

These requirements apply to all IRC building types, including detached one- and two-family dwellings and multiple single-family dwellings (townhouses).

Project Information
Job 9119, Lot 2, Block 1 Timberland No. 4
9017 SE 60th St

Contact Information
DAVE STAVE
DAVES@BUCHANHOMES.COM

Instructions: This single-family project will use the requirements of the Prescriptive Path below and incorporate the minimum values listed. Based on the size of the structure, the appropriate number of additional credits are checked as chosen by the permit applicant.

Provide all information from the following tables as building permit drawings: Table R402.1 - Insulation and Fenestration Requirements by Component, Table R406.2 - Fuel Normalization Credits and 406.3 - Energy Credits.

Authorized Representative	David Stave	<small>Digitally signed by David Stave DN: cn=David Stave, o=William E. Buchan Inc., ou, email=daves@buchanhomes.com, c=US Date: 2021.04.12 13:31:31 -0700</small>	Date	10/30/2021
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All Climate Zones (Table R402.1.1)		
	R-Value ^a	U-Factor ^a
Fenestration U-Factor ^b	n/a	0.30
Skylight U-Factor ^b	n/a	0.50
Glazed Fenestration SHGC ^{b,e}	n/a	n/a
Ceiling ^e	49	0.026
Wood Frame Wall ^{g,h}	21 int	0.056
Floor	30	0.029
Below Grade Wall ^{c,h}	10/15/21 int + TB	0.042
Slab ^{d,f} R-Value & Depth	10, 2 ft	n/a
a	R-values are minimums. U-factors and SHGC are maximums. When insulation is installed in a cavity that is less than the label or design thickness of the insulation, the compressed R-value of the insulation from Appendix Table A101.4 shall not be less than the R-value specified in the table.	
b	The fenestration U-factor column excludes skylights.	
c	"10/15/21 +5TB" means R-10 continuous insulation on the exterior of the wall, or R-15 continuous insulation on the interior of the wall, or R-21 cavity insulation plus a thermal break between the slab and the basement wall at the interior of the basement wall. "10/15/21 +5TB" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the wall. "5TB" means R-5 thermal break between floor slab and basement wall.	
d	R-10 continuous insulation is required under heated slab on grade floors. See Section R402.2.9.1.	
e	For single rafter- or joist-vaulted ceilings, the insulation may be reduced to R-38 if the full insulation depth extends over the top plate of the exterior wall.	
f	R-7.5 continuous insulation installed over an existing slab is deemed to be equivalent to the required perimeter slab insulation when applied to existing slabs complying with Section R503.1.1. If foam plastic is used, it shall meet the requirements for thermal barriers protecting foam plastics.	
g	For log structures developed in compliance with Standard ICC 400, log walls shall meet the requirements for climate zone 5 of ICC 400.	
h	Int. (intermediate framing) denotes framing and insulation as described in Section A103.2.2 including standard framing 16 inches on center, 78% of the wall cavity insulated and headers insulated with a minimum of R-10 insulation.	

2018 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
Single Family – New & Additions (effective February 1, 2021)

Each dwelling unit *in a residential building* shall comply with sufficient options from Table R406.2 (fuel normalization credits) and Table 406.3 (energy credits) to achieve the following minimum number of credits. To claim this credit, the building permit drawings shall specify the option selected and the maximum tested building air leakage, and show the qualifying ventilation system and its control sequence of operation.

1. **Small Dwelling Unit: 3 credits**
 Dwelling units less than 1,500 sf in conditioned floor area with less than 300 sf of fenestration area. Additions to existing building that are greater than 500 sf of heated floor area but less than 1,500 sf.
2. **Medium Dwelling Unit: 6 credits**
 All dwelling units that are not included in #1 or #3
3. **Large Dwelling Unit: 7 credits**
 Dwelling units exceeding 5,000 sf of conditioned floor area
4. **Additions less than 500 square feet: 1.5 credits**
All other additions shall meet 1-3 above

Before selecting your credits on this Summary table, review the details in Table 406.3 (Single Family), on page 4.

Summary of Table R406.2				
Heating Options	Fuel Normalization Descriptions	Credits - select ONE heating option		User Notes
1	Combustion heating minimum NAECA ^b	0.0	<input type="radio"/>	
2	Heat pump ^c	1.0	<input checked="" type="radio"/>	
3	Electric resistance heat only - furnace or zonal	-1.0	<input type="radio"/>	
4	DHP with zonal electric resistance per option 3.4	0.5	<input type="radio"/>	
5	All other heating systems	-1.0	<input type="radio"/>	
Energy Options	Energy Credit Option Descriptions	Credits - select ONE energy option from each category ^d		
1.1	Efficient Building Envelope	0.5	<input type="radio"/>	
1.2	Efficient Building Envelope	1.0	<input type="radio"/>	
1.3	Efficient Building Envelope	0.5	<input checked="" type="radio"/>	
1.4	Efficient Building Envelope	1.0	<input type="radio"/>	
1.5	Efficient Building Envelope	2.0	<input type="radio"/>	
1.6	Efficient Building Envelope	3.0	<input type="radio"/>	
1.7	Efficient Building Envelope <input type="radio"/>	0.5	<input type="radio"/>	
2.1	Air Leakage Control and Efficient Ventilation	0.5	<input type="radio"/>	
2.2	Air Leakage Control and Efficient Ventilation	1.0	<input type="radio"/>	
2.3	Air Leakage Control and Efficient Ventilation	1.5	<input type="radio"/>	
2.4	Air Leakage Control and Efficient Ventilation <input type="radio"/>	2.0	<input type="radio"/>	
3.1 ^a	High Efficiency HVAC	1.0	<input type="radio"/>	
3.2	High Efficiency HVAC	1.0	<input type="radio"/>	
3.3 ^a	High Efficiency HVAC	1.5	<input type="radio"/>	
3.4	High Efficiency HVAC	1.5	<input type="radio"/>	
3.5	High Efficiency HVAC	1.5	<input checked="" type="radio"/>	
3.6 ^a	High Efficiency HVAC <input type="radio"/>	2.0	<input type="radio"/>	
4.1	High Efficiency HVAC Distribution System	0.5	<input type="radio"/>	
4.2	High Efficiency HVAC Distribution System <input type="radio"/>	1.0	<input checked="" type="radio"/>	

2018 Washington State Energy Code – Residential
Prescriptive Energy Code Compliance for All Climate Zones in Washington
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Summary of Table R406.2 (cont.)			
Energy Options	Energy Credit Option Descriptions (cont.)	Credits - select ONE energy option from each category ^d	User Notes
5.1 ^d	Efficient Water Heating	0.5 <input type="checkbox"/>	
5.2	Efficient Water Heating	0.5 <input type="radio"/>	
5.3	Efficient Water Heating	1.0 <input type="radio"/>	
5.4	Efficient Water Heating	1.5 <input type="radio"/>	
5.5	Efficient Water Heating	2.0 <input checked="" type="radio"/>	
5.6	Efficient Water Heating <input type="radio"/>	2.5 <input type="radio"/>	
6.1 ^e	Renewable Electric Energy (3 credits max)	1.0 <input type="checkbox"/>	
7.1	Appliance Package	0.5 <input type="checkbox"/>	
Total Credits		6	<input type="button" value="Calculate Total"/> <input type="button" value="Clear Form"/>

- a. An alternative heating source sized at a maximum of 0.5 W/sf (equivalent) of heated floor area or 500 W, whichever is bigger, may be installed in the dwelling unit.
- b. Equipment listed in Table C403.3.2(4) or C403.3.2(5)
- c. Equipment listed in Table C403.3.2(1) or C403.3.2(2)
- d. **You cannot select more than one option from any category EXCEPT in category 5. Option 5.1 may be combined with options 5.2 through 5.6. See Table 406.3.**
- e. 1.0 credit for each 1,200 kWh of electrical generation provided annually, up to 3 credits max. See the complete Table R406.2 for all requirements and option descriptions.
- f. Use the single radiobutton in the upper right of the second column to deselect radiobuttons in that group.

Please print only pages 1 through 3 of this worksheet for submission to your building official.

	0.28
	0.28
	0.28
	0.28
	0.28
	0.28
	0.28
	0.28
	0.28
	0.28

0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00

Sum of Vertical Fenestration Area and UA
Vertical Fenestration Area Weighted U = UA/Area

634.9	177.77
	0.28

Overhead Glazing (Skylights)

Component Description	Ref.	U-factor

Qt.	Width Feet	Height Feet	Inch	Inch

Area	UA
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00
0.0	0.00

Sum of Overhead Glazing Area and UA
Overhead Glazing Area Weighted U = UA/Area

0.0	0.00
	0.00

Total Sum of Fenestration Area and UA (for heating system sizing calculations)

634.9	177.77
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Simple Heating System Size: Washington State

This heating system sizing calculator is based on the Prescriptive Requirements of the 2018 Washington State Energy Code (WSEC) and ACCA Manuals J and S. This tool will calculate heating loads only. ACCA procedures for sizing cooling systems should be used to determine cooling loads.

Please complete the green drop-downs and boxes that are applicable to your project. As you make selections in the drop-downs for each section, some values will be calculated for you. If you do not see the selection you need in the drop-down options, please contact the WSU Energy Program at energycode@energy.wsu.edu or (360) 956-2042 for assistance.

Project Information

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9017 SE 60th St

Contact Information

DAVE STAVE
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Heating System Type: All Other Systems Heat Pump

To see detailed instructions for each section, place your cursor on the word "Instructions"

Design Temperature

[Instructions](#)

Merced Island

Design Temperature Difference (ΔT) 45

$\Delta T = \text{Indoor (70 degrees)} - \text{Outdoor Design Temp}$

Area of Building

Conditioned Floor Area

[Instructions](#)

Conditioned Floor Area (sq ft)

3,987

Average Ceiling Height

[Instructions](#)

Average Ceiling Height (ft)

9.0

Conditioned Volume

35,883

Glazing and Doors

[Instructions](#)

U-0.28

U-Factor X Area = UA
0.280 X 635 = 177.80

Skylights

[Instructions](#)

U-Factor X Area = UA
0.50 X [] = ---

Insulation

Attic

[Instructions](#)

R-49

U-Factor X Area = UA
0.026 X 2,360 = 61.36

Single Rafter or Joist Vaulted Ceilings

[Instructions](#)

No Vaulted Ceilings in this project.

U-Factor X Area = UA
--- X [] = ---

Above Grade Walls (see Figure 1)

[Instructions](#)

R-21 Intermediate

U-Factor X Area = UA
0.056 X 3,509 = 196.50

Floors

[Instructions](#)

R-38

U-Factor X Area = UA
0.025 X 2,360 = 59.00

Below Grade Walls (see Figure 1)

[Instructions](#)

No Below Grade Walls in this project.

U-Factor X Area = UA
0.028 X [] = ---

Slab Below Grade (see Figure 1)

[Instructions](#)

No Slab Below Grade in this project.

F-Factor X Length = UA
0.303 X [] = ---

Slab on Grade (see Figure 1)

[Instructions](#)

No Slab on Grade in this project.

F-Factor X Length = UA
--- X [] = ---

Location of Ducts

[Instructions](#)

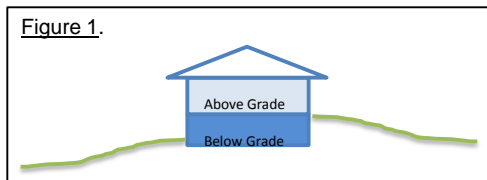
Conditioned Space

Duct Leakage Coefficient

1.00

Sum of UA	494.66
Envelope Heat Load	22,260 Btu / Hour
<i>Sum of UA x ΔT</i>	
Air Leakage Heat Load	17,439 Btu / Hour
<i>Volume x 0.6 x ΔT x 0.018</i>	
Building Design Heat Load	39,699 Btu / Hour
<i>Air leakage + envelope heat loss</i>	
Building and Duct Heat Load	39,699 Btu / Hour
<i>Ducts in unconditioned space: sum of building heat loss x 1.10</i>	
<i>Ducts in conditioned space: sum of building heat loss x 1</i>	
Maximum Heat Equipment Output	49,624 Btu / Hour
<i>Building and duct heat loss x 1.40 for forced air furnace</i>	
<i>Building and duct heat loss x 1.25 for heat pump</i>	

Figure 1.



MINI VRF HEAT PUMP OUTDOOR UNITS

208/230V HP | 3-, 4- & 5-TON Systems

3, 4 & 5 Ton Systems		Type		Mini VRF Outdoor Units						
		Tonnage		3 Ton		4 Ton		5 Ton		
Model				HVAHP036B21S		HVAHP048B21S		HVAHP060B21S		
Power Supply				208/230V/ 1PH 60Hz		208/230V/ 1PH 60Hz		208/230V/ 1PH 60Hz		
Capacity (Nominal)	Cooling	Capacity (Nominal)	Btu/h	(kW)	36,000	(10.6)	48,000	(14.1)	60,000	(17.6)
		Power input	kW		2.53		3.78		5.05	
		Current input	A		12.3 / 11.1		18.6 / 16.9		24.8 / 22.4	
	Heating	Capacity (Nominal)	Btu/h	(kW)	40,000	11.7	54,000	15.8	64,000	18.7
		Power input	kW		2.40		4.00		4.40	
		Current input	A		11.8 / 10.6		19.6 / 17.7		21.7 / 19.6	
Efficiency Ratings *	Cooling <i>(for Non-ducted and Ducted)</i>	Capacity (Rated)	Btu/h		36,000	36,000	48,000	48,000	60,000	55,000
		EER	Btu/Wh		16.70	13.70	16.10	13.10	12.20	9.60
		SEER	Btu/Wh		23.10	18.70	23.10	18.40	16.80	15.90
	Heating <i>(for Non-ducted and Ducted)</i>	Rated Capacity	Btu/h		40,000	40,000	54,000	54,000	64,000	64,000
		COP	W/W		5.12 / 3.90		4.56 / 3.86		3.90 / 3.30	
		HSPF	Btu/Wh		11.90	11.00	11.70	11.80	12.10	10.60
Cooling Operating Range**	Indoor	°F WB (°C WB)		59 (15) ~ 73 (23)		59 (15) ~ 73 (23)		59 (15) ~ 73 (23)		
	Outdoor	°F DB (°C DB)		23 (-5) ~ 118 (48)		23 (-5) ~ 118 (48)		23 (-5) ~ 118 (48)		
Heating Operating Range**	Indoor	°F DB (°C DB)		59 (15) ~ 80 (27)		59 (15) ~ 80 (27)		59 (15) ~ 80 (27)		
	Outdoor	°F WB (°C WB)		-4 (-20) ~ 59 (15)		-4 (-20) ~ 59 (15)		-4 (-20) ~ 59 (15)		
Outer Dimensions	Height	in	(mm)	54-5/16	(1380)	54-5/16	(1380)	54-5/16	(1380)	
	Width	in	(mm)	37-3/8	(950)	37-3/8	(950)	37-3/8	(950)	
	Depth	in	(mm)	14-9/16	(370)	14-9/16	(370)	14-9/16	(370)	
Package Dimensions	Height	in	(mm)	59-9/16	(1513)	59-9/16	(1513)	59-9/16	(1513)	
	Width	in	(mm)	40-3/8	(1025)	40-3/8	(1025)	40-3/8	(1025)	
	Depth	in	(mm)	18-1/8	(460)	18-1/8	(460)	18-1/8	(460)	
Weight	Net	lbs	(kg)	249	(113)	249	(113)	249	(113)	
	Gross	lbs	(kg)	267	(121)	267	(121)	267	(121)	
Connection Ratio	Connection Ratio Range	%		60-130		60-130		60-105		
	Max. (Recommendation) indoor units/system			6		8		8		
Heat Exchanger	Type	-		Multi-pass cross-finned tube						
	Material	-		Cu-Al (Anti-corrosion)						
Compressor	Type	-		HA36PHD-A1S2		HA36PHD-A1S2		A36PHD-A1S2		
	Motor Output (Pole)	- / -		3PH / 6		3PH / 6		3PH / 6		
	Start Method	-		Inverter						
	Operation Range	%		10 ~ 100		10 ~ 100		10 ~ 100		
	Refrigeration Oil Type	-		FVC68D		FVC68D		FVC68D		
Crank Case Heater	W×Q'ty		52W(208V) ×1		52W(208V) ×1		52W(208V) ×1			
Fan	Type	-		Propeller Fan		Propeller Fan		Propeller Fan		
	Motor Output (Pole)	W (Pole)		58(10) + 58(10)		58(10) + 58(10)		58(10) + 58(10)		
	Quantity	Q'ty		2						
	Air Flow Rate	cfm	(m³/min)	3177	(90)	3530	(100)	3530	(100)	
	Drive	-		Direct drive						
Electrical	Min Circuit Amps	A		31		31		31		
	Max. Overcurrent Protective Device	A		40						
Sound Pressure Level	Cooling (Night-Shift)	dB(A)		51	(44)	52	(46)	53	(46)	
	Heating	dB(A)		52		54		56		
Protection devices	Cycle	-		High pressure switch at 601psi (4.15MPa)						
	Compressor	-		Over-current protection		Over-heat protection		Circuit breaker (30A)		
	Fan Motor	-		Over-current protection		Over-heat protection		Self-contained fuse (5A)		
	PCB (Control Circuit)	-		Fuse on PCB(5A)						
Refrigerant	Type	-		R410A						
	Charge amount	lbs	(kg)	7.9	(3.6)	7.9	(3.6)	7.9	(3.6)	
Refrigeration Oil	Charge amount	gal/Unit	(kg/Unit)	0.34	(1.3)	0.34	(1.3)	0.34	(1.3)	
Defrost Method	-		Reversed refrigerant cycle							
Main Refrigerant Piping	Gas Line	in	(mm)	5/8	(15.88)	5/8	(15.88)	5/8	(15.88)	
	Liquid Line	in	(mm)	3/8	(9.52)	3/8	(9.52)	3/8	(9.52)	

NOTES:

* Efficiency ratings are based on the AHRI 210/240 test standard. ** For more detailed operation ranges, please consult Hitachi SmartFlex™ sales team or refer to product manuals.

Submittal Data Sheet

(Y, H) VAHP060B21S

60,000 Btu/h Mini VRF Outdoor Unit

Job Name:		Location:	
Purchaser:		Order No:	
Engineer:			
Submitted To:		Approval:	Construction:
Submitted By:		Date:	
Unit Designation:		Schedule No:	Model No:

Model				(Y,H)VAHP060B21S	
Power Supply				208/230V/ 1PH 60Hz	
Capacity (Nominal) *1	Cooling	Capacity (Nominal)	Btu/h	(kW)	60,000 (17.6)
		Power input	kW		5.05
		Current input	A(208V/230V)		24.8 / 22.4
	Heating	Capacity (Nominal)	Btu/h	(kW)	66,000 (19.3)
		Power input	kW		4.42
		Current input	A(208V/230V)		21.7 / 19.6
Efficiency Ratings *1 (Non-Ducted / Ducted)	Cooling	Rated Capacity	Btu/h		60,000 / 55,000
		EER	Btu/Wh		15.9 / 9.60
		SEER	Btu/Wh		16.80 / 15.90
	Heating	Rated Capacity	Btu/h		64,000 / 64,000
		COP	W/W		3.90 / 3.30
		HSPF	Btu/Wh		12.10 / 10.60
Cooling Operating Range *2	Indoor	°F WB (°C WB)		59 (15) - 73 (23)	
	Outdoor	°F DB (°C DB)		23 (-5) - 118 (48)	
Heating Operating Range *2	Indoor	°F DB (°C DB)		59 (15) - 80 (27)	
	Outdoor	°F WB (°C WB)		-4 (-20) - 59 (15)	
Cabinet Color (Munsell Code)				1.0Y8.5/0.5	
Outer Dimensions	Height	in	(mm)	54-5/16 (1380)	
	Width	in	(mm)	37-3/8 (950)	
	Depth	in	(mm)	14-9/16 (370)	
Package Dimensions	Height	in	(mm)	59-9/16 (1513)	
	Width	in	(mm)	40-3/8 (1025)	
	Depth	in	(mm)	18-1/8 (460)	
Weight	Net	lbs	(kg)	249 (113)	
	Gross	lbs	(kg)	267 (121)	
Connection Ratio	Total Indoor Unit Capacity	%		60-105	
	Max. indoor units/system	-		8	
Heat Exchanger	Type	-		Multi-Pass Cross-Finned Tube	
	Material	-		Cu-Al (Anti-corrosion)	
Compressor	Type	-		HA36PHD-A1S2	
	Motor Phase / Pol	-/-		3PH / 6	
	Start Method	-		inverter	
	Operation Range	%		10 - 100	
Refrigeration Oil Type		-		FVC68D	
Crank Case Heater		W/Qty		52W(208V) x1	
Fan	Type	-		Propeller Fan	
	Quantity	Qty		2	
	Motor Output (Pole)	W(Pole)		58(10) + 58(10)	
	Air Flow Rate	cfm	(m³/min)	3530 (100)	
	Drive	-		Direct-drive	
Electrical	Min. Circuit Amps	A		31	
	Max. Overcurrent Protective Device	A		40	
Sound Pressure Level*3	Cooling (Night-Shift)	dB(A)		53 (46)	
	Heating	dB(A)		56	
Protection devices	Cycle	-		High pressure switch at 601psi (4.15MPa)	
	Compressor	-		Over-current protection Over-heat protection Circuit Breaker (30A)	
	Fan Motor	-		Over-current protection Over-heat protection Self-contained fuse (5A)	
	PCB (Control Circuit)	-		Fuse on PCB(5A)	
Refrigerant	Type	-		R410A	
	Charge amount	lbs	(kg)	7.9 (3.6)	
Refrigeration Oil	Charge amount	gal/Unit	(l/Unit)	0.34 (1.3)	
	Defrost Method		-		Reversed Refrigerant Cycle
Main Refrigerant Piping	Gas Line	in	(mm)	5/8 (15.88)	
	Liquid Line	in	(mm)	3/8 (9.52)	

FEATURES

- Cooling up to 118°F and heating down To -4°F.
- One outdoor unit for up to 8 indoor units
- Ideal choice for building with zero lot Lines or zoning restrictions
- Flexible – Numerous systems configurations multiple-sized outdoor units and multiple options of indoor unit types and capacities
- Adaptable – Up to 984 ft. total pipe length
- Versatile – Up to 164ft. vertical distance between outdoor unit and indoor units
- Quiet operations – as low as 48 dB(A) sound level for outdoor units and 28 dB(A) for indoor units

Low output = 10% capacity
6,400 btu/hr

Updated to 11.0 HSPF See AHRI# 203994978

NOTES:

*1. Rating conditions are based on the AHRI testing standard. See www.ahrinet.org for more information:

Cooling

Indoor Air Inlet Temperature: 80°F (26.7°C)DB
67°F (19.4°C)WB

Outdoor Air Inlet Temperature: 95°F (35.0°C)DB

Heating

Indoor Air Inlet Temperature: 70°F (21.1°C)DB

Outdoor Air Inlet Temperature: 47°F (8.3°C)DB

43°F (6.1°C)WB

Piping Length: 24ft. 7-3/16in. (7.5m)

Piping Lift: 0ft. (0m)

*2 For more details, please refer to Engineering manual "Operation range" section.

*3 Measurement Point: 3.3ft. (1m) from the air outlet side, 4.9ft. (1.5m) from floor level.

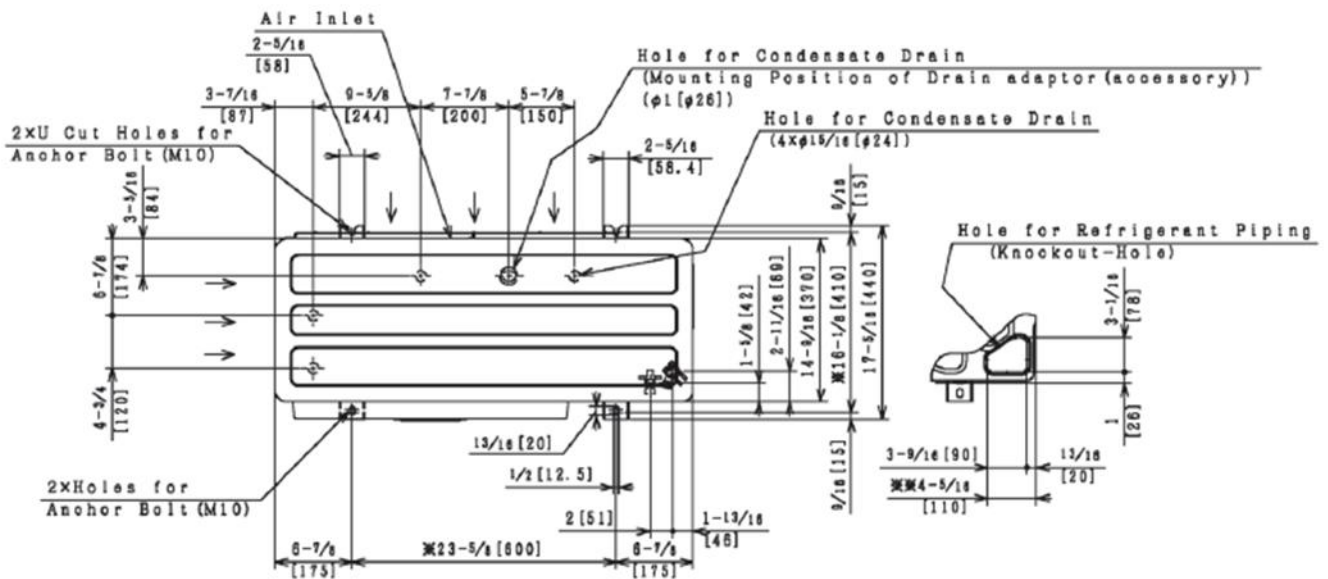
The operation sound is measured in an anechoic chamber. However, the actual operation sound may appear louder or with an echo because of surrounding environmental noise. Be sure to check environmental conditions before installation.

The sound of the air inlet side is 3dB higher than that of the air outlet side.

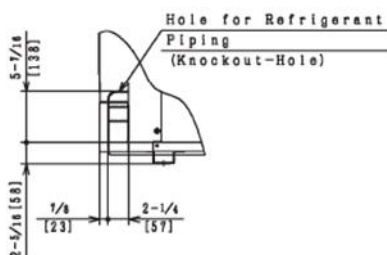
System Dimensions

60,000 BTU/H Mini VRF Outdoor Unit

Model – (Y,H) VAHP060B21S



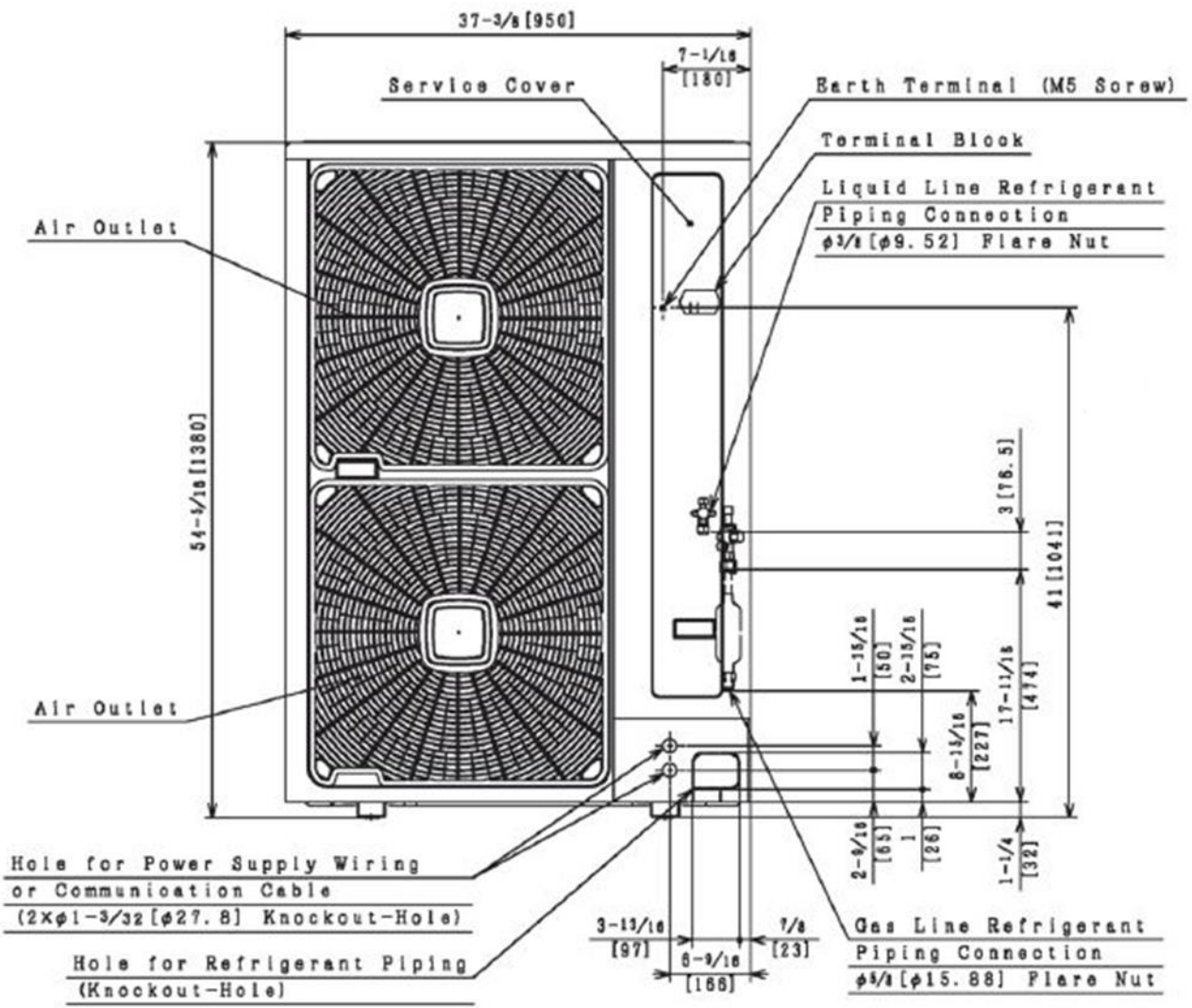
• A side view

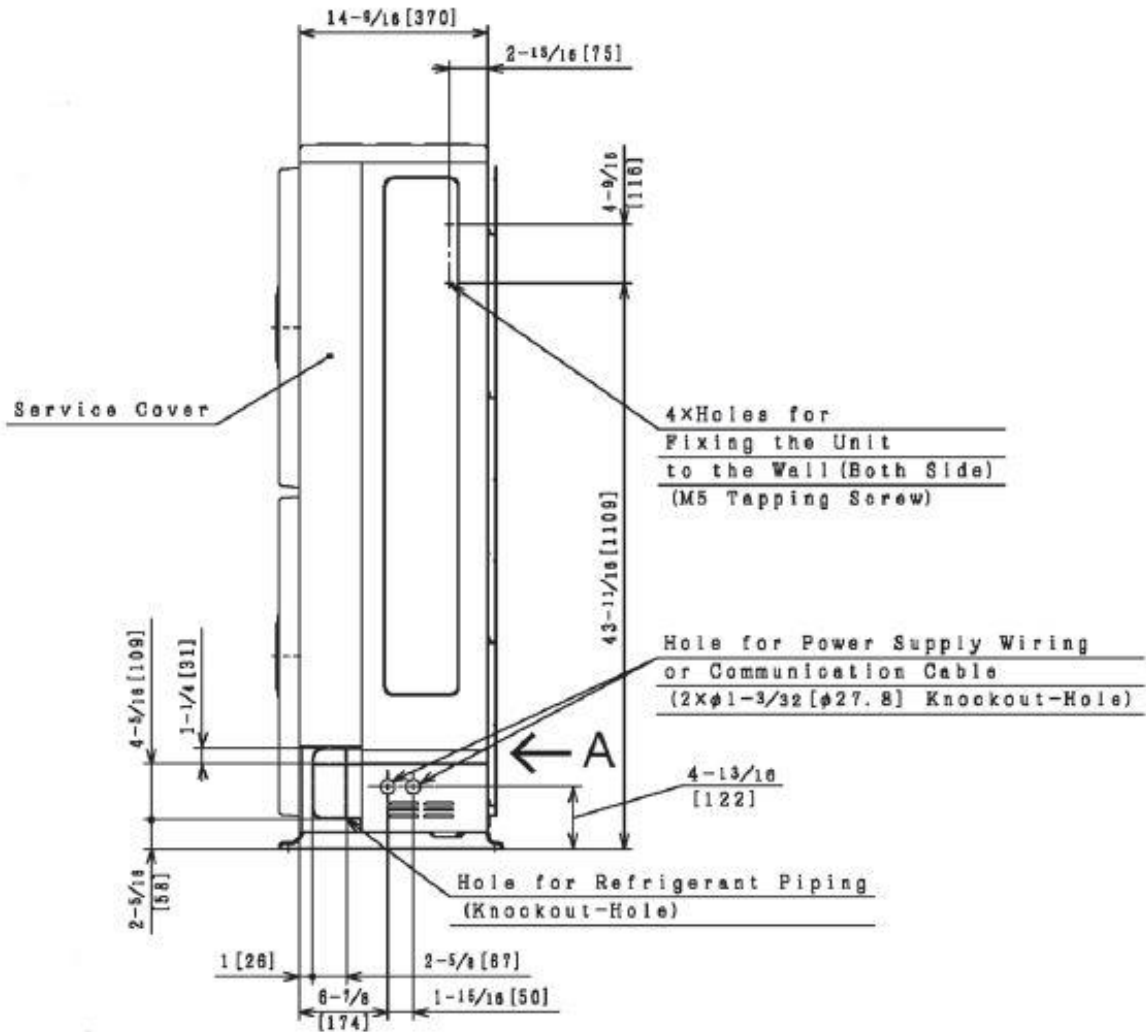


Drain Water

Drain water is caused during heating operation or defrost operation.

- ① Choose a place where well drainage is available. Or provide a groove for drain.
- ② Do not provide an upward slope from the unit to avoid reverse flow of the drain.
- ③ When dropping drain water is not permissible, provide a second drainpan under the outdoor unit, to collect drain water securely.





NOTES:

1. There are stop valves in the cabinet.
2. When connecting field refrigerant piping from the bottom side of the unit, provide the space (marked with ※) for understructures such as foundation to avoid interference.
3. The dimension marked with ※ indicates the mounting pitch dimension for anchor bolts.



MULTI-POSITION AIR HANDLER (CONTINUED)

Indoor Unit Type		Air Handler with DX-Kit										
Tonnage		4.0 Ton				5.0 Ton						
Model #		HMAHP48C21S		HMAHP48D21S		HMAHP60C21S		HMAHP60D21S		HMAHP60D22S		
Adaptable Air Handler Model #		AP48CX21		AP48DX21		AP60CX21		AP60DX21		AP60DX22		
Indoor Unit Power Supply		AC 1 Phase, 208/230V, 60Hz										
Nominal Cooling Capacity ¹	Btu/h	48,000		48,000		60,000		60,000		60,000		
	(kW)	(14.1)		(14.1)		(17.6)		(17.6)		(17.6)		
Nominal Heating Capacity ¹	Btu/h	54,000		54,000		64,000		64,000		64,000		
	(kW)	(15.8)		(15.8)		(18.8)		(18.8)		(18.8)		
Outer Dimensions	Height	in. (mm)	51-1/2 (1308)	55-1/2 (1410)	55-3/4 (1416)	55-1/2 (1410)	55-1/2 (1410)	55-1/2 (1410)	55-1/2 (1410)	55-1/2 (1410)	55-1/2 (1410)	
	Width	in. (mm)	21 (533)	24-1/2 (622)	21 (533)	24-1/2 (622)	21 (533)	24-1/2 (622)	24-1/2 (622)	24-1/2 (622)	24-1/2 (622)	
	Depth	in. (mm)	27-7/16 (545)	27-7/16 (545)	27-7/16 (545)	27-7/16 (545)	27-7/16 (545)	27-7/16 (545)	27-7/16 (545)	27-7/16 (545)	27-7/16 (545)	
Net Weight	lbs (kg)	150 (68)	153 (69)	146 (66)	170 (77)	170 (77)	170 (77)	170 (77)	170 (77)	170 (77)	170 (77)	
Refrigerant		R410A										
Indoor Fan (208/230V)	Air Flow Rate ² (Hi-Lo)	cfm	1062-971 / 1190-1059		1391-1139 / 1481-1258		1680-1562 / 1739-1659		1701-1590 / 1779-1694		1757-1639 / 1829-1735	
		(m ³ /min)	(30-28) / (34-30)		(39-32) / (42-36)		(48-44) / (49-47)		(48-45) / (50-48)		(50-46) / (52-49)	
External Pressure ²	in. W.G.	0.7		0.7		0.4		0.4		0.4		
	(Pa)	(174)		(174)		(99)		(99)		(99)		
Refrigerant Piping	Liquid Line	in. (mm)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	
	Gas Line ³	in. (mm)	5/8 (15.88)	5/8 (15.88)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	3/4 (19.05)	
Condensate Drain	OU	in. (mm)	1-1/16 (26.7)	1-1/16 (26.7)	1-1/16 (26.7)	1-1/16 (26.7)	1-1/16 (26.7)	1-1/16 (26.7)	1-1/16 (26.7)	1-1/16 (26.7)	1-1/16 (26.7)	
	IU	in. (mm)	13/16 (20.9)	13/16 (20.9)	13/16 (20.9)	13/16 (20.9)	13/16 (20.9)	13/16 (20.9)	13/16 (20.9)	13/16 (20.9)	13/16 (20.9)	

Tonnage		4.0 Ton		5.0 Ton	
Adaptable DX-Kit Model #		EXV-048E		EXV-060E	
Control Box					
Power Supply	-	AC208/230V, 1Ph, 60Hz			
Outer Dimensions					
Height	in. (mm)	3-3/16 (81)	3-3/16 (81)	3-3/16 (81)	3-3/16 (81)
Width	in. (mm)	12-5/8 (320)	12-5/8 (320)	12-5/8 (320)	12-5/8 (320)
Depth	in. (mm)	7-3/8 (187)	7-3/8 (187)	7-3/8 (187)	7-3/8 (187)
Net Weight	lbs. (kg)	6.57 (2.98)	6.57 (2.98)	6.57 (2.98)	6.57 (2.98)
Expansion Valve Box Part					
Power Supply	-	DC 12V			
Outer Dimensions					
Height	in. (mm)	4-5/16 (109)	4-5/16 (109)	4-5/16 (109)	4-5/16 (109)
Width	in. (mm)	17-1/16 (433)	17-1/16 (433)	17-1/16 (433)	17-1/16 (433)
Depth	in. (mm)	5-5/16 (151)	5-5/16 (151)	5-5/16 (151)	5-5/16 (151)
Net Weight	lbs. (kg)	8.84 (4.01)	11.05 (5.01)	11.05 (5.01)	11.05 (5.01)
Refrigerant		R410A			
Refrigerant Piping					
Liquid Line In	in. (mm)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)
Liquid Line Out	in. (mm)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)

Multi-Position Air Handler	
Compatible Accessories	HMAHP 018-060(B,C,D)2(1,2)S
Electric Heater Kit	6HK Series (UPG)
Infrared (IR) Receiver Kit	CWDIRK01
3-Pin Connector Cable	PCC-1A
Connector Cable for Auxiliary Heater	PCC-CN1925
Relay and 3-Pin Connector Kit	PSC-5RA
Remote Sensor (Control)	THM-R2A

Certificate of Product Ratings

AHRI Certified Reference Number : 203994978

Date : 07-13-2021

Model Status : Active

AHRI Type : HMSV-A-CB (Multi-Split Heat Pump)

Outdoor Unit Brand Name : HITACHI

Outdoor Unit Model Number : HVAHP060B21S*

Indoor Type : Ducted Indoor Units

Rated as follows in accordance with the latest edition of AHRI 210/240 with Addendum 1, Performance Rating of Unitary Air-Conditioning & Air-Source Heat Pump Equipment and subject to rating accuracy by AHRI-sponsored, independent, third party testing:

Cooling Capacity (95F) : 55000

EER (95F) : 9.70

SEER : 16.00

High Heat (47F) : 64000

Low Heat (17F) : 42000

HSPF : 11.00

Sold in? : USA, Canada

AHRI CERTIFIED®
www.ahridirectory.org

†"Active" Model Status are those that an AHRI Certification Program Participant is currently producing AND selling or offering for sale; OR new models that are being marketed but are not yet being produced. "Production Stopped" Model Status are those that an AHRI Certification Program Participant is no longer producing BUT is still selling or offering for sale.
Ratings that are accompanied by WAS indicate an involuntary re-rate. The new published rating is shown along with the previous (i.e. WAS) rating.

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CERTIFICATE VERIFICATION

The information for the model cited on this certificate can be verified at www.ahridirectory.org, click on "Verify Certificate" link and enter the AHRI Certified Reference Number and the date on which the certificate was issued, which is listed above, and the Certificate No., which is listed at bottom right.

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CERTIFICATE NO.:

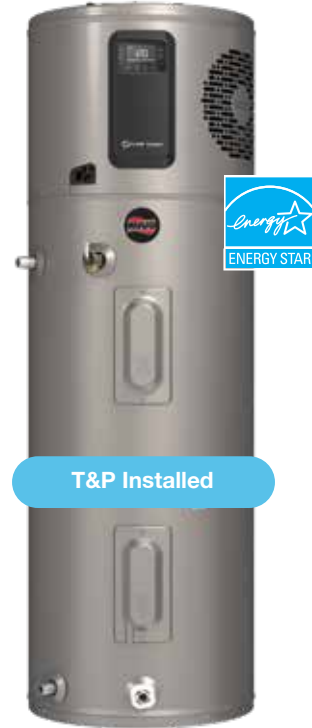
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Ruud® Hybrid Builder Residential Electric Water Heater Designed for Builders to Maximize Energy Design Rating / HERS Rating

Product Highlights

- 3.50 UEF
- Meets NEEA Tier 3 Requirements
- Integrated WiFi
- Grid-Enabled for Utility-Level Performance Monitoring
- Quiet Operation
- Design certified to NSF/ANSI 372 (lead control)
- 10 Year Limited Warranty¹



**Hybrid Electric
Builder Select**
40, 50, 65 and
80-Gallon Capacities
208-240 Volt / 1 PH / 24 Amps

FEATURES & BENEFITS	
High Efficiency	Meets ENERGY STAR® requirements
	Increased property value for consumers
Easy Installation	Easily Ducted – for installation in confined spaces with minimal make up air required
	Easy access to side water connection and top electrical junction box; <i>Zero clearance required in the back or side of the unit</i>
	¾" NPT water inlet & outlet; ¾" condensate drain connections
	Dry fire protection
Available EcoNet® Smart Technology	Integrated WiFi ²
	Energy usage reporting
	Grid interactive for utility demand response / load management programs



LEED Points = 3

DESCRIPTION				ENERGY INFO.			FEATURES					
NOMINAL GALLON CAPACITY	RATED GALLON CAPACITY	MODEL NUMBER	MODEL VARIANT	ELECTRIC BREAKER SIZE	UNIFORM ENERGY FACTOR (UEF)	ESTIMATED YEARLY ENERGY COST	COMPRESSOR BTU/H	SOUND LEVEL (dBA)	UEF FIRST HR. RATING G.P.H.	RECOVERY IN G.P.H 90° F RISE	UNIT WT. (LBS)	APPROX. SHIP WT. (LBS)
40	36	PRO H40 T2RU310BM	700462	30	3.50	\$111	4200	<50	60	26	156	177
50	45	PRO H50 T2RU310BM	700458	30	3.50	\$111	4200	<50	67	26	172	193
65	59	PRO H65 T2RU310BM	700459	30	3.50	\$111	4200	<50	75	26	225	262
80	72	PRO H80 T2RU310BM	700460	30	3.50	\$170	4200	<50	87	26	244	281

Estimated energy cost based on a national average electricity cost of 12.00 /kWh. Uniform Energy Factor and rated gallon capacity based on Department of Energy (DOE) requirements.

Units meet or exceed ANSI requirements and have been tested according to D.O.E. procedures. Units meet or exceed the energy efficiency requirements of NAECA, ASHRAE standard 90, ICC Code and all state energy efficiency performance criteria.

¹ See Residential Warranty Certificate for complete information. ² WiFi broadband internet connection required. ³ Consult your tax advisor for details on eligibility requirements for any available tax credits. Rebates vary by state.

For more product information, visit: Ruud.com/HybridBuilder



UPPER FLOOR PLAN

JOB NO. 2611
 DATE 8/10/21
 DRAWN BY DS
 ENGINEER S.S.F.

REVISION	DATE
1	X/XX/XX

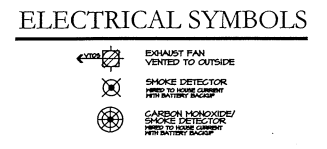
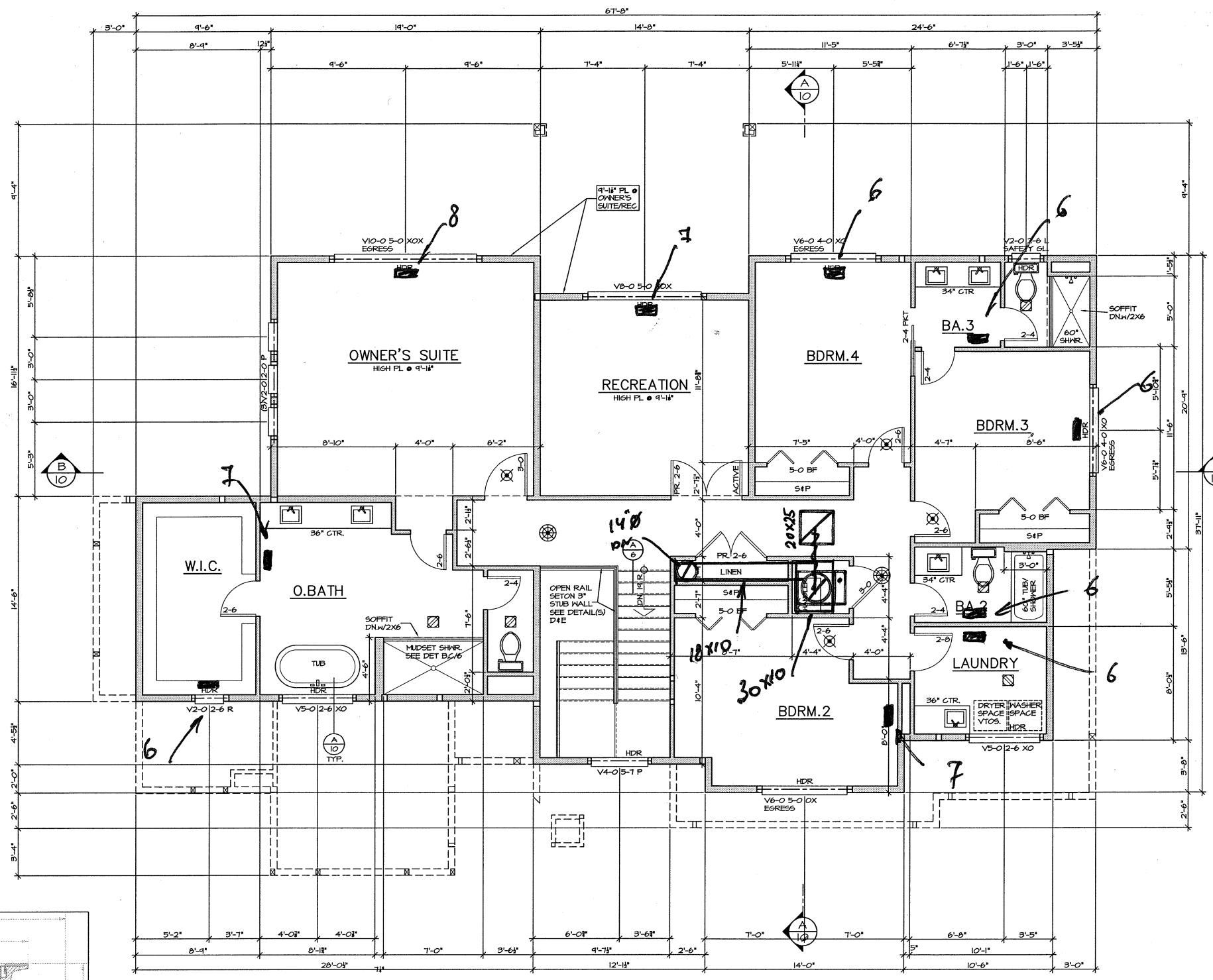
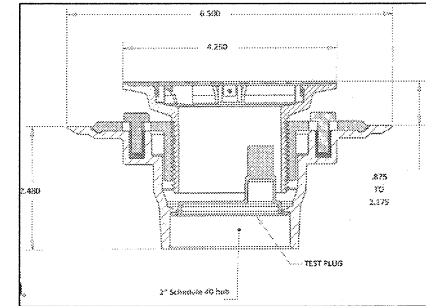
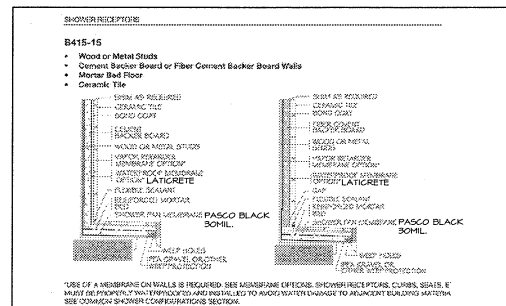
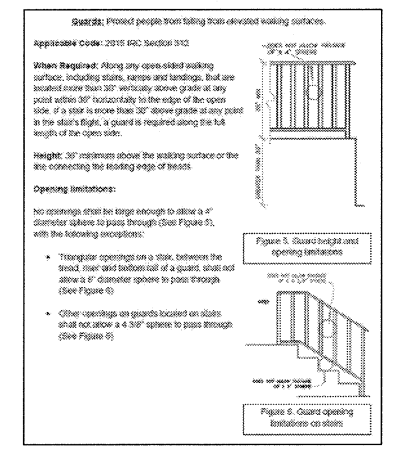
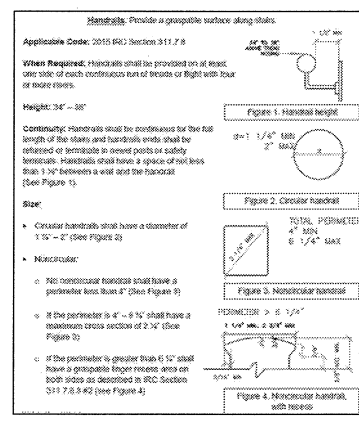
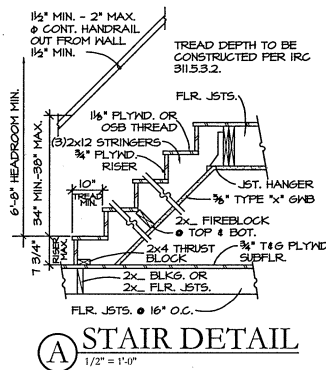
SHEET 6 OF 12

R302.11 Fireblocking. To ensure fire resistance, fireblocking shall be provided to cut off vertical and horizontal concealed draft openings and to form an effective fire barrier between stories, and between a top story and the roof space.

Fireblocking shall be provided in accordance with the following:

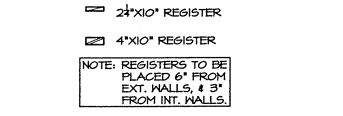
- In concealed spaces (i.e. stud walls and partitions, including finished spaces and partitions) of exterior walls, including finished spaces and partitions, as follows:
 - Vertically at the ceiling and floor levels.
 - Horizontally at intervals not exceeding 16'-0" max.
- At all connections between concealed vertical and horizontal spaces such as around soffits, or soffits and over ceiling.
- In concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces above stairs shall comply with the R312.7.
- In the walls of any party walls, pipes, ducts, chimneys, or other openings at floor level, with fire-resistance material to resist the passage of flame and products of combustion. The material filling this vertical space shall not be required to meet the ASTM E 136 requirements.
- For the fireblocking of chimneys and fireplaces, see Section S1003.15.

- NOTES:**
- FOR STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND, REFERENCE TO STRUCTURAL DRAWINGS.
 - ALL WOOD PLATES TO BE 2" MIN. (U.N.O.)
 - ALL HEADERS (HDR) TO BE 4X10 @ 7'-0" EXTERIOR AND 6'-10" INTERIOR (U.N.O.) BIFOLDS @ 6'-10", POCKETS @ 7'-0".
 - ALL EXTERIOR WALLS ARE 2X6 @ 16" O.C., FOR LUMBER GRADE, REFERENCE STRUCTURAL GENERAL NOTES.
 - ALL INTERIOR BEARING WALLS ARE 2X4 @ 16" O.C., FOR LUMBER GRADE, REFERENCE STRUCTURAL GENERAL NOTES.
 - HEADERS (HDRS)/BEAMS (BMS) SHOWN BUT NOT SPECIFIED SHALL BE 4X10 (U.N.O.). ALL HEADERS/BMS SHOWN SHALL BE SUPPORTED BY (2) TRIMMER AND (1) KING STUD MINIMUM (U.N.O.), WHERE MORE THAN (2) TRIMMER IS REQUIRED, THE NUMBER OF TRIMMER STUDS SHALL BE NOTED THIS (N). TRIMMER LOADS TO BE ADEQUATELY TRANSFERRED TO THE FOUNDATION.
 - FIRE STOPS SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS FROM VERTICAL TO HORIZONTAL SPACES, INCLUDING STAIRWELLS, TUBS AND SHOWERS, FIREPLACES, ETC.
 - THE WATER RESISTANT VAPOR GMB BASE FOR TILE IN THE SHOWER ENCLOSURES SHOULD NOT BE USED OVER A VAPOR BARRIER OR ON THE CEILING.
 - ALL DIMENSIONS TO FACE OF FRAMING
 - ALL HARDWARE TO BE SIMPSON OR EQUAL
 - VERIFY ALL V.C. DIMENSIONS IN FIELD.
 - ALL EXTERIOR WALLS SHALL BE IW6 UNLESS NOTED OTHERWISE.



UPPER FLOOR PLAN
 SCALE: 1/4" = 1'-0"

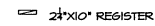

HEATING SYMBOLS



HEAT LAYOUT IS SHOWN TO ASSIST WITH FRAMING LAYOUT ONLY. THE FINAL DESIGN FOR HEATING OF THE HOME WILL BE DETERMINED BY THE HEAT CONTRACTORS.

SHELburne

HEATING SYMBOLS

-  24"x10" REGISTER
-  4"x10" REGISTER

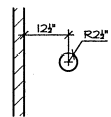
NOTE: REGISTERS TO BE PLACED 6" FROM EXT. WALLS, & 3" FROM INT. WALLS.

HEAT LAYOUT IS SHOWN TO ASSIST WITH FRAMING LAYOUT ONLY. THE FINAL DESIGN FOR HEATING OF THE HOME WILL BE DETERMINED BY THE HEAT CONTRACTORS.

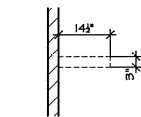
NOTES:

1. FOR STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND, REFERENCE TO STRUCTURAL DRAWINGS.
2. FLOOR TRUSS LAYOUT IS APPROXIMATE. FLOOR TRUSS SUPPLIER IS RESPONSIBLE FOR FINAL LAYOUT & CONFIGURATION. NOTIFY ENGINEER/BUILDER OF ANY REVISIONS TO PLAN.
3. ALL UPPER FLOOR JOIST TO BE 18" FLOOR TRUSSES @ 19.2" O.C. U.N.O.
4. ALL JOISTS TO LAP 6" MINIMUM.
5. ALL RIM JOISTS TO BE 1-3/4" LVL MINIMUM (U.N.O.)
6. PROVIDE FULL HEIGHT SOLID BLOCKING (FOR NON-PARALLEL) OR DOUBLE JOISTS (FOR PARALLEL) UNDER ALL SHEAR WALLS AND BEARING WALLS (U.N.O.). AT SHEAR WALL PARALLEL TO FRAMING, ALIGN 1 JOIST OVER SHEAR WALL (O.N.O.).
7. PROVIDE DOUBLE JOISTS AROUND ALL FLOOR AND ROOF OPENINGS GREATER THAN 24" ON ONE SIDE (U.N.O.)
8. FLOOR SHEATHING TO BE 23/32" TONGUE AND GROOVE APA-RATED STURD-I-FLOOR OR EQUAL. SHEATHING TO BE GLUED AND NAILED TO FRAMING WITH 0.91" DIA X 2-1/2" NAILS AT 6" O.C. AT PANEL EDGES AND AT 12" O.C. FIELD (U.N.O.). LAY SHEATHING WITH FACE GRAIN (LONG DIRECTION) PERPENDICULAR TO SUPPORTS AND STAGGER PANEL END JOINTS. ALLOW 1/8" SPACE BETWEEN PANEL ENDS AND EDGES.
9. CROSS HATCHING INDICATES OVER-FRAMING.
10. ALL HARDWARE TO BE SIMPSON OR EQUAL.
11. ALL DIMENSIONS TO FACE OF FRAMING.
12. VERIFY ALL +/- DIMENSIONS IN FIELD.

* HEAD-OUT OR ADJUST JOIST LAYOUT TO PROVIDE FRAMING ALLOWANCE PER DETAILS:



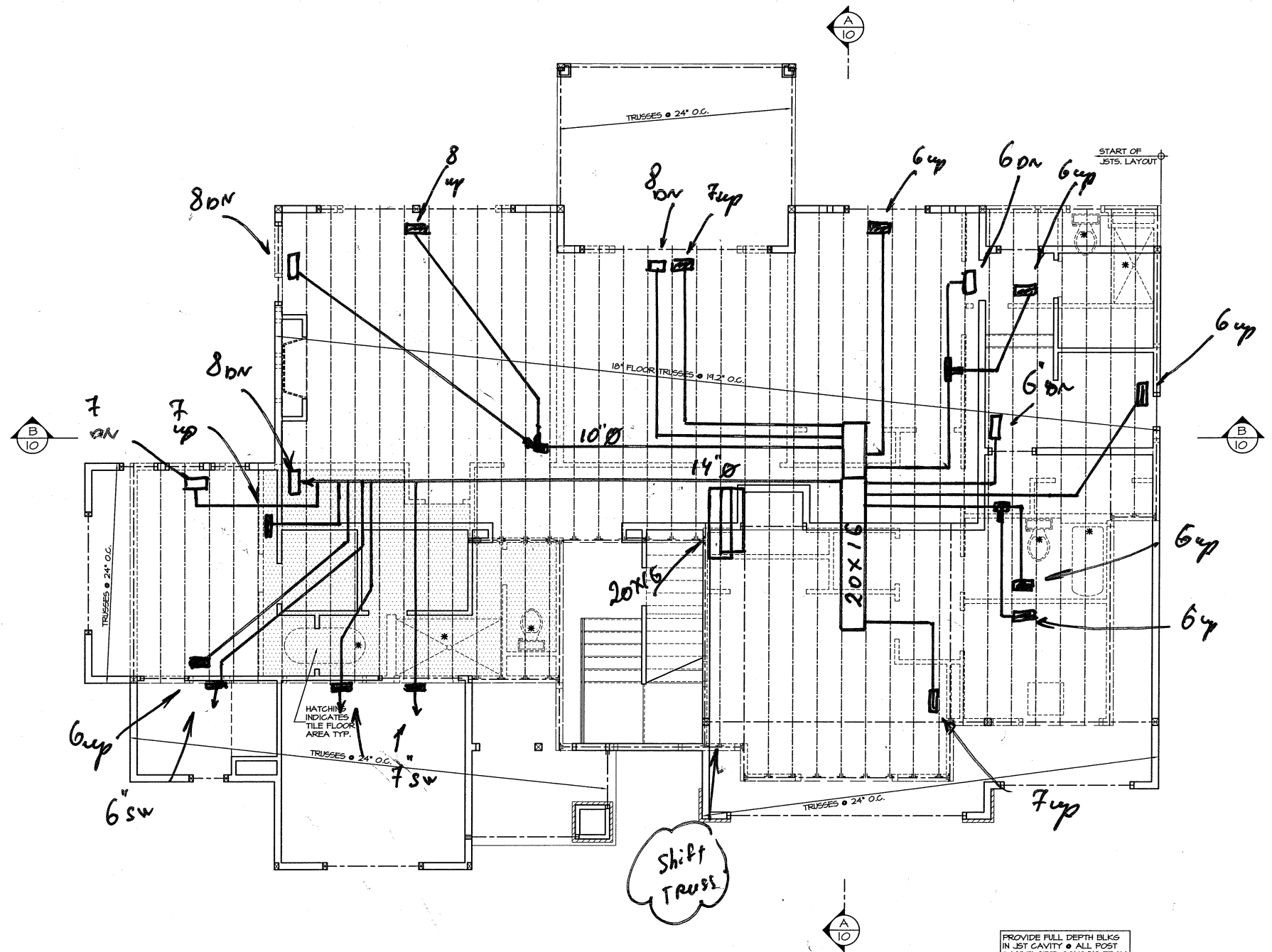
TOILET DRAIN



TUB DRAIN



RECESSED CAN



UPPER FLR. FRAMING

SCALE: 1/4" = 1'-0"

PROVIDE FULL DEPTH BUCKS IN JOIST CAVITY & ALL POST & MULTI-STUD COLUMNS FROM UPPER FLOOR TYP.

WILLIAM E BUCHAN INC.
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UPPER FLR. FRAMING

JOB NO. 2611
 DATE 8/10/21
 DRAWN BY DS
 ENGINEER S.S.F.

REVISION	DATE
1	x/xx/xx

SHEET 5 OF 12

SHELburne

609.3 Expansion Tanks, and Combination, Temperature and Pressure-Relief Valves. A water system provided with a check valve, backflow preventer, or other normally closed device that prevents dissipation of building pressure back into the water main, independent of the type of water heater used, shall be provided with an approved, listed, and adequately sized expansion tank or other approved device having a similar function to control thermal expansion. Such expansion tank or other approved device shall be installed on the building side of the check valve, backflow preventer, or other device and shall be sized and installed in accordance with the manufacturer's installation instructions.

R302.11 Fireblocking. In noncombustible construction, fire-blocking shall be provided to cut off both vertical and horizontal concealed draft openings and to form an effective fire barrier between stories, and between a top story and the roof space.

Fireblocking shall be provided in wood-framed construction in the following locations:

- In concealed spaces of stud walls and partitions, including furrow spaces and parallel rows of studs or staggered studs, as follows:
 - Vertically at the ceiling and floor levels.
 - Horizontally at intervals not exceeding 10 feet (3048 mm).
- At interconnections between concealed vertical and horizontal spaces such as occur at soffits, drop ceilings and cove ceilings.
- In concealed spaces between stair stringers at the top and bottom of the run. Enclosed spaces under stairs shall comply with Section R302.7.
- At openings around vents, pipes, ducts, cables and wires at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion. The material filling this opening space shall not be required to meet the ASTM E 136 requirements.
- For the fireblocking of chimneys and fireplaces, see Section R1003.9.

HEATING SYMBOLS

- 24"x10" REGISTER
 - 4"x10" REGISTER
 - 32"x11" BLOCK OUT FOR RISER
- NOTE: REGISTERS TO BE PLACED 6" FROM EXT. WALLS, & 3" FROM INT. WALLS.

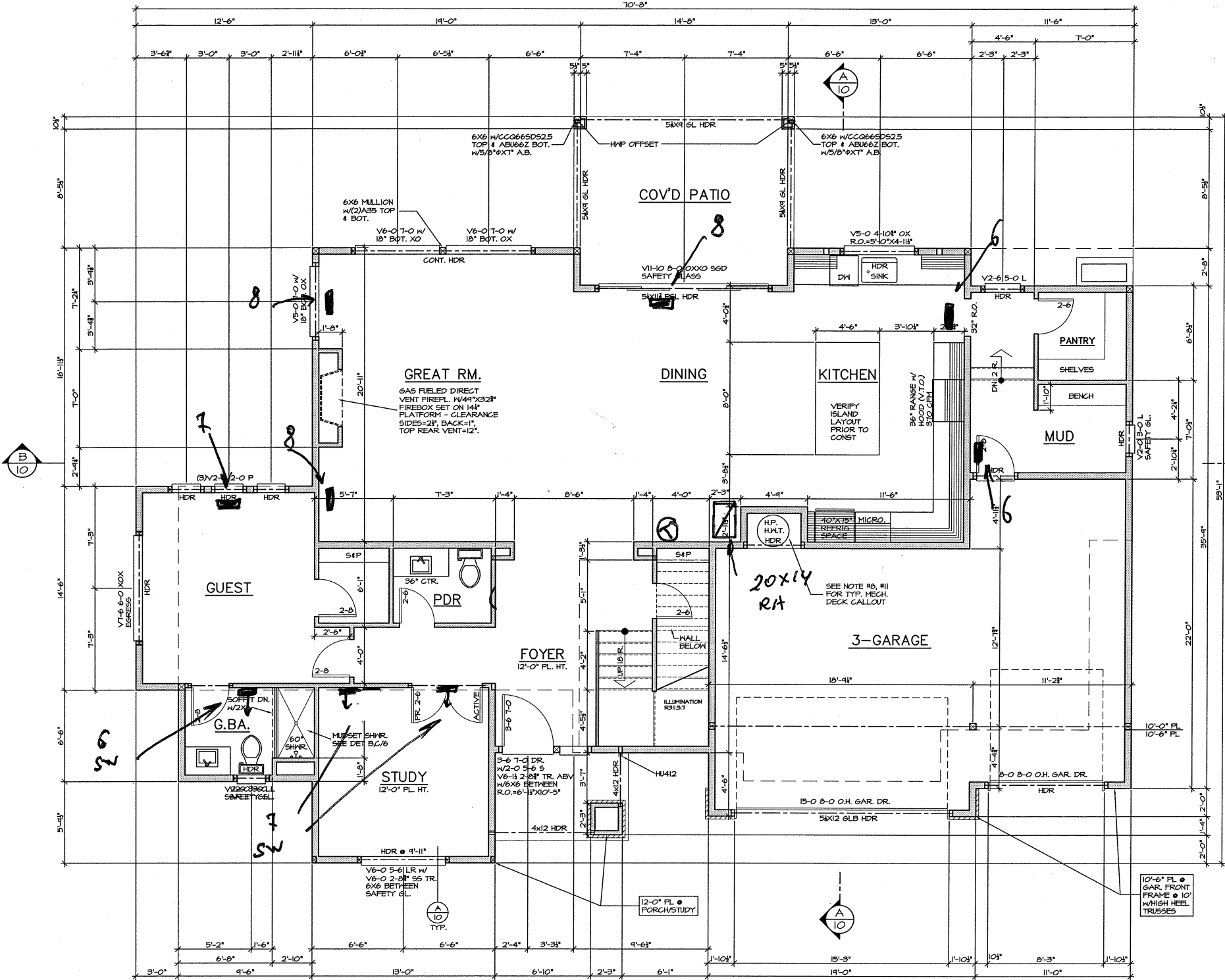
HEAT LAYOUT IS SHOWN TO ASSIST WITH FRAMING LAYOUT ONLY. THE FINAL DESIGN FOR HEATING OF THE HOME WILL BE DETERMINED BY THE HEAT CONTRACTORS.

ELECTRICAL SYMBOLS

- EXHAUST FAN VENTED TO OUTSIDE
- SMOKE DETECTOR
- CARBON MONOXIDE DETECTOR

NOTES:

- FOR STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND, REFERENCE TO STRUCTURAL DRAWINGS.
- ALL WOOD PLATES TO BE 10'-0" (UNOJ)
- ALL HEADERS (HDR) TO BE 8'-8" EXTERIOR AND 6'-10" INTERIOR (UNOJ), POCKETS 1'-0", BIFOLDS 6'-10".
- ALL EXTERIOR WALLS ARE 2X6 @ 16" O.C., FOR LUMBER GRADE, REFERENCE STRUCTURAL GENERAL NOTES
- ALL INTERIOR BEARING WALLS ARE 2X4 @ 16" O.C. (UNOJ), FOR LUMBER GRADE, REFERENCE STRUCTURAL GENERAL NOTES
- BALLOON FRAME ALL WALLS GREATER THAN ONE LEVEL 10'-0" WITH 12'-2X4 AT 16" O.C., FOR LUMBER GRADE, REFERENCE STRUCTURAL GENERAL NOTES
- HEADERS (HDRS)/BEAMS (BMS) SHOWN BUT NOT SPECIFIED SHALL BE 4X12 (UNOJ). ALL HEADERS/BEAMS SHALL BE SUPPORTED BY (2) TRIMMER AND (1) KING STUD (UNOJ). WHERE MORE THAN 1 TRIMMER IS REQUIRED, THE NUMBER OF TRIMMER STUDS SHALL BE NOTED THIS (N). TRIMMER LOADS TO BE ADEQUATELY TRANSFERRED TO THE FOUNDATION. SEE 3/53.2 FOR TYP HDR. CONST. REQUIREMENTS.
- PILOTS, BURNERS, HEATING ELEMENTS AND SWITCHES TO FURNACE AND WATER HEATER SHALL BE LOCATED A MINIMUM OF 18" ABOVE GARAGE FLOOR AND BE PROTECTED FROM VEHICULAR COLLISION
- FIRE STOPS SHALL BE PROVIDED TO CUT OFF ALL CONCEALED DRAFT OPENINGS FROM VERTICAL TO HORIZONTAL SPACES, INCLUDING STAIRWELLS, TUBS AND SHOWERS, FIREPLACES, ETC. DRAFT-STOPPING IS REQD BETWEEN EACH STORY AND IN AREAS NOT EXCEEDING 1000 SF.
- 6/8B NOTE: USE 1/2" TYPE X 6/8B UNDER STAIRS W/ FINISHED SPACE BELOW
- AREA SEPARATION NOTE: USE 2 LAYERS 1/2" PLYWOOD FOR TOP DECKING ON ALL EXPOSED SUB-FLOOR IN GARAGE
- R 304.1, OPENINGS BETWEEN THE GARAGE AND THE RESIDENCE SHOULD BE EQUIPPED WITH SOLID WOOD DOORS OR SOLID/HONEYCOMB STEEL DOORS AT LEAST 1-3/8" THICK. A 20 MINUTE FIRE RATED DOOR IS ALSO ACCEPTABLE. REQD TO BE SELF-CLOSING PER IRC 302.5.1
- R304.2, SEPARATION REQUIRED, THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" TYPE-X GYPSUM BOARD OR EQUIVALENT, WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" GYPSUM BOARD OR EQUIVALENT
- ALL HARDWARE TO BE SIMPSON OR EQUAL
- ALL DIMENSIONS TO FACE OF FRAMING
- VERIFY ALL +/- DIMENSIONS IN FIELD
- ALL EXTERIOR WALLS SHALL BE W6 UNLESS NOTED OTHERWISE.
- PER TABLE R402.1.1 FOOTNOTE M, ALL EXT. WALL HDRS ARE REQD TO BE INSULATED WITH MIN. R-10 INSUL. IF THEY ARE NOT THE FULL WIDTH OF WALL. IF HEADER IS THE FULL WIDTH OF WALL STRUCTURE OVERRULES ENERGY.



MAIN FLOOR PLAN

SCALE: 1/4" = 1'-0"

FLOOR AREA GROSS	
MAIN FLOOR	1754 S.F.
UPPER FLOOR	1870 S.F.
GARAGE	583 S.F.
COVERED PORCH	54 S.F.
COVERED PATIO	184 S.F.
TOTAL	4450 S.F.

SQUARE FOOTAGE CALC.	
MAIN FLOOR PLAN	1868 S.F.
UPPER FLOOR PLAN	2119 S.F.
TOTAL LIVING AREA	3987 S.F.
GARAGE	604 S.F.
COVERED PORCH	54 S.F.
COVERED PATIO	184 S.F.

Per IRC Section R302.5.2 Dust penetration. Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 26 gage (0.48 mm) sheet steel or other approved material and shall not have openings into the garage.

Per WSEC Section R403.3.1 Insulation. Ducts outside the building thermal envelope, including those located in the crawl space, shall be insulated to a minimum of R-8.

Floor Area, Gross. The area included within the inside finished wall surface of the surrounding exterior walls of a building, excluding interior openings in floor plates, (e.g., vent shafts, stair wells, and interior atriums), outdoor courts and exterior balconies.

SHELburnNE

WILLIAM E BUCHAN INC.
2630 - 116th Ave. NE. • Bellevue, Washington 98004 • (425) 828-6424



CONTENT
MAIN FLOOR PLAN

JOB NO.	2611
DATE	8/10/21
DRAWN BY	DS
ENGINEER	S.S.F.

REVISION	DATE
1	X/XX/XX

SHEET
4
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