	11.86	100%	n/a	70	n/a
Summer:	95	75	40%	50%	75	34.25

Duct Information

	Main Trunk		Runouts	
Calculate:	Yes		Yes	
Use Schedule:	Yes		Yes	
Roughness Factor:	0.00300		0.01000	
Pressure Drop:	0.1000	in.wg./100 ft.	0.1000	in.wg./100 ft.
Minimum Velocity:	0	ft./min	0	ft./min
Maximum Velocity:	900	ft./min	750	ft./min
Minimum Height:	0	in.	0	in.
Maximum Height:	0	in.	0	in.

Outside Air Data

	Winter		Summer	
Infiltration Specified:	0.120	AC/hr	0.062	AC/hr
	325	CFM	170	CFM
Infiltration Actual:	0.120	AC/hr	0.062	AC/hr
Above Grade Volume:	X 162,960	Cu.ft.	X 162,960	Cu.ft.
	19,525	Cu.ft./hr	10,170	Cu.ft./hr
	X 0.0167		X 0.0167	
Total Building Infiltration:	325	CFM	170	CFM
Total Building Ventilation:	0	CFM	0	CFM

---System 1---
Infiltration & Ventilation Sensible Gain Multiplier: 21.88 = (1.10 X 0.995 X 20.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 23.17 = (0.68 X 0.995 X 34.25 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 71.12 = (1.10 X 0.995 X 65.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.210 AC/hr (24 CFM), Construction: Tight
Summer Infiltration Specified: 0.110 AC/hr (12 CFM), Construction: Tight

---System 2---
Infiltration & Ventilation Sensible Gain Multiplier: 21.88 = (1.10 X 0.995 X 20.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 23.17 = (0.68 X 0.995 X 34.25 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 71.12 = (1.10 X 0.995 X 65.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.110 AC/hr (137 CFM), Construction: Tight
Summer Infiltration Specified: 0.060 AC/hr (75 CFM), Construction: Tight

---System 3---
Infiltration & Ventilation Sensible Gain Multiplier: 21.88 = (1.10 X 0.995 X 20.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 23.17 = (0.68 X 0.995 X 34.25 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 71.12 = (1.10 X 0.995 X 65.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.140 AC/hr (102 CFM), Construction: Tight
Summer Infiltration Specified: 0.070 AC/hr (51 CFM), Construction: Tight

Miscellaneous Report (cont'd)

Outside Air Data

---System 4---

Infiltration & Ventilation Sensible Gain Multiplier: 21.88 = (1.10 X 0.995 X 20.00 Summer Temp. Difference)
Infiltration & Ventilation Latent Gain Multiplier: 23.17 = (0.68 X 0.995 X 34.25 Grains Difference)
Infiltration & Ventilation Sensible Loss Multiplier: 71.12 = (1.10 X 0.995 X 65.00 Winter Temp. Difference)
Winter Infiltration Specified: 0.100 AC/hr (63 CFM), Construction: Tight
Summer Infiltration Specified: 0.050 AC/hr (32 CFM), Construction: Tight

Duct Load Factor Scenarios for System 1

No	Type	Description	Location	Attic Ceiling	Duct Leakage	Duct Insulation	Surface Area	From [T]MDD
1	Supply		Attic	16B	0.06	8	227	No
1	Return		Attic	16B	0.06	8	42	No

Duct Load Factor Scenarios for System 4

No.	Type	Description	Location	Attic Ceiling	Duct Leakage	Duct Insulation	Surface Area	From [T]MDD
1	Supply		Attic	16B	0.06	8	1022	No
1	Return		Attic	16B	0.06	8	189	No

Load Preview Report

Scope	Net Ton	ft²/Ton	Area	Sen Gain	Lat Gain	Net Gain	Sen Loss	Sys Htg CFM	Sys Clg CFM	Sys Act CFM	Duct Size
Building	15.12	984	14,868	174,963	6,441	181,404	174,497	2,257	7,919	7,919	
System 1	1.40	600	840	16,298	504	16,802	18,891	243	731	731	10x14
Supply Duct Latent					172	172					
Return Duct				306	47	352	298				
Zone 1			840	15,993	285	16,278	18,593	243	731	731	10x14
1-Apartment			840	15,993	285	16,278	18,593	243	731	731	7–7
System 2	6.94	906	6,288	80,368	2,935	83,303	70,433	920	3,673	3,673	26x26
Zone 1 - Clg.: 30%, Htg.: 29%			1,548	26,761	970	27,731	20,605	269	1,223	1,223	12x18
2-Master Bed Room. Living Room. First Floor			1,548	26,761	970	27,731	20,605	269	1,223	1,223	12–7
Zone 2 - Clg.: 6%, Htg.: 14%			1,548	5,006	307	5,313	10,131	132	229	229	7x9
3-Basement Under Master Bed Room			1,548	5,006	307	5,313	10,131	132	229	229	3–6
Zone 3 - Clg.: 46%, Htg.: 41%			1,596	41,356	1,510	42,866	28,777	376	1,890	1,890	18x18
4-Great Room			1,596	41,356	1,510	42,866	28,777	376	1,890	1,890	18–7
Zone 4 - Clg.: 19%, Htg.: 16%			1,596	16,721	148	16,869	10,920	143	764	764	10x15
5-Basement Under Great Room			1,596	16,721	148	16,869	10,920	143	764	764	7–7
System 3	1.97	2,012	3,956	22,412	1,177	23,589	30,479	398	1,024	1,024	12x15
Zone 1 - Clg.: 75%, Htg.: 58%			1,978	18,768	642	19,410	17,711	231	858	858	10x16
6-Kitchen, Dinning. First Floor			1,978	18,768	642	19,410	17,711	231	858	858	8–7
Zone 2 - Clg.: 25%, Htg.: 42%			1,978	6,179	535	6,714	12,768	167	282	282	7x10
7-Basement Under Kitchen			1,978	6,179	535	6,714	12,768	167	282	282	3–6
System 4	4.81	787	3,784	55,885	1,825	57,710	54,694	697	2,491	2,491	20x20
Supply Duct Latent					885	885					
Return Duct				1,373	209	1,582	1,332				
Zone 1			3,784	54,512	731	55,243	53,362	697	2,491	2,491	20x20
8-Second Floor			3,784	54,512	731	55,243	53,362	697	2,491	2,491	23–7

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

Duct Size Preview

Room or Duct Name	Source	Minimum Velocity	Maximum Velocity	Rough. Factor	Design L/100	SP Loss	Duct Velocity	Duct Length	Htg Flow	Clg Flow	Act. Flow	Duct Size
System 1												
Supply Runouts												
Zone 1												
1-Apartment	Built-In	0	750	0.01	0.1		390.7		243		731	7–7
Other Ducts in System 1												
Supply Main Trunk	Built-In	0	900	0.003	0.1		751.7		243		731	10x14
System 2												
Supply Runouts												
Zone 1												
2-Master Bed Room. Living Room. First Floor	Built-In	0	750	0.01	0.1		381.3		269		1,223	12–7
Zone 2												
3-Basement Under Master Bed Room	Built-In	0	750	0.01	0.1		388.4		132		229	3–6
Zone 3												
4-Great Room	Built-In	0	750	0.01	0.1		392.9		376		1,890	18–7
Zone 4												
5-Basement Under Great Room	Built-In	0	750	0.01	0.1		408.5		143		764	7–7
Other Ducts in System 2												
Supply Main Trunk	Built-In	0	900	0.003	0.1		782.3		920		3,673	26x26
System 3												
Supply Runouts												
Zone 1												
6-Kitchen, Dinning. First Floor	Built-In	0	750	0.01	0.1		401.2		231		858	8–7
Zone 2												
7-Basement Under Kitchen	Built-In	0	750	0.01	0.1		479.3		167		282	3–6
Other Ducts in System 3												
Supply Main Trunk	Built-In	0	900	0.003	0.1		819.3		398		1,024	12x15
System 4												
Supply Runouts												
Zone 1												
8-Second Floor	Built-In	0	750	0.01	0.1		405.3		697		2,491	23–7
Other Ducts in System 4												
Supply Main Trunk	Built-In	0	900	0.003	0.1		896.8		697		2,491	20x20

Summary

System 1	
Heating Flow:	243
Cooling Flow:	731
System 2	
Heating Flow:	920
Cooling Flow:	3673
System 3	
Heating Flow:	398
Cooling Flow:	1024
System 4	
Heating Flow:	697
Cooling Flow:	2491

Total Building Summary Loads

Component Description	Area Quan	Sen Loss	Lat Gain	Sen Gain	Total Gain
3A-w-o: Glazing-Double pane low-e (e = 0.40), operable window, wood frame, U-value 0.53, SHGC 0.56	1943	66,936	0	123,488	123,488
8Bc-smi: Glazing-Skylight, Flat double pane clear, small curb, metal sash no break, curb R-6 or more, light shaft R-6 or more, horizontal, U-value 0.74, SHGC 0.69	48	2,310	0	7,698	7,698
11J: Door-Metal - Fiberglass Core, U-value 0.6	42	1,638	0	782	782
12F-0sw: Wall-Frame, R-21 insulation in 2 x 6 stud cavity, no board insulation, siding finish, wood studs, U-value 0.065	6671	28,185	0	8,802	8,802
12E-0sw: Wall-Frame, R-19 insulation in 2 x 6 stud cavity, no board insulation, siding finish, wood studs, U-value 0.068	2254	9,962	0	3,433	3,433
15A-4s3fc-10: Wall-Basement, concrete block wall, R-4 foam board to 3', no framing, no interior finish, filled core, 10' floor depth, U-value 0.065	430	1,817	0	0	0
15A-4sffc-10: Wall-Basement, concrete block wall, R-4 foam board to floor, no framing, no interior finish, filled core, 10' floor depth, U-value 0.057	380	1,408	0	0	0
16A-38: Roof/Ceiling-Under Attic with Insulation on Attic Floor (also use for Knee Walls and Partition Ceilings), Unvented Attic, No Radiant Barrier, Any Roofing Material, Any Roof Color, R-38 insulation, U-value 0.026	6352	10,735	0	12,387	12,387
20P-19: Floor-Over open crawl space or garage, Passive, R-19 blanket insulation, any cover, U-value 0.05	840	2,730	0	630	630
21A-32: Floor-Basement, Concrete slab, any thickness, 2 or more feet below grade, no insulation below floor, any floor cover, shortest side of floor slab is 32' wide, U-value 0.02	5122	6,658	0	0	0
Subtotals for structure:		132,379	0	157,220	157,220
People:	6		1,200	1,380	2,580
Equipment:			0	1,200	1,200
Lighting:	0			0	0
Ductwork:		18,976	1,313	10,850	12,163
Infiltration: Winter CFM: 325, Summer CFM: 170		23,142	3,928	3,709	7,637
Ventilation: Winter CFM: 0, Summer CFM: 0		0	0	0	0
AED Excursion:		0	0	604	604
Total Building Load Totals:		174,497	6,441	174,963	181,404

Other Totals

Total Building Supply CFM:	7,919	CFM Per Square ft.:	0.533
Square ft. of Room Area:	14,868	Square ft. Per Ton:	984
Volume (ft^3):	162,960		

Building Loads

Total Heating Required Including Ventilation Air:	174,497 Btuh	174.497 MBH	
Total Sensible Gain:	174,963 Btuh	96 %	
Total Latent Gain:	6,441 Btuh	4 %	
Total Cooling Required Including Ventilation Air:	181,404 Btuh	15.12 Tons (Based On Sensible + Latent)	

Notes

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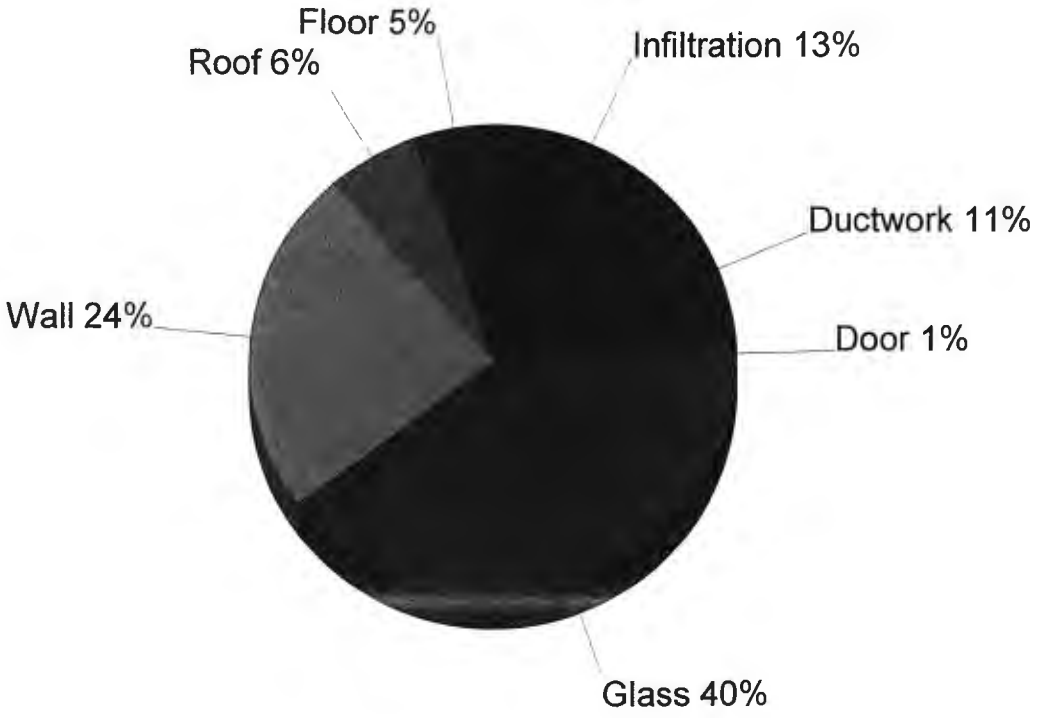
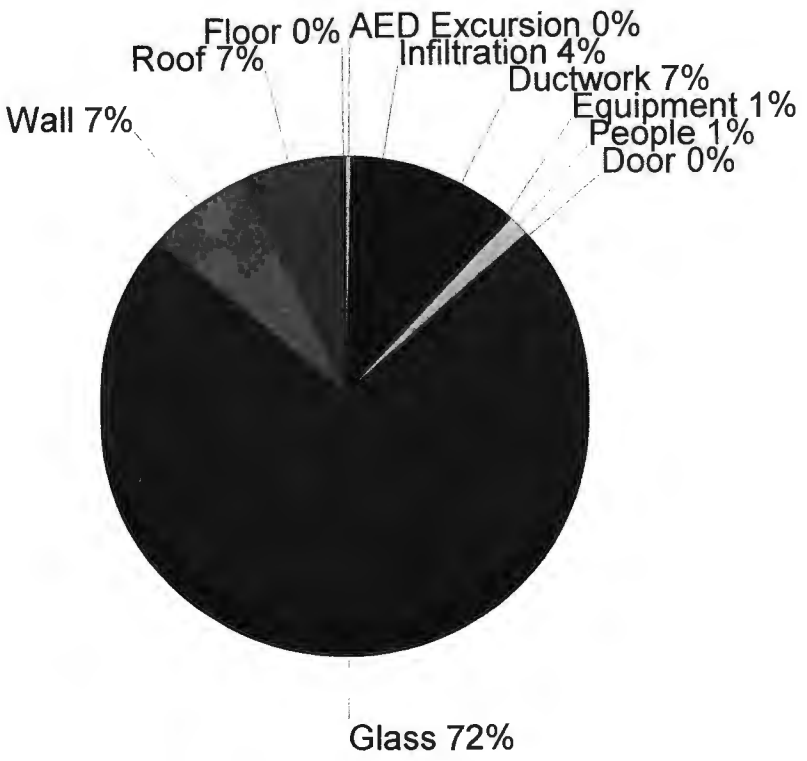
Be sure to select a unit that meets both sensible and latent loads according to the manufacturer's performance data at your design conditions.

Building Pie Chart

Building Loss 174,497 Btuh



Building Gain 181,404 Btuh



Detailed Room Loads - Room 1 - Apartment (Average Load Procedure)

Calculation Mode:	Htg. & clg.	Occurrences:	1
Room Length:	30.0 ft.	System Number:	1
Room Width:	28.0 ft.	Zone Number:	1
Area:	840.0 sq.ft.	Supply Air:	731 CFM
Ceiling Height:	8.0 ft.	Supply Air Changes:	6.5 AC/hr
Volume:	6,720 cu.ft.	Req. Vent. Clg:	0 CFM
Number of Registers:	7	Actual Winter Vent.:	0 CFM
Runout Air:	104 CFM	Percent of Supply.:	0 %
Runout Duct Size:	7 in.	Actual Summer Vent.:	0 CFM
Runout Air Velocity:	391 ft./min.	Percent of Supply:	0 %
Runout Air Velocity:	391 ft./min.	Actual Winter Infil.:	24 CFM
Actual Loss:	0.079 in.wg./100 ft.	Actual Summer Infil.:	12 CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-12F-0sw 30 X 8	137	0.065	4.2	579	1.3	0	181
N -Wall-12F-0sw 28 X 8	224	0.065	4.2	946	1.3	0	296
W -Wall-12F-0sw 30 X 8	158	0.065	4.2	668	1.3	0	208
S -Wall-12F-0sw 28 X 8	224	0.065	4.2	946	1.3	0	296
E -Door-11J 3 X 7	21	0.600	39.0	819	18.6	0	391
E -Gls-3A-w-o shgc-0.56 0%S	82	0.530	34.5	2,825	63.6	0	5,212
W -Gls-3A-w-o shgc-0.56 0%S	82	0.530	34.5	2,825	63.6	0	5,212
UP-Ceil-16A-38 30 X 28	840	0.026	1.7	1,420	2.0	0	1,638
Floor-20P-19 28 X 30	840	0.050	3.3	2,730	0.8	0	630
Subtotals for Structure:				13,758		0	14,064
Infil.: Win.: 23.5, Sum.: 12.3	928		1.803	1,673	0.291	285	270
Ductwork:				3,162			1,659
Room Totals:				18,593		285	15,993

Detailed Room Loads - Room 2 - Master Bed Room. Living Room. First Floor (Peak Fenestration Gain Procedure)

Room is in zone 1, which peaks at 10 am

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	43.0	ft.	System Number:	2	
Room Width:	36.0	ft.	Zone Number:	1	
Area:	1,548.0	sq.ft.	Supply Air:	1,223	CFM
Ceiling Height:	12.0	ft.	Supply Air Changes:	4.0	AC/hr
Volume:	18,576	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	12		Actual Winter Vent.:	0	CFM
Runout Air:	102	CFM	Percent of Supply.:	0	%
Runout Duct Size:	7	in.	Actual Summer Vent.:	0	CFM
Runout Air Velocity:	381	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	381	ft./min.	Actual Winter Infil.:	45	CFM
Actual Loss:	0.076	in.wg./100 ft.	Actual Summer Infil.:	25	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-12F-0sw 43 X 12	264	0.065	4.2	1,115	1.3	0	348
S -Wall-12F-0sw 36 X 12	432	0.065	4.2	1,825	1.3	0	570
W -Wall-12F-0sw 43 X 12	397	0.065	4.2	1,677	1.3	0	524
E -Gls-3A-w-o shgc-0.56 0%S (6)	252	0.530	34.5	8,682	86.1	0	21,702
W -Gls-3A-w-o shgc-0.56 0%S	119	0.530	34.5	4,100	22.0	0	2,619
Subtotals for Structure:				17,399		0	25,763
Infil.: Win.: 45.1, Sum.: 24.6	1,464		2.190	3,206	0.367	570	538
People: 200 lat/per, 230 sen/per:	2					400	460
Room Totals:				20,605		970	26,761

Detailed Room Loads - Room 3 - Basement Under Master Bed Room (Peak Fenestration Gain Procedure)

Room is in zone 2, which peaks at 5 pm

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	43.0	ft.	System Number:	2	
Room Width:	36.0	ft.	Zone Number:	2	
Area:	1,548.0	sq.ft.	Supply Air:	229	CFM
Ceiling Height:	10.0	ft.	Supply Air Changes:	0.9	AC/hr
Volume:	15,480	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	3		Actual Winter Vent.:	0	CFM
Runout Air:	76	CFM	Percent of Supply.:	0	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	0	CFM
Runout Air Velocity:	388	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	388	ft./min.	Actual Winter Infil.:	24	CFM
Actual Loss:	0.097	in.wg./100 ft.	Actual Summer Infil.:	13	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
W -Wall-12E-0sw 43 X 10	394	0.068	4.4	1,741	1.5	0	600
S -Wall-12E-0sw 36 X 10	360	0.068	4.4	1,591	1.5	0	548
E -Wall-15A-4s3fc-10 43 X 10	430	0.065	4.2	1,817	0.0	0	0
W -Gls-3A-w-o shgc-0.56 0%S	36	0.530	34.5	1,240	99.1	0	3,568
Floor-21A-32 36 X 43	1548	0.020	1.3	2,012	0.0	0	0
Subtotals for Structure:				8,401		0	4,716
Infil.: Win.: 24.3, Sum.: 13.3	790		2.190	1,730	0.367	307	290
Room Totals:				10,131		307	5,006

Detailed Room Loads - Room 4 - Great Room (Peak Fenestration Gain Procedure)

Room is in zone 3, which peaks at 5 pm

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	38.0	ft.	System Number:	2	
Room Width:	42.0	ft.	Zone Number:	3	
Area:	1,596.0	sq.ft.	Supply Air:	1,890	CFM
Ceiling Height:	24.0	ft.	Supply Air Changes:	3.0	AC/hr
Volume:	38,304	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	18		Actual Winter Vent.:	0	CFM
Runout Air:	105	CFM	Percent of Supply.:	0	%
Runout Duct Size:	7	in.	Actual Summer Vent.:	0	CFM
Runout Air Velocity:	393	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	393	ft./min.	Actual Winter Infil.:	56	CFM
Actual Loss:	0.080	in.wg./100 ft.	Actual Summer Infil.:	31	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-12F-0sw 38 X 24	711	0.065	4.2	3,004	1.3	0	938
W -Wall-12F-0sw 38 X 24	711	0.065	4.2	3,004	1.3	0	938
W -Gls-3A-w-o shgc-0.56 0%S	201	0.530	34.5	6,924	99.1	0	19,919
E -Gls-3A-w-o shgc-0.56 0%S	201	0.530	34.5	6,924	40.6	0	8,154
UP-Sky-8Bc-smi shgc-0.69 (6)	48	0.740	48.1	2,310	141.6	0	6,798
UP-Ceil-16A-38 38 X 42	1548	0.026	1.7	2,616	2.0	0	3,019
Subtotals for Structure:				24,782		0	39,766
Infil.: Win.: 56.2, Sum.: 30.6	1,824		2.190	3,995	0.367	710	670
People: 200 lat/per, 230 sen/per:	4					800	920
Room Totals:				28,777		1,510	41,356

Detailed Room Loads - Room 5 - Basement Under Great Room (Peak Fenestration Gain Procedure)

Room is in zone 4, which peaks at 5 pm

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	38.0	ft.	System Number:	2	
Room Width:	42.0	ft.	Zone Number:	4	
Area:	1,596.0	sq.ft.	Supply Air:	764	CFM
Ceiling Height:	10.0	ft.	Supply Air Changes:	2.9	AC/hr
Volume:	15,960	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	7		Actual Winter Vent.:	0	CFM
Runout Air:	109	CFM	Percent of Supply.:	0	%
Runout Duct Size:	7	in.	Actual Summer Vent.:	0	CFM
Runout Air Velocity:	408	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	408	ft./min.	Actual Winter Infil.:	12	CFM
Actual Loss:	0.087	in.wg./100 ft.	Actual Summer Infil.:	6	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
W -Wall-12E-0sw 38 X 10	216	0.068	4.4	955	1.5	0	329
E -Wall-15A-4sffc-10 38 X 10	380	0.057	3.7	1,408	0.0	0	0
W -Gls-3A-w-o shgc-0.56 0%S	164	0.530	34.5	5,650	99.1	0	16,252
Floor-21A-32 42 X 38	1596	0.020	1.3	2,075	0.0	0	0
Subtotals for Structure:				10,088		0	16,581
Infil.: Win.: 11.7, Sum.: 6.4	380		2.189	832	0.368	148	140
Room Totals:				10,920		148	16,721

Detailed Room Loads - Room 6 - Kitchen, Dinning. First Floor (Peak Fenestration Gain Procedure)

Room is in zone 1, which peaks at 5 pm

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	43.0	ft.	System Number:	3	
Room Width:	46.0	ft.	Zone Number:	1	
Area:	1,978.0	sq.ft.	Supply Air:	858	CFM
Ceiling Height:	12.0	ft.	Supply Air Changes:	2.2	AC/hr
Volume:	23,736	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	8		Actual Winter Vent.:	0	CFM
Runout Air:	107	CFM	Percent of Supply.:	0	%
Runout Duct Size:	7	in.	Actual Summer Vent.:	0	CFM
Runout Air Velocity:	401	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	401	ft./min.	Actual Winter Infil.:	55	CFM
Actual Loss:	0.084	in.wg./100 ft.	Actual Summer Infil.:	28	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-12F-0sw 43 X 12	416	0.065	4.2	1,758	1.3	0	549
N -Wall-12F-0sw 46 X 12	531	0.065	4.2	2,243	1.3	0	701
W -Wall-12F-0sw 43 X 12	416	0.065	4.2	1,758	1.3	0	549
N -Door-11J 3 X 7	21	0.600	39.0	819	18.6	0	391
E -Gls-3A-w-o shgc-0.56 0%S	100	0.530	34.5	3,445	40.6	0	4,057
W -Gls-3A-w-o shgc-0.56 0%S	100	0.530	34.5	3,445	99.1	0	9,910
UP-Ceil-16A-38 9 X 20	180	0.026	1.7	304	2.0	0	351
Subtotals for Structure:				13,772		0	16,508
Infil.: Win.: 55.4, Sum.: 27.7	1,584		2.487	3,939	0.383	642	606
AED Excursion:							454
Equipment:						0	1,200
Room Totals:				17,711		642	18,768

Detailed Room Loads - Room 7 - Basement Under Kitchen (Peak Fenestration Gain Procedure)

Room is in zone 2, which peaks at 5 pm

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	43.0	ft.	System Number:	3	
Room Width:	46.0	ft.	Zone Number:	2	
Area:	1,978.0	sq.ft.	Supply Air:	282	CFM
Ceiling Height:	10.0	ft.	Supply Air Changes:	0.9	AC/hr
Volume:	19,780	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	3		Actual Winter Vent.:	0	CFM
Runout Air:	94	CFM	Percent of Supply.:	0	%
Runout Duct Size:	6	in.	Actual Summer Vent.:	0	CFM
Runout Air Velocity:	479	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	479	ft./min.	Actual Winter Infil.:	46	CFM
Actual Loss:	0.147	in.wg./100 ft.	Actual Summer Infil.:	23	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
W -Wall-12E-0sw 43 X 10	394	0.068	4.4	1,741	1.5	0	600
N -Wall-12E-0sw 46 X 10	460	0.068	4.4	2,033	1.5	0	701
E -Wall-12E-0sw 43 X 10	430	0.068	4.4	1,901	1.5	0	655
W -Gls-3A-w-o shgc-0.56 0%S	36	0.530	34.5	1,240	99.1	0	3,568
Floor-21A-32 46 X 43	1978	0.020	1.3	2,571	0.0	0	0
Subtotals for Structure:				9,486		0	5,524
Infil.: Win.: 46.2, Sum.: 23.1	1,320		2.486	3,282	0.383	535	505
AED Excursion:							150
Room Totals:				12,768		535	6,179

Detailed Room Loads - Room 8 - Second Floor (Average Load Procedure)

Calculation Mode:	Htg. & clg.		Occurrences:	1	
Room Length:	88.0	ft.	System Number:	4	
Room Width:	43.0	ft.	Zone Number:	1	
Area:	3,784.0	sq.ft.	Supply Air:	2,491	CFM
Ceiling Height:	10.0	ft.	Supply Air Changes:	3.9	AC/hr
Volume:	37,840	cu.ft.	Req. Vent. Clg:	0	CFM
Number of Registers:	23		Actual Winter Vent.:	0	CFM
Runout Air:	108	CFM	Percent of Supply.:	0	%
Runout Duct Size:	7	in.	Actual Summer Vent.:	0	CFM
Runout Air Velocity:	405	ft./min.	Percent of Supply:	0	%
Runout Air Velocity:	405	ft./min.	Actual Winter Infil.:	63	CFM
Actual Loss:	0.085	in.wg./100 ft.	Actual Summer Infil.:	32	CFM

Item Description	Area Quantity	-U- Value	Htg HTM	Sen Loss	Clg HTM	Lat Gain	Sen Gain
E -Wall-12F-0sw 88 X 10	595	0.065	4.2	2,514	1.3	0	785
N -Wall-12F-0sw 43 X 10	430	0.065	4.2	1,817	1.3	0	567
W -Wall-12F-0sw 88 X 10	595	0.065	4.2	2,514	1.3	0	785
S -Wall-12F-0sw 43 X 10	430	0.065	4.2	1,817	1.3	0	567
E -Gls-3A-w-o shgc-0.56 0%S	285	0.530	34.5	9,818	63.6	0	18,113
W -Gls-3A-w-o shgc-0.56 0%S	285	0.530	34.5	9,818	63.6	0	18,113
UP-Ceil-16A-38 88 X 43	3784	0.026	1.7	6,395	2.0	0	7,379
Subtotals for Structure:				34,693		0	46,309
Infil.: Win.: 63.1, Sum.: 31.5	2,620		1.712	4,485	0.263	731	690
Ductwork:				14,184			7,513
Room Totals:				53,362		731	54,512

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	Apartment	840	18,593	243	7-7	391	15,993	285	731	731
	Duct Latent							172		
	Return Duct		298				306	47		
	System 1 total	840	18,891	243			16,298	504	731	731

System 1 Main Trunk Size: 10x14 in.
Velocity: 752 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:	1.40	97% / 3%	16,298	504	16,802

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---										
2	Master Bed Room. Living Room. First Floor	1,548	20,605	269	12-7	381	26,761	970	1,223	1,223
	Zone 1 subtotal	1,548	20,605	269			26,761	970	1,223	1,223
---Zone 2---										
3	Basement Under Master Bed Room	1,548	10,131	132	3-6	388	5,006	307	229	229
	Zone 2 subtotal	1,548	10,131	132			5,006	307	229	229
---Zone 3---										
4	Great Room	1,596	28,777	376	18-7	393	41,356	1,510	1,890	1,890
	Zone 3 subtotal	1,596	28,777	376			41,356	1,510	1,890	1,890
---Zone 4---										
5	Basement Under Great Room	1,596	10,920	143	7-7	408	16,721	148	764	764
	Zone 4 subtotal	1,596	10,920	143			16,721	148	764	764
	System 2 total	6,288	70,433	920			80,368	2,935	3,673	3,673

System 2 Main Trunk Size: 26x26 in.
Velocity: 782 ft./min
Loss per 100 ft.: 0.041 in.wg

Note: Since the system is multizone, the Peak Fenestration Gain Procedure was used to determine glass sensible gains at the room and zone levels, so the sums of the zone sensible gains and airflows for cooling shown above are not intended to equal the totals at the system level. Room and zone sensible gains and cooling CFM values are for the hour in which the glass sensible gain for the zone is at its peak. Sensible gains at the system level are based on the "Average Load Procedure + Excursion" method.

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	6.94	96% / 4%	80,368	2,935	83,303

	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 3 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	Kitchen, Dinning. First Floor	1,978	17,711	231	8-7	401	18,768	642	858	858
	Zone 1 subtotal	1,978	17,711	231			18,768	642	858	858
---Zone 2---										
7	Basement Under Kitchen	1,978	12,768	167	3-6	479	6,179	535	282	282
	Zone 2 subtotal	1,978	12,768	167			6,179	535	282	282
	System 3 total	3,956	30,479	398			22,412	1,177	1,024	1,024

System 3 Main Trunk Size: 12x15 in.
Velocity: 819 ft./min
Loss per 100 ft.: 0.103 in.wg

Note: Since the system is multizone, the Peak Fenestration Gain Procedure was used to determine glass sensible gains at the room and zone levels, so the sums of the zone sensible gains and airflows for cooling shown above are not intended to equal the totals at the system level. Room and zone sensible gains and cooling CFM values are for the hour in which the glass sensible gain for the zone is at its peak. Sensible gains at the system level are based on the "Average Load Procedure + Excursion" method.

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	1.97	95% / 5%	22,412	1,177	23,589

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 4 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---										
8	Second Floor	3,784	53,362	697	23-7	405	54,512	731	2,491	2,491
	Duct Latent							885		
	Return Duct		1,332				1,373	209		
	System 4 total	3,784	54,694	697			55,885	1,825	2,491	2,491

System 4 Main Trunk Size: 20x20 in.
Velocity: 897 ft./min
Loss per 100 ft.: 0.074 in.wg

Cooling System Summary

	Cooling Tons	Sensible/Latent Split	Sensible Btuh	Latent Btuh	Total Btuh
Net Required:	4.81	97% / 3%	55,885	1,825	57,710

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

M21000558

WATER VALE HEATING & A.C.
Joseph Opdyke 7629
Joseph Opdyke

8228 HUNTERBROOKE LN.
FULTON, MD. 20759

OWNER - GILL KINAN DEEN

NOTE!
ATTIC DUCT work
SPRAY FOAM R-15

main First Floor MASTER Bedroom
& Basement Level

2-zone 3 TON NDV038 10KW HEATER

Great Room 1ST Floor
2-zone & Basement
5 TON NDV064 10 KW
HEATER

Kitchen 1ST Floor
2-zone & Basement
3-TON NDV064
10 KW HEATER

2-zone Second Floor-
NDZ064 5-TON
15 KW HEATER

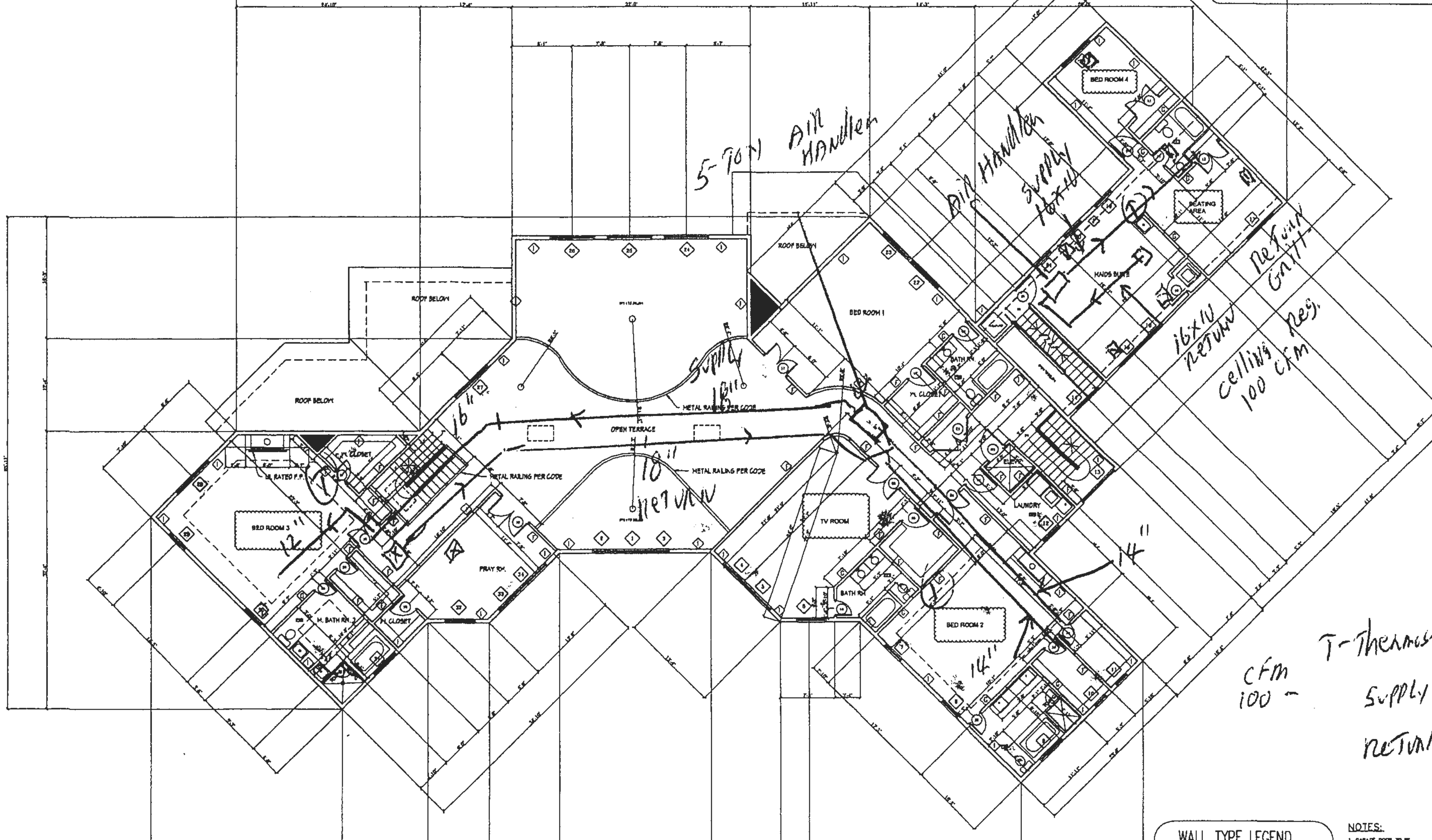
APT-
1-zone NDZ026 2-TON
5 KW HEATER

M21000358

WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALE DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR DIMENSIONS AND CONDITIONS OF THE JOB AND HOME DESIGN SERVICES, INC. MUST BE NOTIFIED IN WRITING OF ANY VARIATION FROM THE DIMENSIONS, CONDITIONS AND SPECIFICATIONS APPEARING ON THESE PLANS.

GENERAL FINISH PRODUCTS NOTES:

OWNER/CONTRACTOR/SUBCONTRACTOR/MATERIAL MAN, PLEASE NOTE THAT THESE DRAWINGS ARE SCHEMATIC ONLY, THE FINISH PRODUCT AS SHOWN ON THE PLANS ARE NOT THE FINAL PRODUCT. IT IS THE RESPONSIBILITY OF EACH SUPPLIER INSTALLER TO COORDINATE, FIELD MEASURE, DESIGN, SUBMIT PRODUCT SPECIFICATION, SHOP DRAWINGS, MOCKUPS TO THE OWNER/CONTRACTOR PRIOR TO ANY INSTALLATION. ANY WORK INSTALLED WITHOUT WRITTEN APPROVAL OF THE OWNER/CONTRACTOR WILL BE THE RESPONSIBILITY OF THE INSTALLER TO CORRECT IF NOT APPROVED.



2-ZONE - SECOND FLOOR AREA 3800 SQFT - 5 TON NDZ064

1-ZONE SECOND FLOOR APARTMENT 850 SQFT - 2-TON NDZ026

R-15 - INSULATION

(1) SECOND FLOOR PLAN
3/16" = 1'-0"

ALL FINISHED FLOOR WILL BE 3" HARDWOOD

N ↗

Revised
01/24/2020 10:37:22 AM

WALL TYPE LEGEND

NOTES:

1. GARAGE DOOR TO BE CERTIFIED BY MFR. FOR 100 M.P.H.
2. ALL TUB & SHOWER UNITS WILL HAVE ANTI-SCALDING DEVICES INSTALLED.
3. HOUSE TO BE CONTINUOUSLY SHEETED
4. COMPLY WITH BRACING PLAN

NOTES:

- 3- INDICATES NUMBER OF DOORS.
- 2- INDICATES NUMBER OF WINDOWS.
- FR - FRENCH DOORS
- SL - SIDE LIGHT
- FG - FIXED GLASS
- TR - TRANSOM
- GB - GLASS BLOCK
- PKT - POCKET DOOR
- OBS - OBSCURED GLASS
- TEMP - TEMPERED GLASS
- SH - SINGLE HUNG
- DH - DOUBLE HUNG
- HR - HORIZONTAL ROLLER
- BP - BYPASS

SPECIALTY WINDOWS/DOORS, FIXED GLASS WINDOWS, AND TRANSOMS ARE NOTED ON PLANS.

AMINCO SERVICES
ARCHITECTS, ENGINEERS, ESTIMATORS, INSPECTORS
207 MARTINS LANE ROCKVILLE, MD. 20850
(301) 674-3708 / Fax (240) 4594972
E.MAIL: RAMIN26@AOL.COM

SHEET TITTLE
SECOND FLOOR PLAN
PROJECT INFORMATION

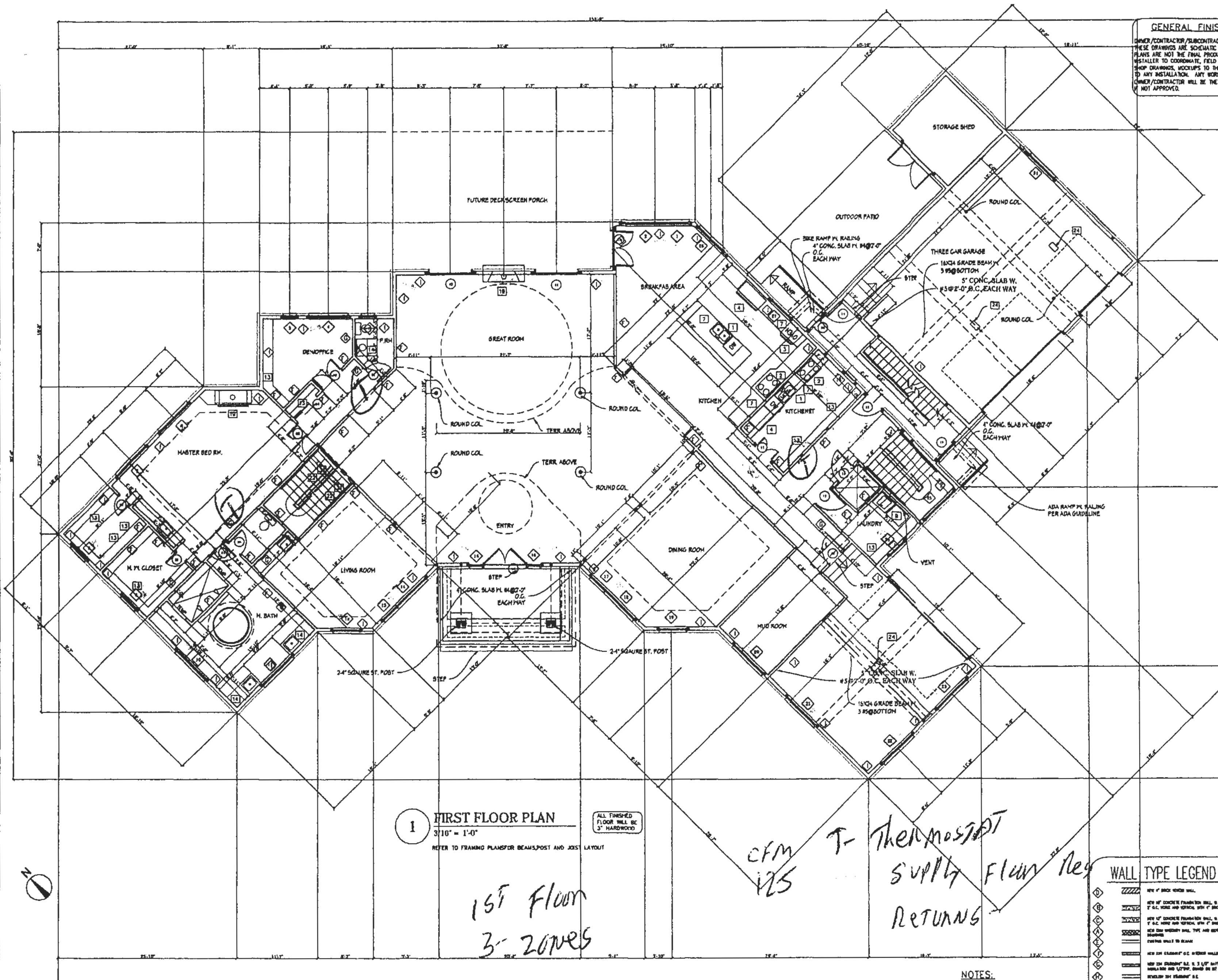
DATE	DRAWN

REVISIONS:

SHEET NUMBER
A006

GENERAL FINISH PRODUCTS NOTES:

OWNER/CONTRACTOR/SUBCONTRACTOR/MATERIAL MAN, PLEASE NOTE THAT THESE DRAWINGS ARE SCHEMATIC ONLY, THE FINISH PRODUCT AS SHOWN ON THE PLANS ARE NOT THE FINAL PRODUCT. IT IS THE RESPONSIBILITY OF EACH SUPPLIER INSTALLER TO COORDINATE, FIELD MEASURE, DESIGN, SUBMIT PRODUCT SPECIFICATION, SHOP DRAWINGS, MOCKUPS TO THE OWNER/CONTRACTOR PRIOR TO ANY INSTALLATION. ANY WORK INSTALLED WITHOUT WRITTEN APPROVAL OF THE OWNER/CONTRACTOR WILL BE THE RESPONSIBILITY OF THE INSTALLER TO CORRECT IF NOT APPROVED.



FIRST FLOOR PLAN

3/16" = 1'-0"

REFER TO FRAMING PLANS FOR BEAMS, POST AND JOIST LAYOUT

ALL FINISHED FLOOR WILL BE 3" HARDWOOD

FIRST LEVEL 4700 SQFT

GARAGE/STORAGE 1700 SQFT

N

NOTES:

1. GARAGE DOOR TO BE CERTIFIED BY MFR. FOR 100 M.P.H.
2. ALL TUB & SHOWER UNITS WILL HAVE ANTI-SCALDING DEVICES INSTALLED
3. PROVIDE SAFETY GLASS FOR ALL TUB/SHOWER
4. COMPLY WITH BRACING PLAN

WALL TYPE LEGEND

WINDOW SIZE KEY

NOTE	MASONRY	FRAME
[illegible]	[illegible]	[illegible]

NOTES:

2- INDICATES NUMBER OF DOORS.
?- INDICATES NUMBER OF WINDOWS.
FR - FRENCH DOORS
SL - SIDE LIGHT
FG - FIXED GLASS
TR - TRANSOM
GB - GLASS BLOCK
PKT - POCKET DOOR
OBS - OBSCURED GLASS
TEMP - TEMPERED GLASS
SH - SINGLE HUNG
DH - DOUBLE HUNG
HR - HORIZONTAL ROLLER
BP - BYPASS
SPECIALTY WINDOWS/DOORS, FIXED GLASS WINDOWS, AND TRANSOMS ARE NOTED ON PLANS.

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EMAIL: RAMIN26@AOL.COM

SHEET TITLE

FIRST FLOOR PLAN

PROJECT INFORMATION

DATE	DRAWN

REVISIONS:

SHEET NUMBER

A005

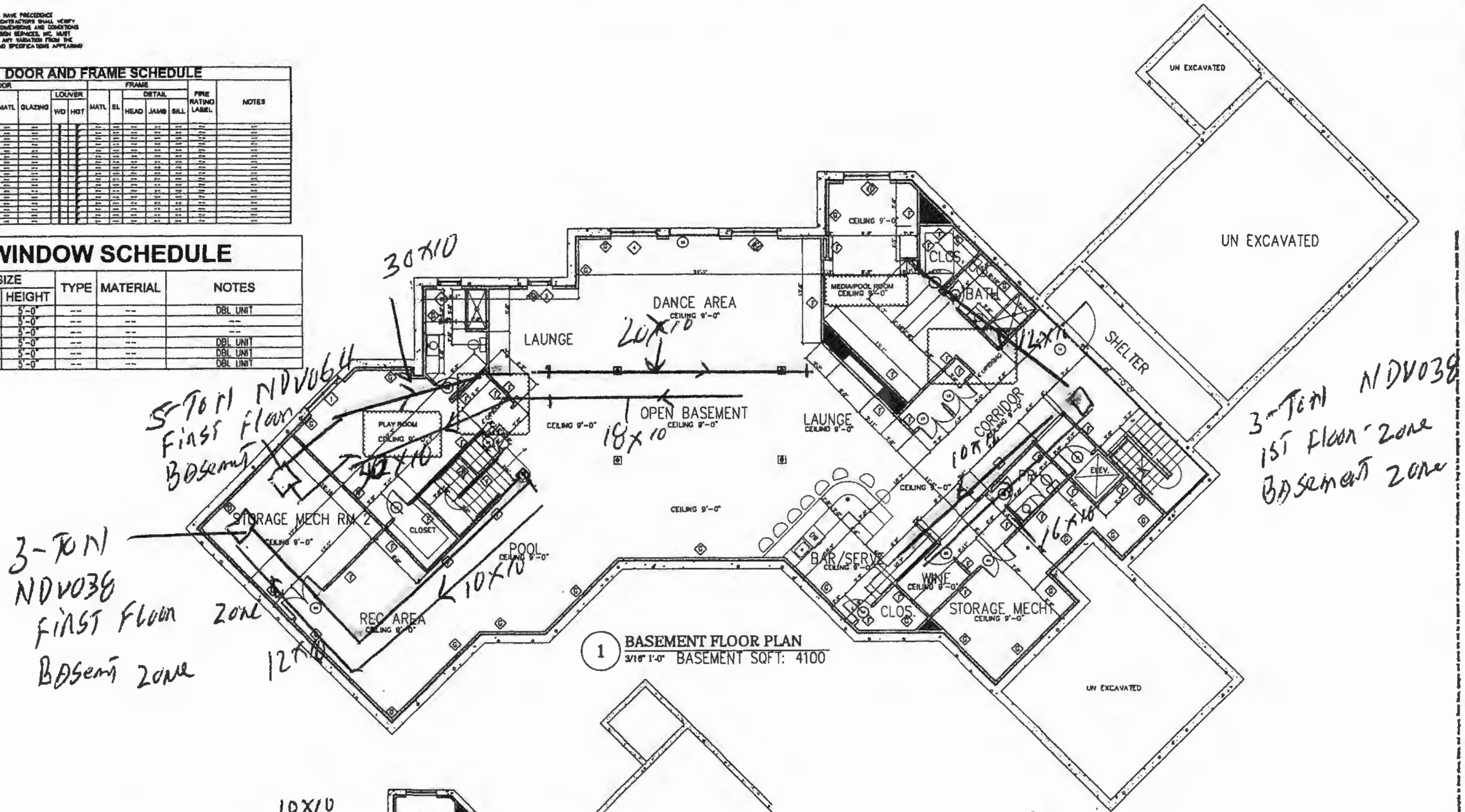
WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE OVER SCALE DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR DIMENSIONS AND CONDITIONS OF THE JOB AND HOME DESIGN SERVICES, INC. MUST BE NOTIFIED IN WRITING OF ANY VARIATION FROM THE DIMENSIONS, CONDITIONS AND SPECIFICATIONS APPEARING ON THESE PLANS.

DOOR AND FRAME SCHEDULE

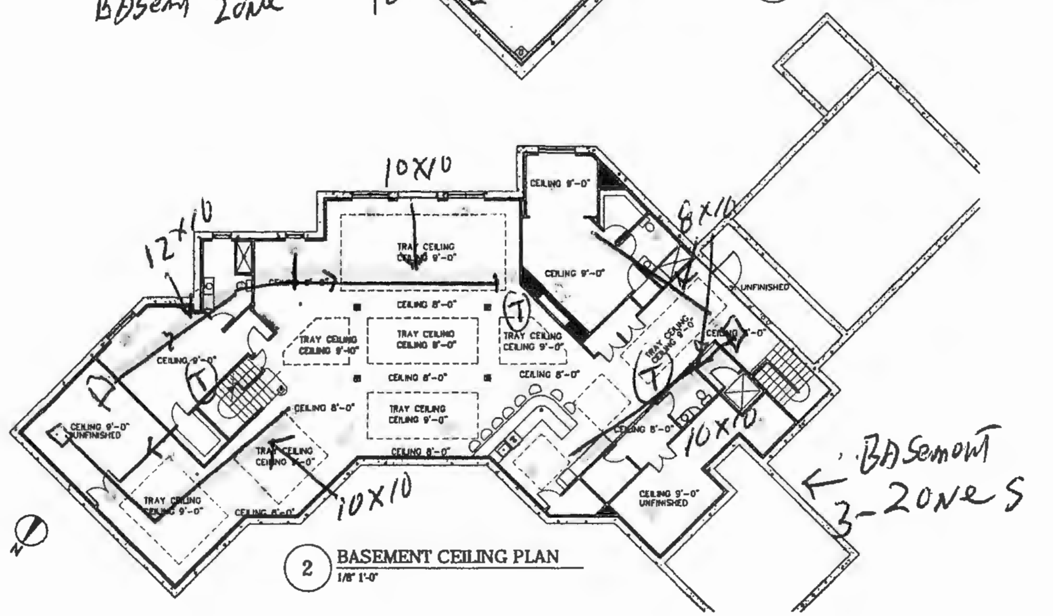
DOOR								FRAME						FIRE RATING LABEL	NOTES
MARK	SIZE			MATL	GLAZING	LOUVER		MATL	EL	DETAIL					
	WD	HGT	THK			WD	HGT			HEAD	JAMB	SILL			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

WINDOW SCHEDULE

MARK	SIZE		TYPE	MATERIAL	NOTES
	Width	HEIGHT			
1	3'-0"	5'-0"	--	--	DBL UNIT
2	3'-0"	5'-0"	--	--	--
3	3'-0"	5'-0"	--	--	--
4	3'-0"	5'-0"	--	--	DBL UNIT
5	3'-0"	5'-0"	--	--	DBL UNIT
6	3'-0"	5'-0"	--	--	DBL UNIT



1 BASEMENT FLOOR PLAN
3/16" 1'-0" BASEMENT SQFT: 4100



2 BASEMENT CEILING PLAN
1/8" 1'-0"

100 CFM
+ 150 CFM
supply
Return
T-Thermostat

← Basement 3-Zones

N↗

WALL TYPE LEGEND

Revised
01/24/2020 10:36:37 AM

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SHEET TITTLE
BASEMENT PLAN
PROJECT INFORMATION

DATE	DRAWN

REVISIONS:

SHEET NUMBER
A002