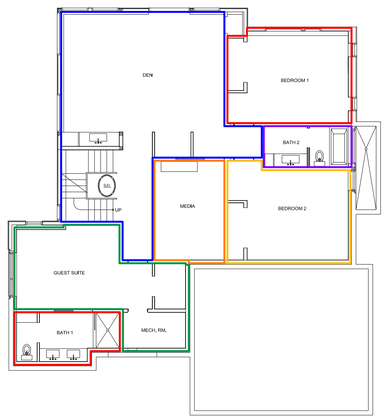
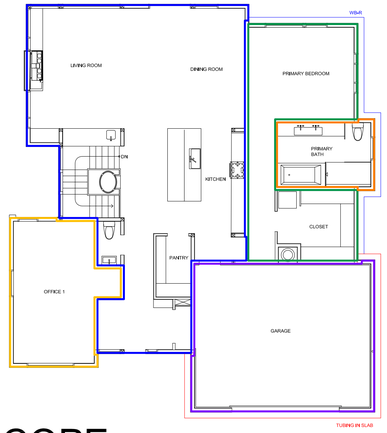
WCS PROPOSAL
SAMPLE PROJECT



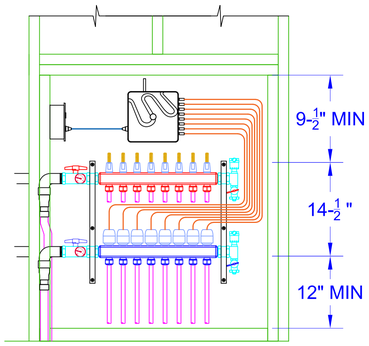


CONDITIONED FLOOR AREA			
FLOOR	WB-S SQFT	WB-R SQFT	SLAB SQFT
BASEMENT	0	0	1972
MAIN	1630	607	0
GARAGE	0	0	595
TOTAL:	1630	607	2567
	4804		

IMPORTANT NOTE:

THESE FIGURES ARE BUDGETARY ESTIMATIONS. FINALIZED NUMBERS CAN ONLY BE DETERMINED ONCE CONSTRUCTION DOCUMENTS ARE COMPLETED AND APPROVED BY WARMBOARD CLIENT.

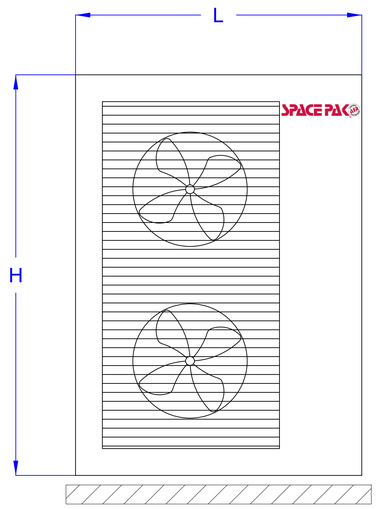
PROJECT SCOPE



FRAMING DIMENSIONS FOR MANIFOLD BOX

LOOPS	W x H
2	14"x36" CLEAR
3	16"x36" CLEAR
4	18"x36" CLEAR
5	20"x36" CLEAR
6	22"x36" CLEAR
7	24"x36" CLEAR
8	26"x36" CLEAR

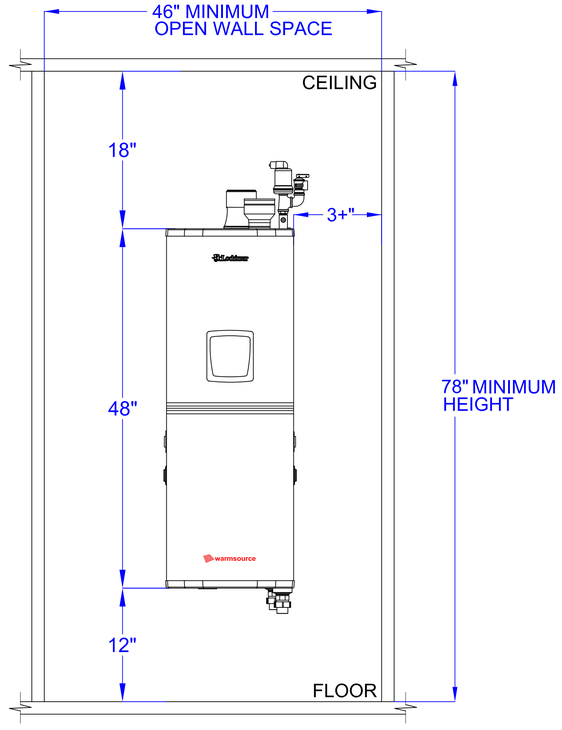
MANIFOLD INSTALLATION



ALL UNITS TO BE SET OUTSIDE ON A 2' x 4' CONCRETE PAD

UNIT	L x W x H
SIM-036	39" x 19" x 36"
SIM-060	39" x 13" x 52"

HEAT PUMP INSTALLATION



WCS BOILER INSTALLATION

Preliminary Design Review Checklist

	Confirmed
Location: Town, State	
Site Elevation: **350 ft**	
Total Conditioned Floor Area: **2,832 ft²**	
Outdoor Design Temperature: **5 °F**	
Indoor Design Temperature: **70 °F**	
Supplemental Heat: **N/A**	
Minimum Insulation Values:	
Wall: **R-18**	
Basement Wall: **R-13**	
Window: **U-0.3**	
Exterior Door: **R-2**	
Ceiling: **R-49**	
Skylight: **U-0.55**	
Floor: **R-30**	
Slab: **R-10**	
Boiler Fuel Source: **Natural Gas**	

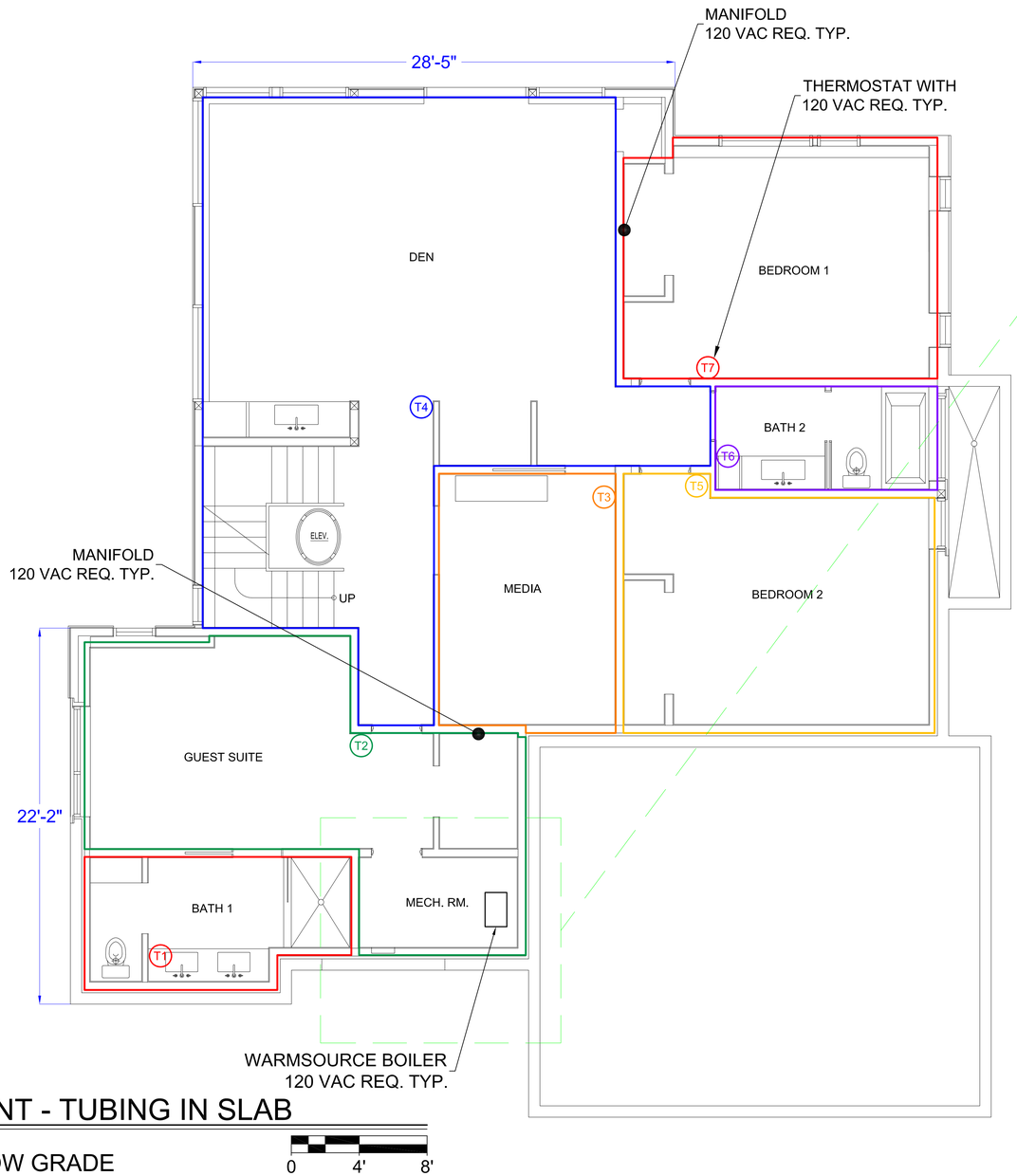
Insulation values shown in **red** are default values based on the International Energy Conservation Code (IECC) minimums.

warmboard.com // 800.556.0595
100 Enterprise Way, Suite G300
Scotts Valley, California 95066
warmboard

WCS
PRELIMINARY LAYOUT

STREET NUMBER
JOB#00000
Town, State

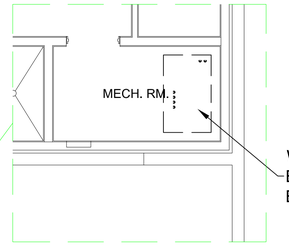
REVISIONS:	BY:	DATE:	00/00/2022
		SCALE:	NTS
		DRAWN:	N. Willy
		REVIEWED:	MSH
		SHEET:	PRE 1.0



BASEMENT - TUBING IN SLAB

SLAB BELOW GRADE

0 4' 8'



HEAT PUMP EXAMPLE

THERMOSTAT PLACEMENT GUIDELINES:

1. WITHIN THE ZONE
2. AWAY FROM HOT/COOL SOURCES
3. 5 FEET HIGH
4. ON AN INTERIOR WALL
5. ABOVE A LIGHT SWITCH

NOTE:

PLEASE VERIFY THAT THE SPECIFICATIONS ARE ACCURATE TO THE MOST CURRENT SET OF DESIGNS

FOR IMMEDIATE ASSISTANCE
CALL: 877-338-5493 (8AM - 5PM PT)

Preliminary Design Review Checklist

Layout	Confirmed
Nail down hardwood plank direction correct (WB-R)	
Joist direction, spacing & start point correct (WB-S)	
Structural / joist plans provided	
Level changes & curbless showers correct	
No heat areas correct	
No bury areas correct	
Boilers / Equipment, Manifolds, Zones & Thermostats	
Boiler / Mech. equipment location & quantity correct	
Acceptable manifold locations circled	
Zone configuration correct	
Thermostat placement correct	

Design will commence when each item above is checked or note provided

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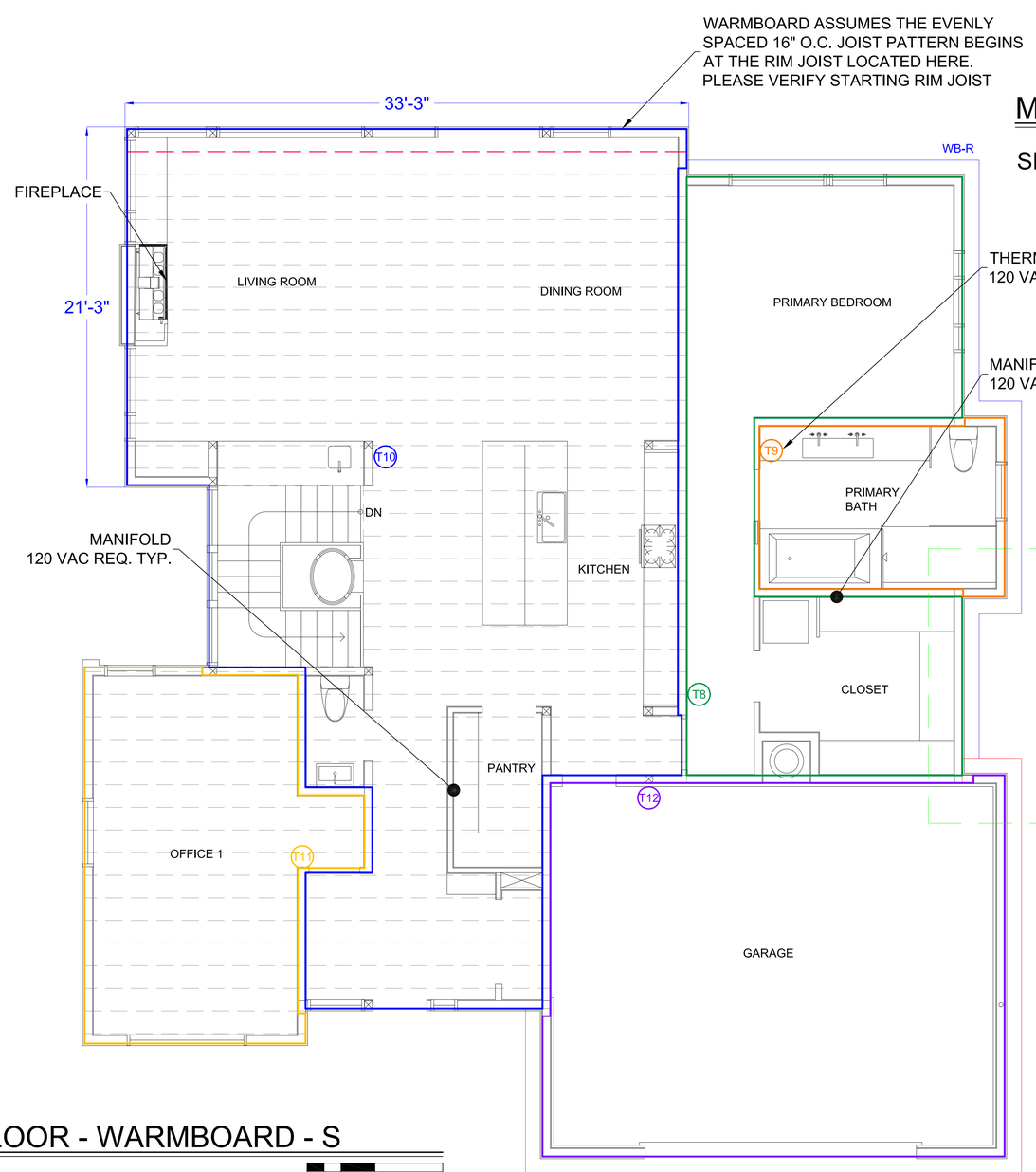
100 Enterprise Way, Suite G300
Scotts Valley, California 95066
warmboard

WCS
PRELIMINARY LAYOUT

STREET NUMBER
JOB#00000
Town, State

REVISIONS:	BY:	DATE: 00/00/2022
		SCALE: NTS
		DRAWN: N. Willy
		REVIEWED: MSH
		SHEET: PRE 1.1



MAIN FLOOR - WARMBOARD - S

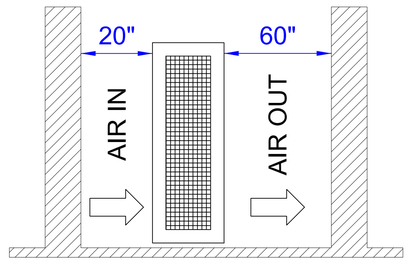
SUSPENDED CONSTRUCTION

0 4' 8'

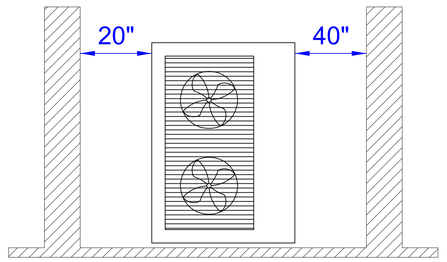
MAIN FLOOR - WARMBOARD - R

SLAB ON GRADE

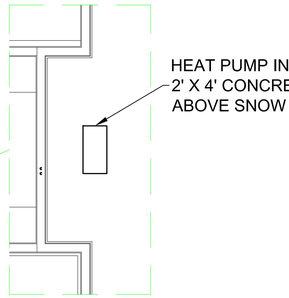
0 4' 8'



SIDE VIEW



FRONT VIEW



HEAT PUMP EXAMPLE

NOTE:

PLEASE VERIFY THAT THE SPECIFICATIONS ARE ACCURATE TO THE MOST CURRENT SET OF DESIGNS

FOR IMMEDIATE ASSISTANCE
CALL: 877-338-5493 (8AM - 5PM PT)

Preliminary Design Review Checklist

Layout	Confirmed
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Joist direction, spacing & start point correct (WB-S)	
Structural / joist plans provided	
Level changes & curbless showers correct	
No heat areas correct	
No bury areas correct	
Boilers / Equipment, Manifolds, Zones & Thermostats	
Boiler / Mech. equipment location & quantity correct	
Acceptable manifold locations circled	
Zone configuration correct	
Thermostat placement correct	

Design will commence when each item above is checked or note provided

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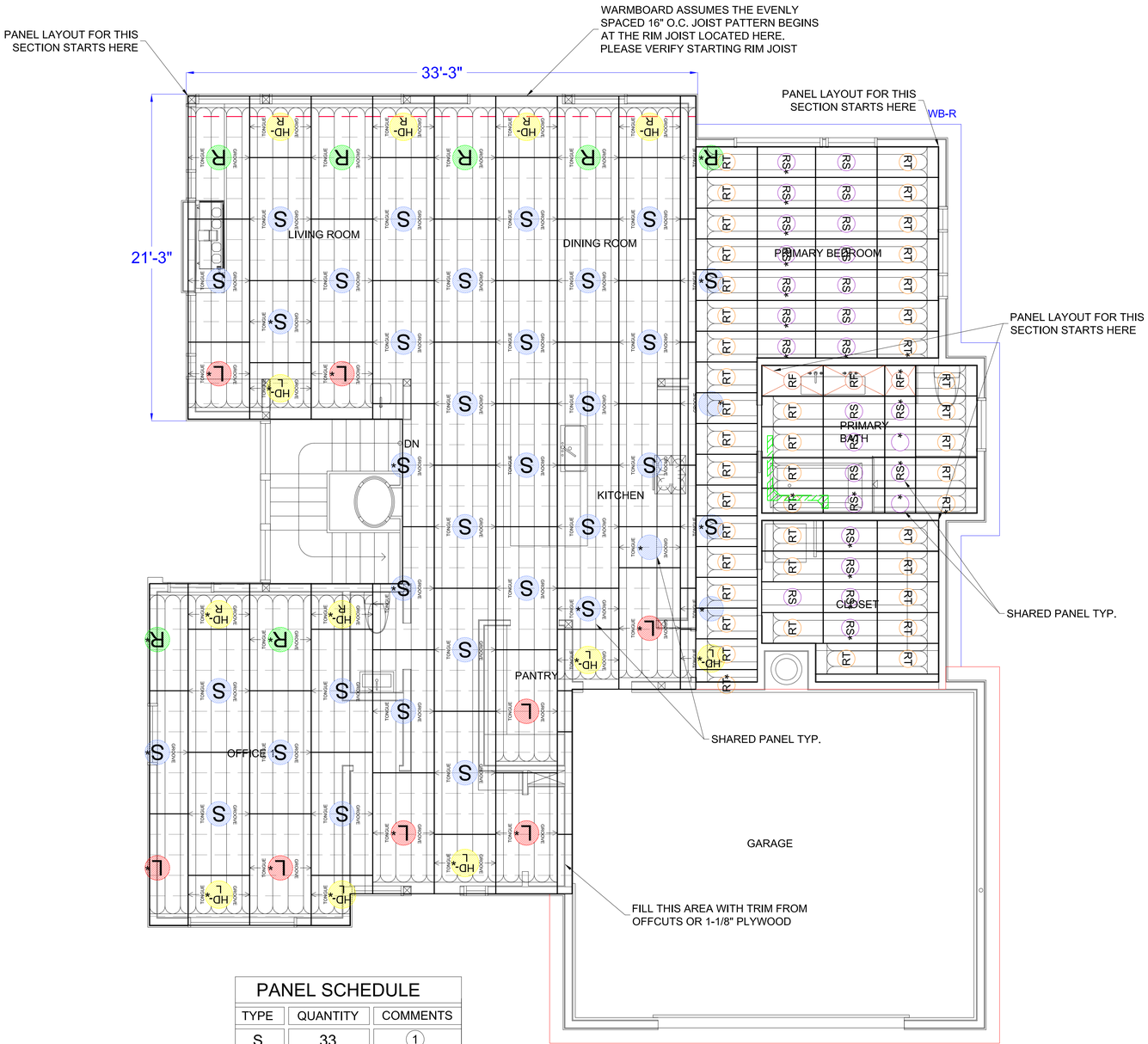
100 Enterprise Way, Suite G300
Scotts Valley, California 95066
warmboard

WCS
PRELIMINARY LAYOUT

STREET NUMBER
JOB#00000
Town, State

REVISIONS:	BY:	DATE: 00/00/2022
		SCALE: NTS
		DRAWN: N. Willy
		REVIEWED: MSH
		SHEET: PRE 1.2



MAIN FLOOR PANEL LAYOUT

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

PANEL SCHEDULE

TYPE	QUANTITY	COMMENTS
S	33	(1)
L	8	(1)
R	7	(1)
D	6	(1) (2)
F	0	(3)
RS	25	(1)
RT	43	(1)
RF	3	(4)

(1) ANY PANELS IN THE DRAWING THAT ARE MARKED WITH AN ASTERISK (*) INDICATE A PANEL THAT IS TO BE TRIMMED. A CAREFUL MEASUREMENT SHOULD BE MADE TO GUARANTEE A CORRECT INSTALLATION.

(2) DOUBLE PANELS WILL CONSIST OF A "HALF DOUBLE-LEFT" PANEL AND A "HALF DOUBLE-RIGHT" PANEL. ON THE PANEL LAYOUT, YOU MAY SEE A PANEL MARKED AS "HD-L" OR "HD-R." THIS MEANS THAT YOU CUT ONE OF THESE DOUBLE PANELS IN HALF AND USE THE APPROPRIATE SIDE AS MARKED FOR THE INSTALLATION.

(3) CONVENTIONAL TONGUE AND GROOVE PLYWOOD PANELS USED TO FILL IN EMPTY SPACES WHERE WARMBOARD MAY NOT BE APPROPRIATE.

(4) OSB PLYWOOD PANELS USED TO FILL IN EMPTY SPACES WHERE WB-REMODEL PANEL MAY NOT BE APPROPRIATE.

IMPORTANT:

RETAIN ALL OFF CUTS TO FILL IN SECTIONS AS NEEDED.

WARMBOARD LEGEND

- S STRAIGHT PANEL
- L LEFT TURN PANEL
- R RIGHT TURN PANEL
- D DOUBLE TURN PANEL
- HD-R HALF DOUBLE PANEL-RIGHT TURN
- HD-L HALF DOUBLE PANEL-LEFT TURN
- F FILLER PANEL
- RS REMODEL STRAIGHT PANEL
- RT REMODEL TURN PANEL
- RF REMODEL FILLER PANEL
- * DENOTES TRIMMED PANEL.
- — — — — JOIST

IMPORTANT NOTE:

INSULATING BELOW WARMBOARD IS MANDATORY FOR PROPER PERFORMANCE

MANDATORY STRUCTURAL NOTES

1. TO ENSURE OPTIMAL PANEL INSTALLATION, FOLLOW PANEL LAYOUT PLANS, ALL WARMBOARD INSTALLATION INSTRUCTIONS, AND APA GUIDELINES. FAILURE TO DO SO COULD CAUSE PANEL WASTE.

2. WARMBOARD PLANS ARE CONCEPTUAL AND DO NOT SUPERSEDE STRUCTURAL PLANS WHICH MAY BE PART OF THE ARCHITECTURAL PLAN SET. SHOULD THERE BE A CONFLICT BETWEEN WARMBOARD PLANS AND THE STRUCTURAL PLANS, CONSULT IMMEDIATELY WITH WARMBOARD CUSTOMER SERVICE BEFORE PROCEEDING.

3. INSTALLING CONTRACTOR IS RESPONSIBLE TO VERIFYING ALL MEASUREMENTS PRIOR TO THE INSTALLATION OF WARMBOARD PANELS.

QUESTIONS? FOR IMMEDIATE ASSISTANCE
CALL: 1.800.556.0595 (8AM - 5PM PT)

REVISIONS:	BY:

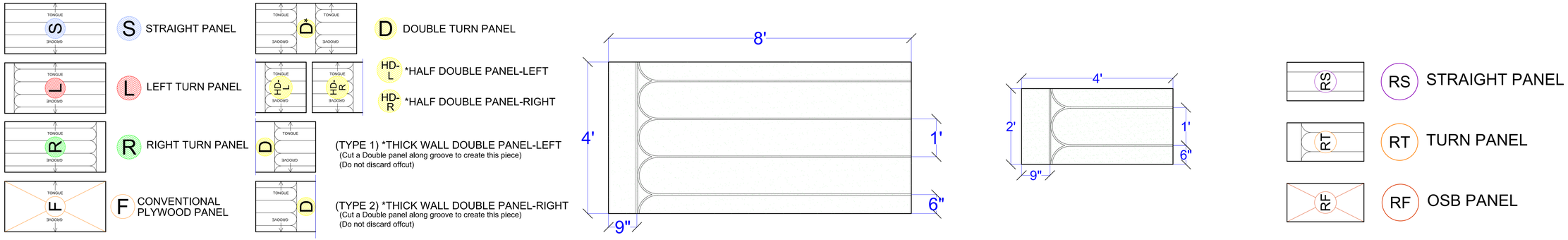
WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

warmboard®

SAMPLE PROJECT
JOB# 00000
Town, State

PANEL LAYOUT

DATE:	00/00/2022
SCALE:	1/4" = 1'
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBS 1.0

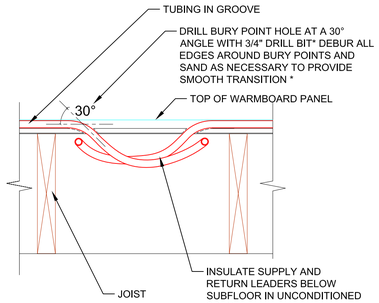


1 WARMBOARD - S PANELS
SCALE: NONE

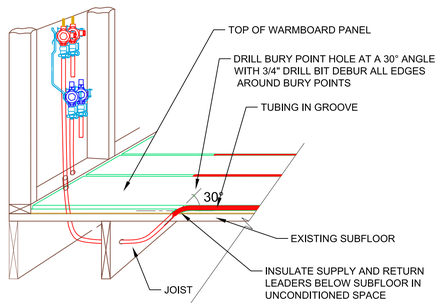
2 1-1/8" WARMBOARD - S PANEL
SCALE: NONE

3 13/16" WARMBOARD - R PANEL
SCALE: NONE

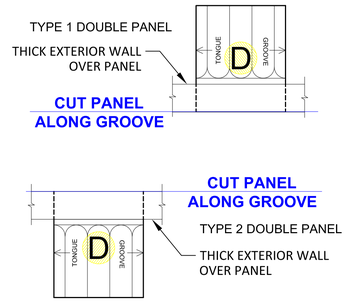
4 WARMBOARD - R PANELS
SCALE: NONE



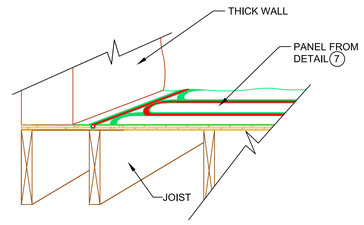
5 BURY POINT
SCALE: NONE



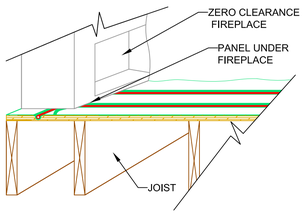
6 BURY TO MANIFOLD
SCALE: NONE



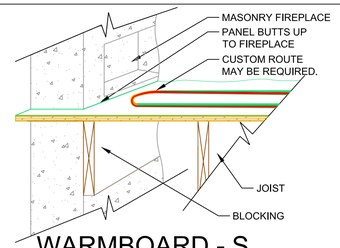
7 THICK WALL PANEL
SCALE: NONE



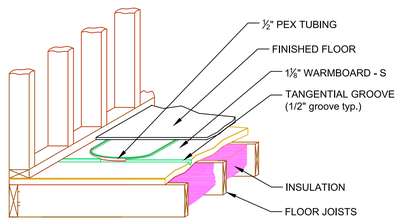
8 TYPE 1 / TYPE 2 PANEL UNDER THICK WALL
SCALE: NONE



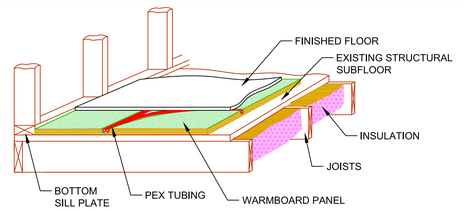
9 WARMBOARD - S ZERO CLEARANCE FIREPLACE
SCALE: NONE



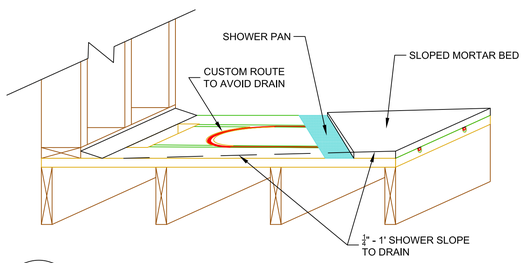
10 WARMBOARD - S MASONRY FIREPLACE
SCALE: NONE



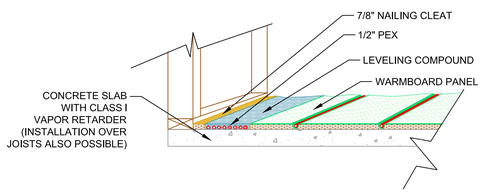
11 WARMBOARD - S OVER JOIST/TJI
SCALE: NONE



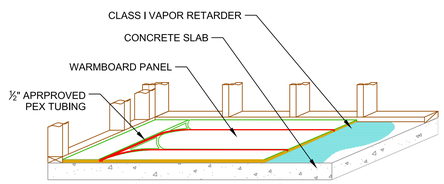
12 WARMBOARD PANEL OVER STRUCTURAL SUBFLOOR
SCALE: NONE



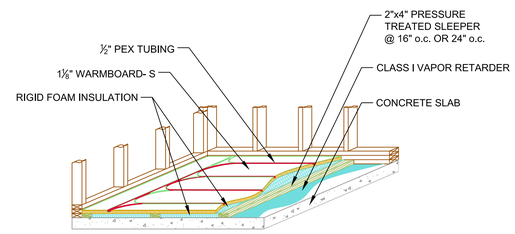
13 CURBLESS SHOWER
SCALE: NONE



14 PANEL CUT BACK
SCALE: NONE



15 WARMBOARD PANEL OVER SLAB
SCALE: NONE



16 WARMBOARD - S OVER SLEEPERS
SCALE: NONE

REVISIONS:	BY:

WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

warmboard®

SAMPLE PROJECT
JOB# 00000
Town, State

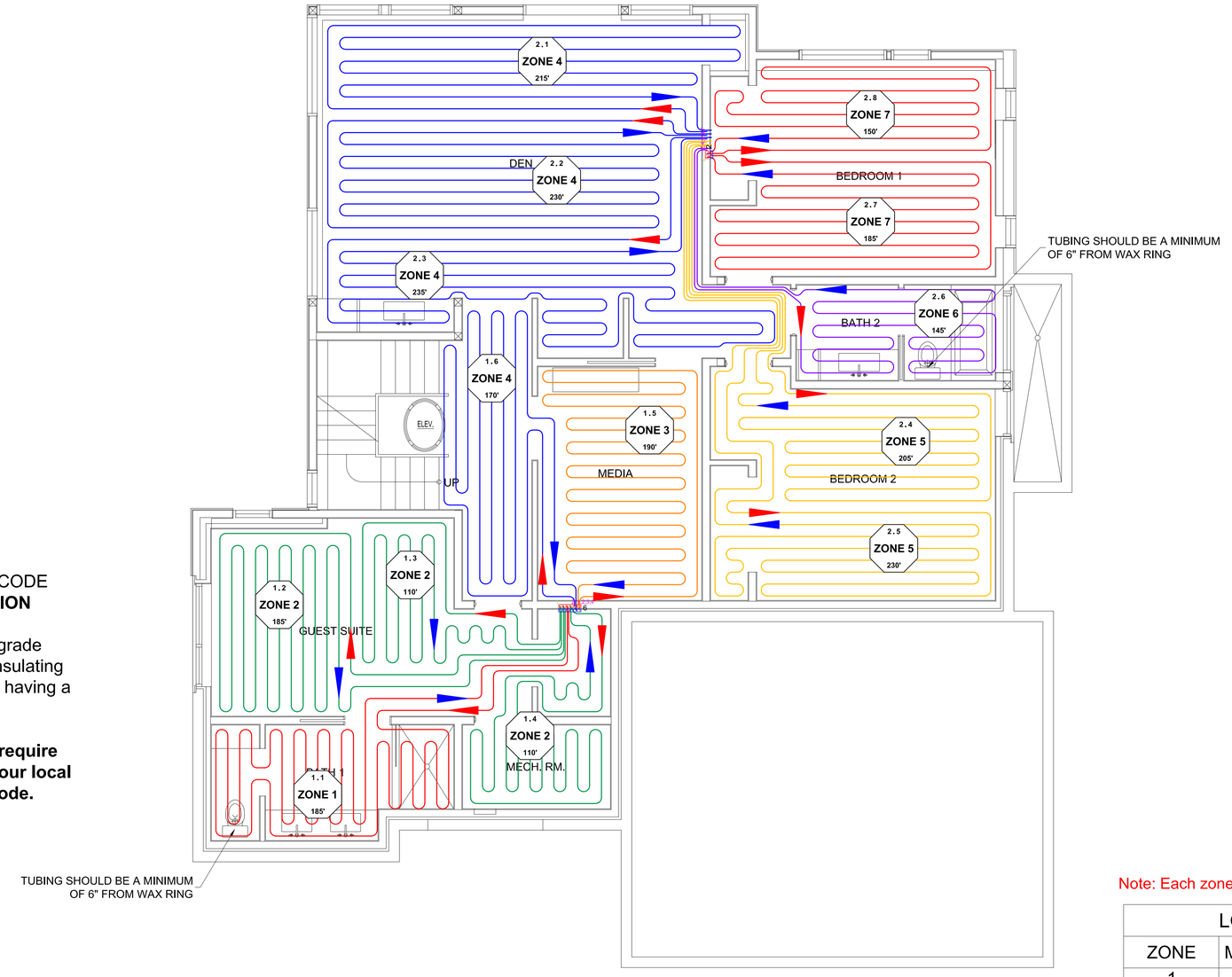
INSTALLATION DETAILS

DATE:	00/00/2022
SCALE:	NTS
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WB SPEC

INTERNATIONAL MECHANICAL CODE
SLAB ON GRADE INSTALLATION

Radiant piping utilized in slab-on-grade applications shall be provided with insulating materials installed beneath the piping having a minimum R-value of 5.

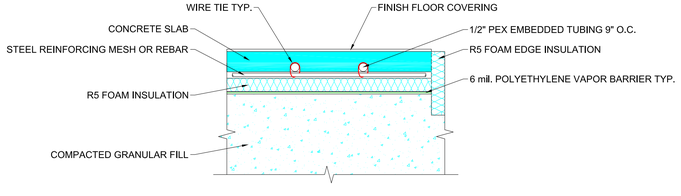
Other building departments may require additional insulation. Check with your local building department to meet code.



BASEMENT TUBING LAYOUT

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

CONFIGURATION SHOWN IS CONCEPTUAL. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT CONFIGURATION AND DIMENSIONS.



EMBEDDED TUBING AND SLAB DETAIL

Scale: NTS

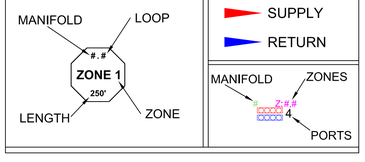
MANDATORY TUBING NOTES

1. ALL SLAB TUBING IS TO BE 1/2" BARRIER PEX 9" O.C.
2. ALWAYS CONFIRM THESE SPECIFICATIONS MEET AND EXCEED LOCAL BUILDING CODES.
3. MINOR FIELD MODIFICATION OF TUBING PLAN IS WELCOME AND TYPICAL. WHEN IN DOUBT CALL WARMBOARD CUSTOMER SERVICE.

QUESTIONS? FOR IMMEDIATE ASSISTANCE
CALL: 1.800.556.0595 (8AM - 5PM PT)

WARMBOARD TUBING LEGEND

TUBING
CUSTOM GROOVE
BURIED TUBING
BURIED POINT



Note: Each zone corresponds to a single thermostat

LOOP SCHEDULE

ZONE	MANIFOLD	LOOP	LENGTH
1	1	1	185'
2	1	2	185'
2	1	3	110'
2	1	4	110'
3	1	5	190'
4	1	6	170'
4	2	1	215'
4	2	2	230'
4	2	3	235'
5	2	4	205'
5	2	5	230'
6	2	6	145'
7	2	7	185'
7	2	8	150'
	Total		2545'-0"

REVISIONS:	BY:

WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

warmboard®

SAMPLE PROJECT
JOB# 00000
Town, State

TUBING LAYOUT

DATE:	00/00/2022
SCALE:	1/4" = 1'
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBM 2.0

INTERNATIONAL MECHANICAL CODE
SLAB ON GRADE INSTALLATION

Radiant piping utilized in slab-on-grade applications shall be provided with insulating materials installed beneath the piping having a minimum R-value of 5.

Other building departments may require additional insulation. Check with your local building department to meet code.

MANDATORY TUBING NOTES

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2. ALWAYS CONFIRM THESE SPECIFICATIONS MEET AND EXCEED LOCAL BUILDING CODES.

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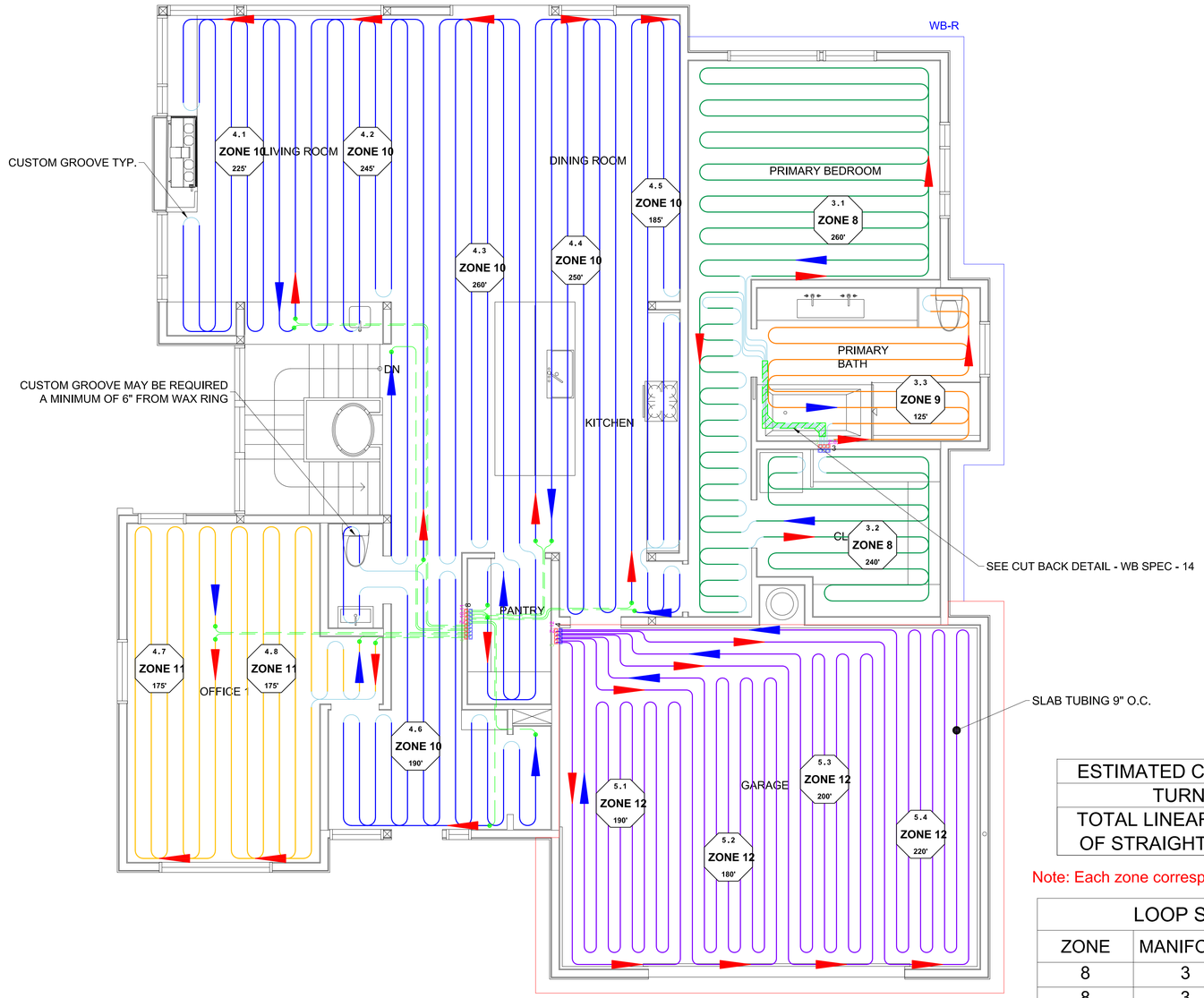
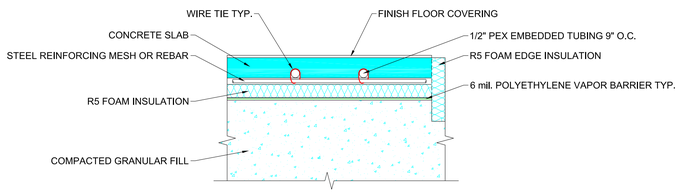


TUBING IN SLAB

CONFIGURATION SHOWN IS CONCEPTUAL. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR EXACT CONFIGURATION AND DIMENSIONS.



EMBEDDED TUBING AND SLAB DETAIL

Scale: NTS

FIRST FLOOR TUBING LAYOUT

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

NOTE: TUBING IS REQUIRED TO BE INSTALLED AFTER WALLS ARE FRAMED

MANDATORY TUBING NOTES

1. USE ONLY WARMBOARD APPROVED TUBING. SEE INSTALLATION MANUAL

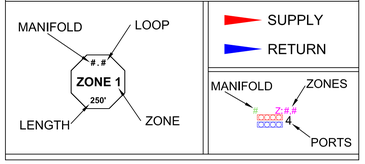
2. USE A 16 OZ. RUBBER MALLET TO SECURE TUBING INTO CHANNELS.

3. MINOR FIELD MODIFICATION OF TUBING PLAN IS WELCOME AND TYPICAL. WHEN IN DOUBT CALL WARMBOARD CUSTOMER SERVICE.

QUESTIONS? FOR IMMEDIATE ASSISTANCE CALL: 1.800.556.0595 (8AM - 5PM PT)

WARMBOARD TUBING LEGEND

- TUBING
- CUSTOM GROOVE
- BURIED TUBING
- BURIED POINT



ESTIMATED CUSTOM ROUTES	
TURNS	75
TOTAL LINEAR LENGTH OF STRAIGHT ROUTES	57'

Note: Each zone corresponds to a single thermostat

LOOP SCHEDULE

ZONE	MANIFOLD	LOOP	LENGTH
8	3	1	260'
8	3	2	240'
9	3	3	125'
10	4	1	225'
10	4	2	245'
10	4	3	260'
10	4	4	250'
10	4	5	185'
10	4	6	190'
11	4	7	175'
11	4	8	175'
12	5	1	190'
12	5	2	180'
12	5	3	200'
12	5	4	220'
	Total		3120'-0"

REVISIONS:	BY:

WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

warmboard®

SAMPLE PROJECT
JOB# 00000
Town, State

TUBING LAYOUT

DATE:	00/00/2022
SCALE:	1/4" = 1'
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBM 2.1

WHEN IN DOUBT, ASK!

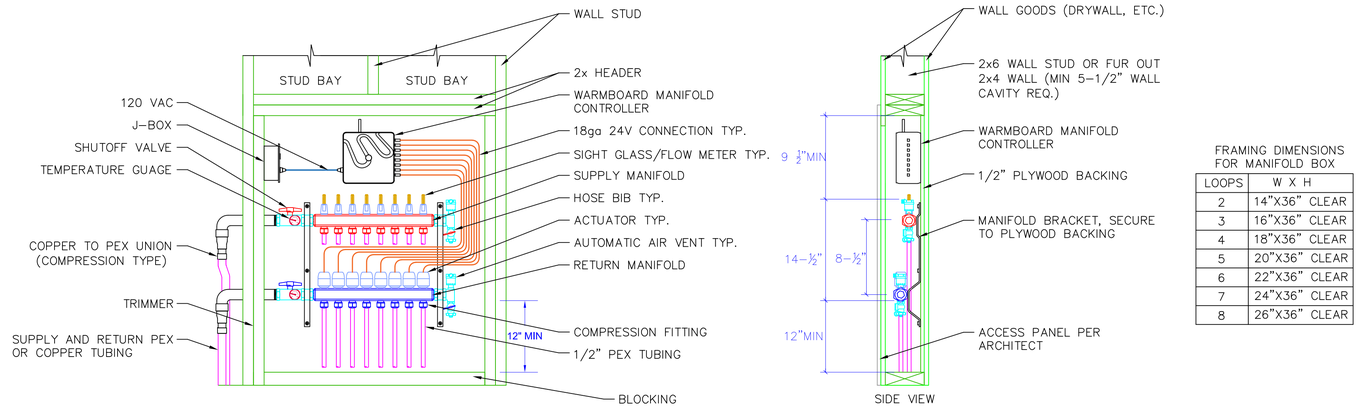
Please review all installation instructions. If there are any questions or need for technical assistance call: 1.800.556.0595

MANIFOLD & TUBING MATERIALS LIST		
QTY	DESCRIPTION	NOTES
5	1000' X 1/2" AL PEX ROLL	(1.1,1.2,1.3,1.4,1.5,1.6) 950' (2.1,2.2,2.3,2.4) 885' (2.5,2.6,2.7,2.8,5.1) 900' (3.1,3.2,3.3,4.1) 850' (4.2,4.3,4.4,4.5) 940'
2	500' X 1/2" AL PEX ROLL	(4.6,4.7) 365' (5.2,5.3) 380'
2	300' X 1/2" AL PEX ROLL	(4.8) 175' (5.4) 220'
	SINGLE SUPPLY & RETURN	
	2 PORT SUPPLY & RETURN MANIFOLD KIT	
1	3 PORT SUPPLY & RETURN MANIFOLD KIT	
1	4 PORT SUPPLY & RETURN MANIFOLD KIT	
	5 PORT SUPPLY & RETURN MANIFOLD KIT	
1	6 PORT SUPPLY & RETURN MANIFOLD KIT	
	7 PORT SUPPLY & RETURN MANIFOLD KIT	
2	8 PORT SUPPLY & RETURN MANIFOLD KIT	
58	1/2" COMPRESSION FITTINGS	
29	24 VOLT ACTUATORS	

Materials above to be provided by Warmboard.

MANIFOLD INSTALLATION

SCALE: NONE



FRAMING DIMENSIONS FOR MANIFOLD BOX

LOOPS	W X H
2	14"X36" CLEAR
3	16"X36" CLEAR
4	18"X36" CLEAR
5	20"X36" CLEAR
6	22"X36" CLEAR
7	24"X36" CLEAR
8	26"X36" CLEAR

WARMBOARD MANIFOLD LAYOUT

REVISIONS:	BY:

WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

warmboard®

SAMPLE PROJECT
JOB# 00000
Town, State

TUBING/ MANIFOLDS

DATE:	00/00/2022
SCALE:	NTS
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBM 2.2

RADIANT DESIGN SUMMARY

PROJECT INFORMATION

PROJECT #:	00000
PROJECT NAME:	SAMPLE PROJECT
PROJECT LOCATION:	TOWN, STATE
WARMSOURCE SPEC (BTU/HR):	110,000
FUEL TYPE:	Natural Gas
PUMP:	UPMXL

PROJECT SUMMARY

CONDITIONED FLOOR AREA (FT):	4,804
MINIMUM TUBING REQUIRED (FT):	5,665
TOTAL FLOWRATE (USGPM):	9.4
MAXIMUM HEAD LOSS (FT (H_20)):	8.0
FLUID TYPE:	30% PROP GLYCOL
TOTAL NUMBER LOOPS:	29
TOTAL NUMBER MANIFOLDS:	5
TOTAL NUMBER ZONES:	12
PROJ. HEATING LOAD (BTU/HR):	71,941
DESIGN ΔT (°F):	20

CLIMATE ASSUMPTIONS

1. 5 °F OUTSIDE DESIGN TEMPERATURE
2. 70 °F INDOOR DESIGN TEMPERATURE (GARAGES COULD BE LESS)
3. 350 FT. SITE ALTITUDE

NOTES

1. MAX SURFACE TEMPERATURE OF FINISH FLOOR NOT TO EXCEED 85 °F.

ADDITIONAL HEAT PUMP INFORMATION

PROJECT INFORMATION

HEAT PUMP SPEC:	SIM-060
BOILER BOOST:	EB-9
BUFFER BOOST:	N/A

PROJECT SUMMARY

TOTAL SYSTEM VOLUME (GAL):	70.4
TOTAL GLYCOL VOLUME (GAL):	21.1

DESIGN AT CMAT

CMAT HEATING LOAD (BTU/HR):	50,937
HEAT PUMP OUTPUT AT CMAT (BTU/HR):	74,165
TOTAL BOOST OUTPUT (BTU/HR):	N/A

DESIGN AT ODT

ODT HEATING LOAD (BTU/HR):	76,499
HEAT PUMP OUTPUT AT ODT (BTU/HR):	32,622
TOTAL BOOST OUTPUT (BTU/HR):	46,064

CLIMATE ASSUMPTIONS

1. 70 °F INDOOR DESIGN TEMPERATURE
2. 30 °F COLDEST MONTH AVERAGE TEMPERATURE (CMAT)
3. 5 °F OUTDOOR DESIGN TEMPERATURE (ODT)

NOTES

2. ENSURE FLUID IN SYSTEM FEEDER TANK MAINTAINS REQUIRED GLYCOL MIXTURE

RADIANT DESIGN DATA

Room/Floor/Level	Zone	Thermostat Type	Manifold	Loop #	Loop Length (ft)	Est. Min Flow Rate (USGPM)	Supplemental Heat Suggested (≥30 Btu/hr/ft²) (Btu/hr)
Bath 1	1	Heating	1	1	185	0.3	0
Guest Suite	2	Heating		2	185	0.3	0
				3	110	0.3	
Mech. Rm.				4	110	0.3	0
Media	3	Heating		5	190	0.3	0
Den	4	Heating		6	170	0.3	0
Den	4		2	1	215	0.3	0
				2	230	0.3	
				3	235	0.3	
Bedroom 2	5	Heating		4	205	0.3	0
				5	230	0.3	
Bath 2	6	Heating		6	145	0.3	0
Bedroom 1	7	Heating		7	185	0.3	0
				8	150	0.3	
Primary Bedroom	8	Heating	3	1	260	0.4	0
Closet				2	240	0.4	0
Primary Bath	9	Warming		3	125	0.3	0
Living Room	10	Heating	4	1	225	0.4	0
				2	245	0.4	
Dining Room / Kitchen				3	260	0.4	0
				4	250	0.4	
				5	185	0.3	
Entry				6	190	0.3	0
Office	11	Heating		7	175	0.3	0
				8	175	0.3	
Garage	12	Heating	5	1	190	0.3	0
				2	180	0.3	
				3	200	0.3	
				4	220	0.4	

RADIANT DESIGN REQUIREMENTS

REQUIRED INSULATION VALUES

1. MINIMUM WALL R VALUE: 18.0
2. MINIMUM WINDOW U VALUE: 0.3
3. MINIMUM SKYLIGHT U VALUE: N/A
4. MINIMUM EXTERIOR DOOR R VALUE: 2.0
5. MINIMUM CEILING R VALUE: 49.0
6. MINIMUM SLAB R VALUE: 10.0
7. MINIMUM FLOOR R VALUE: 30.0
8. SUPPLEMENTAL HEAT: NONE REQUIRED
9. TYPICAL NEW CONSTRUCTION: NATURAL AIR CHANGES PER HOUR (ACHNAT) OF 0.5

INSTALLATION NOTES

INSTALLING CONTRACTOR

INSTALLATION OF THE HEAT PUMP AND ASSOCIATED EQUIPMENT IS TO BE DONE BY A LICENSED PLUMBER OR LICENSED CONTRACTOR ONLY.
INSTALLING CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT THE MATERIALS AND INSTALLATION OF THE SYSTEM MEETS OR EXCEEDS ALL STATE AND LOCAL CODE REQUIREMENTS.

MANIFOLD DISTRIBUTION

ALL MANIFOLD DISTRIBUTION LINES ARE TO BE TYPE L OR M COPPER PIPE, OR PEX TUBING. INSULATE ALL PIPING, COMPONENTS, AND RADIANT MANIFOLD. ARMACELL-ARMAFLEX INSULATION OR EQ. SUITABLE FOR CHILLED WATER PIPING.

LOCATION OF HEAT PUMP EQUIPMENT

- ALL COMPRESSOR HEAT PUMPS DO CREATE A MINOR LEVEL OF NOISE.
- FOR HOMEOWNERS WHO MAY BE SENSITIVE TO MINOR PUMPING NOISE, GARAGES AND BASEMENTS ARE BEST LOCATIONS FOR THE WARMSOURCE-HP.

TUBING

- DO NOT MAKE ANY LOOP LONGER THAN EXISTING LONGEST LOOP THAT IS DRAWN ON THE WARMBOARD PLANS.
- PRESSURE TEST ALL TUBING LOOPS USING AIR WITH 60 PSI DURING CONSTRUCTION, AND FOR AT LEAST 24 HOURS BEFORE INSTALLING FINISH FLOOR.

REVISIONS:	BY:

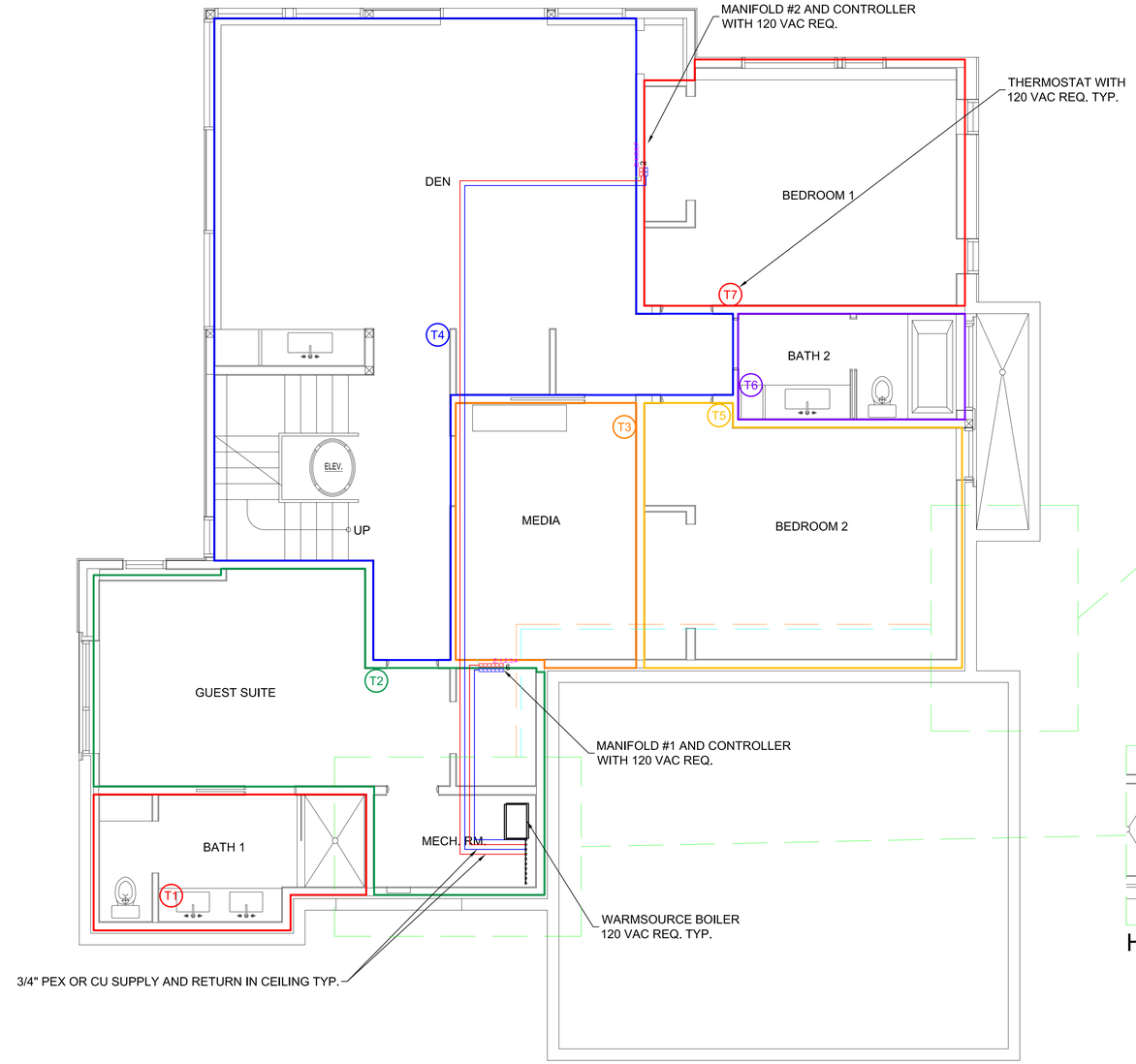
WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

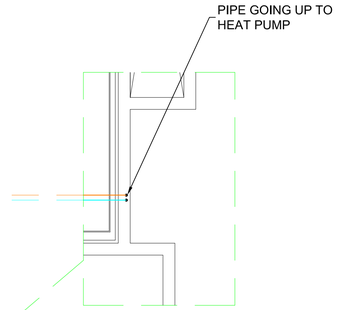
warmboard®

SAMPLE PROJECT
JOB# 00000
Town, State

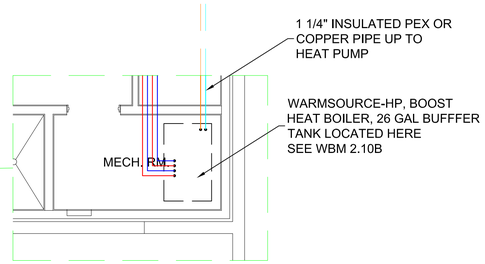
DESIGN SUMMARY

DATE:	00/00/2022
SCALE:	
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBM 2.3





HEAT PUMP EXAMPLE



HEAT PUMP EXAMPLE

BASEMENT FLOOR PIPING AND CONTROLS LAYOUT:

- MANIFOLDS
- DISTRIBUTION LINES
- THERMOSTATS

1 1/4" PEX OR COPPER PIPING SCHEDULE	
MANIFOLD	LENGTH (FT) (S/R 2-WAY)
1	100'
TOTAL	100'

3/4" PEX OR COPPER PIPING SCHEDULE	
MANIFOLD	LENGTH (FT) (S/R 2-WAY)
1	48'
2	127'
3	119'
4	30'
5	23'
TOTAL	347'

WARMBOARD PIPING LEGEND	
	3/4" MANIFOLD DISTRIBUTION PIPING
	1 1/4" HEAT PUMP S/R PIPING
MANIFOLD, ZONES, PORTS	MANIFOLD WITH 120 VAC REQ.
T1	THERMOSTAT WITH 120 VAC REQ. MIN. 18 CU INCH J-BOX

NOTES

1. INSULATE ALL PEX/COPPER PIPING
2. PRESSURE TEST ALL DISTRIBUTION LINES

QUESTIONS? FOR IMMEDIATE ASSISTANCE
CALL: 1.800.556.0595 (8AM - 5PM PT)

REVISIONS:	BY:

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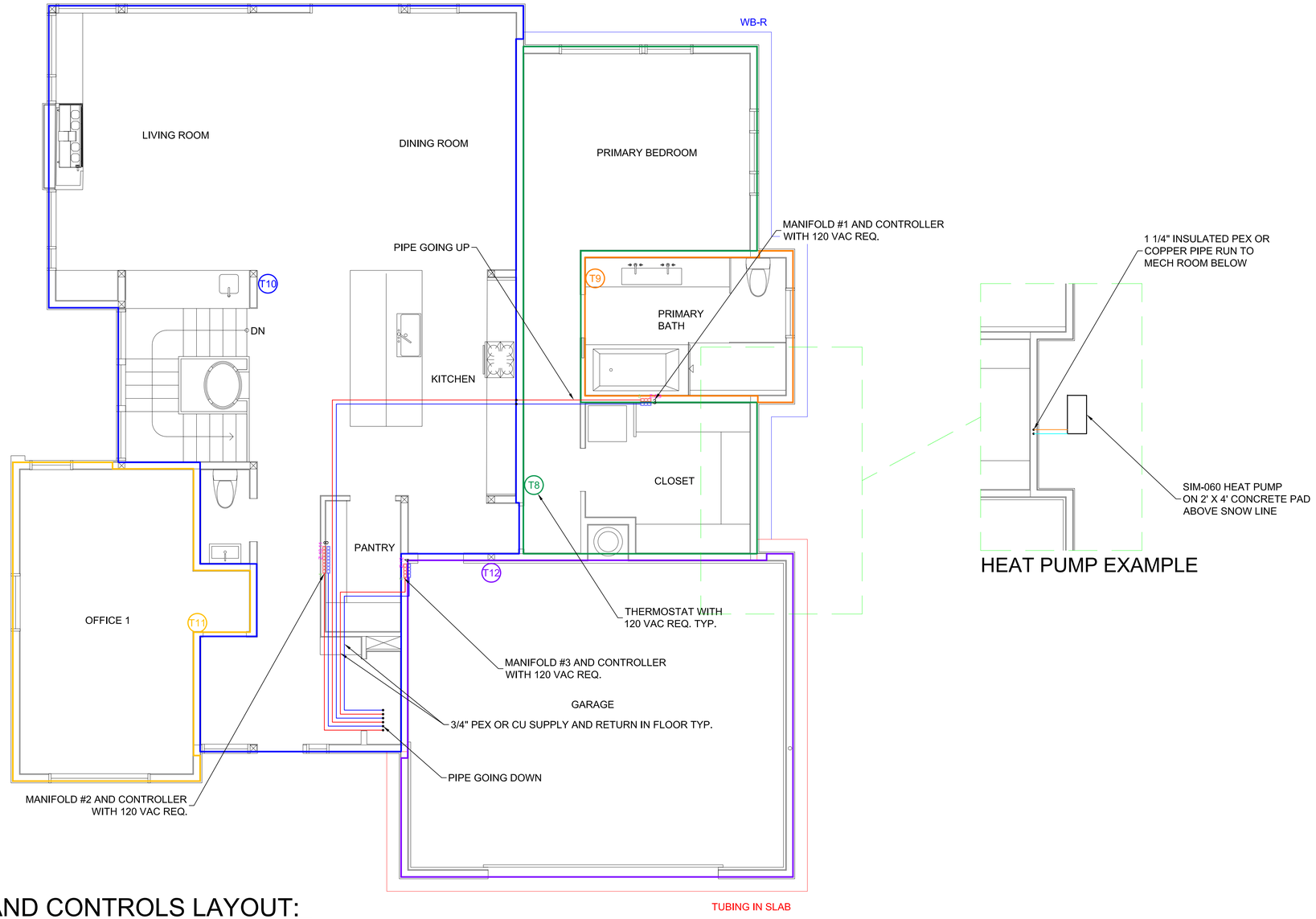
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

warmboard®

SAMPLE PROJECT
JOB# 00000
Town, State

PIPING LAYOUT

DATE:	00/00/2022
SCALE:	1/4" = 1'
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBM 2.4



HEAT PUMP EXAMPLE

MAIN FLOOR PIPING AND CONTROLS LAYOUT:

- MANIFOLDS
- DISTRIBUTION LINES
- THERMOSTATS

3/4" PEX OR COPPER PIPING SCHEDULE	
MANIFOLD	LENGTH (FT) (S/R 2-WAY)
1	48'
2	127'
3	119'
4	30'
5	23'
TOTAL	347'

WARMBOARD PIPING LEGEND	
	3/4" MANIFOLD DISTRIBUTION PIPING
	1 1/4" HEAT PUMP S/R PIPING
MANIFOLD, ZONES, PORTS	MANIFOLD WITH 120 VAC REQ.
T1	THERMOSTAT WITH 120 VAC REQ. MIN. 18 CU INCH J-BOX

NOTES

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2. PRESSURE TEST ALL DISTRIBUTION LINES

QUESTIONS? FOR IMMEDIATE ASSISTANCE
CALL: 1.800.556.0595 (8AM - 5PM PT)

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WARMBOARD.COM

warmboard®

SAMPLE PROJECT
JOB# 00000
Town, State

PIPING LAYOUT

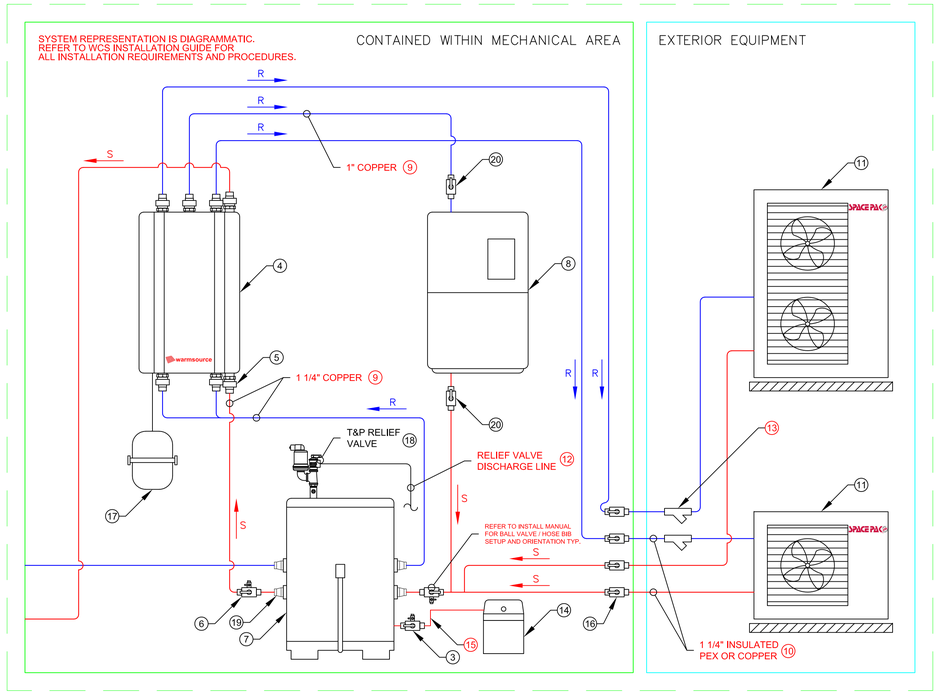
DATE:	00/00/2022
SCALE:	1/4" = 1'
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBM 2.5

SYSTEM COMPONENTS

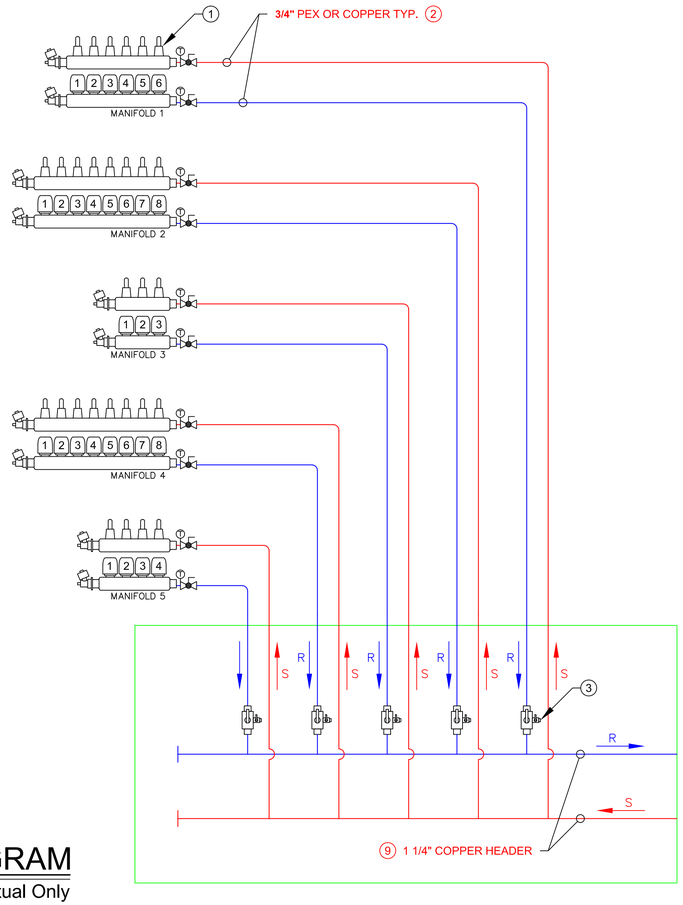
ITEM	COMPONENT	SIZE	QTY	SUPPLIER
1	WARMBOARD SUPPLY/RETURN MANIFOLD TYP.		5	WARMBOARD
2	COPPER OR PEX SUPPLY/RETURN LINES TYP.	3/4"	736'	CONTRACTOR SUPPLIED
3	BALL VALVE/HOSE BIB COMBO	3/4"	5	WARMBOARD
4	WARMSOURCE-HP	AS SHOWN	2	WARMBOARD
5	BRASS UNION	1 1/4"	9	WARMBOARD
6	BALL VALVE/HOSE BIB COMBO	1 1/4"	5	WARMBOARD
7	BUFFER TANK	BT-26	1	WARMBOARD
8	BOILER BOOST HEAT	EB-9	1	WARMBOARD
9	COPPER PIPES	AS SHOWN	TBD	CONTRACTOR SUPPLIED
10	INSULATED PEX OR COPPER PIPES	1 1/4"	100'	CONTRACTOR SUPPLIED
11	HEAT PUMP	AS SHOWN	2	WARMBOARD
12	RELIEF VALVE DISCHARGE LINE	3/4"	2	CONTRACTOR SUPPLIED
13	Y-STRAINER	AS SHOWN	2	CONTRACTOR SUPPLIED
14	GLYCOL FEEDER TANK	6 GAL	1	WARMBOARD
15	GLYCOL FEEDER HOSE	1/2" FLEX	1	CONTRACTOR SUPPLIED
16	ISOLATION VALVE	1 1/4"	1	WARMBOARD
17	EXTERNAL EXPANSION TANK (HOSE INCL.)	4.4 GAL	1	WARMBOARD
18	T&P RELIEF VALVE		1	WARMBOARD
19	BUSHINGS	1 1/2" X 1 1/4"	1	WARMBOARD
20	ISOLATION VALVE	1"	1	WARMBOARD
21	PVC INTAKE/EXHAUST	2" OR 3"	2	CONTRACTOR SUPPLIED
22	CONDENSATE DRAIN LINE	3/4"	1	CONTRACTOR SUPPLIED
23	GAS LINE	PER INSTALLER	1	CONTRACTOR SUPPLIED
24	CITY OR WELL WATER SUPPLY LINE	1/2"	1	CONTRACTOR SUPPLIED
25	CONDENSATE HOSE	3/4"	1	CONTRACTOR SUPPLIED
26	PRESSURE REDUCING VALVE	1/2"	1	WARMBOARD
27	DUAL CHECK BACKFLOW PREVENTER	1/2"	1	WARMBOARD
28	BALL VALVE	1/2"	1	WARMBOARD

* ITEMS SHOWN IN RED NOT SUPPLIED BY WARMBOARD

IMPORTANT DESIGN NOTE:
WARMBOARD INC. REQUIRES 30% PROPYLENE GLYCOL BE USED IN THIS HEATING SYSTEM FOR FREEZE PROTECTION.
IF THIS RADIANT SYSTEM DOES NOT CONTAIN FREEZE PROTECTION WARMBOARD INC. CANNOT ASSUME RESPONSIBILITY.

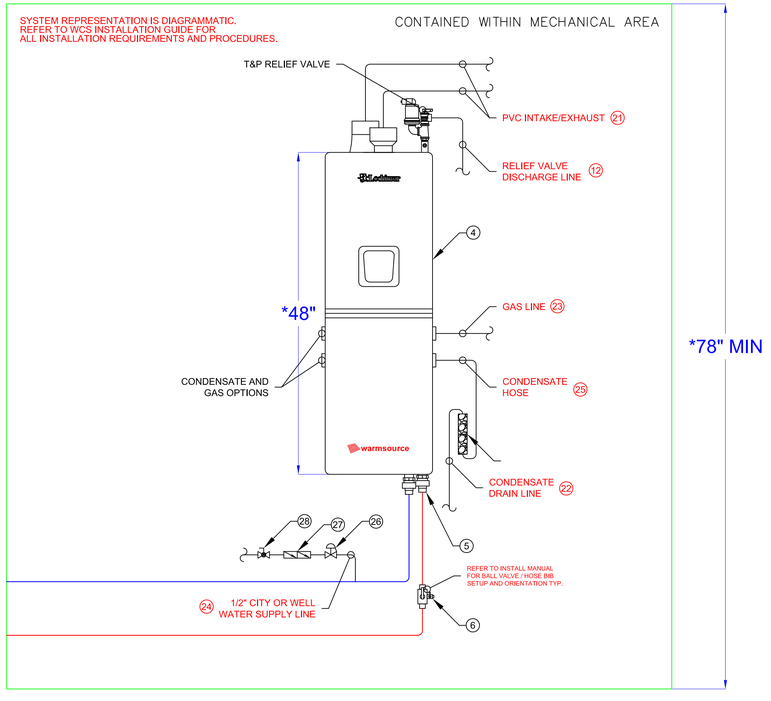


HEAT PUMP EXAMPLE



MECHANICAL DIAGRAM
Scale: NTS Conceptual Only

*NOT TO SCALE.



REVISIONS:	BY:

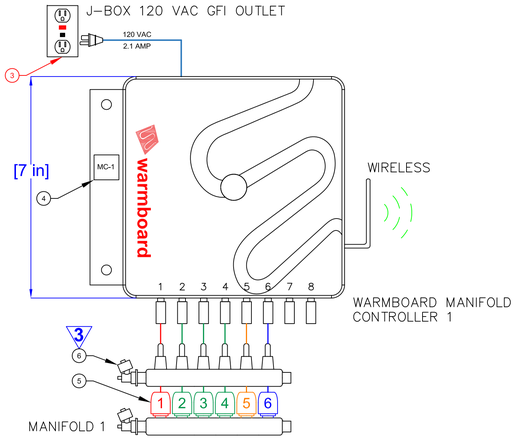
WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

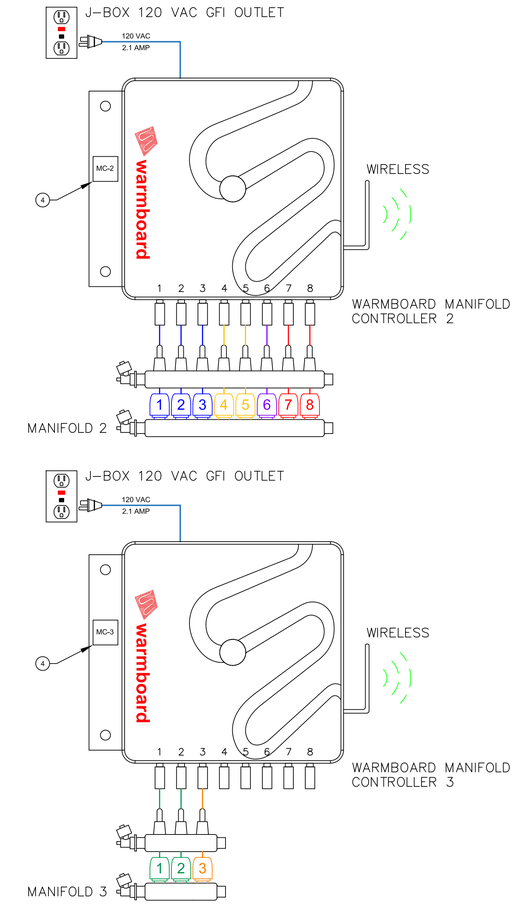
warmboard®

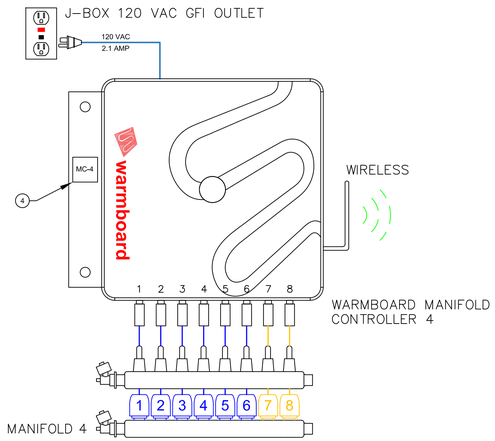
SAMPLE PROJECT
JOB# 00000
Town, State

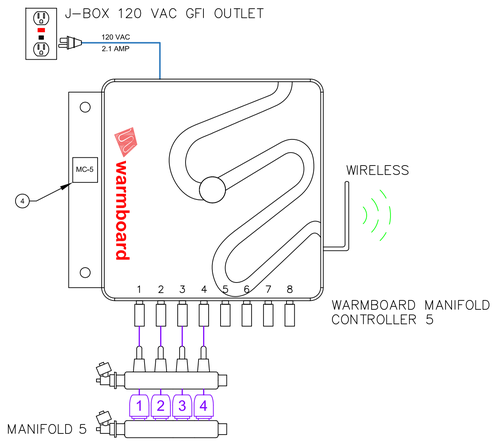
MECHANICAL DIAGRAM

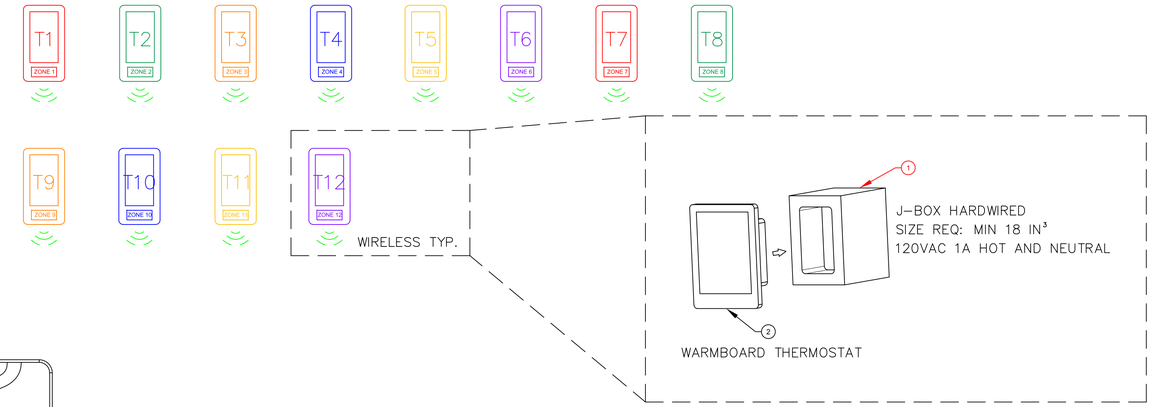
DATE:	00/00/2022
SCALE:	NTS
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBM 2.6

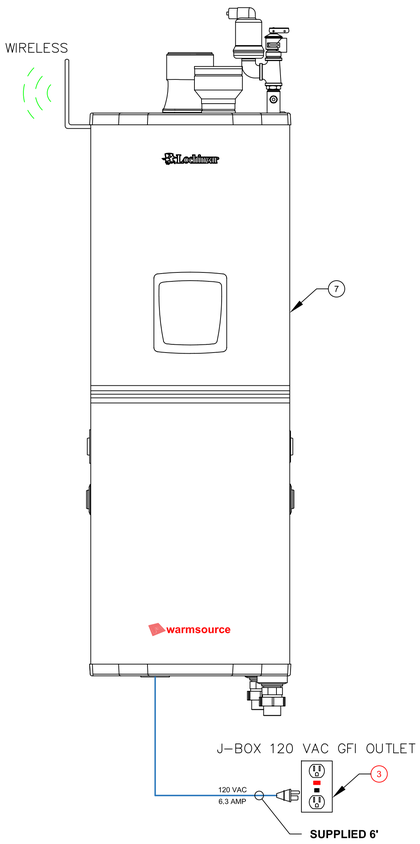


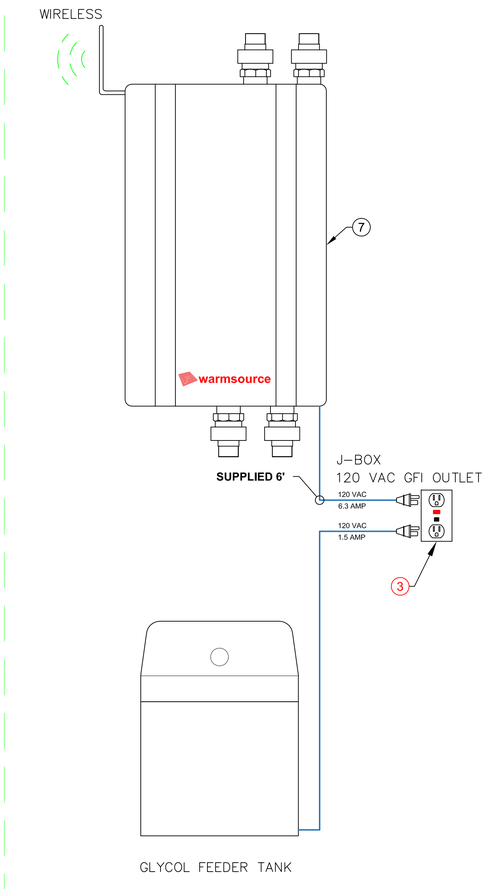












HEAT PUMP EXAMPLE

WIRING LEGEND	
240 VAC	
120 VAC	
Wireless SIGNAL	

SYSTEM COMPONENTS				
ITEM	COMPONENT	SIZE	QTY	SUPPLIER
①	THERMOSTAT J–BOX TYP. (18 cubic in.)		12	FIELD SUPPLIED
②	WARMBOARD THERMOSTAT TYP.		12	WARMBOARD
③	GFI OUTLET TYP. (PER LOCAL CODE)		7	FIELD SUPPLIED
④	WARMBOARD MANIFOLD CONTROLLER		5	WARMBOARD
⑤	WARMBOARD 4–WIRE THERMAL ACTUATOR TYP.		29	WARMBOARD
⑥	WARMBOARD SUPPLY/RETURN MANIFOLD TYP.		5	WARMBOARD
⑦	WARMSOURCE		2	WARMBOARD

* ITEMS SHOWN IN RED NOT SUPPLIED BY WARMBOARD

NOTES

1. FOR MANIFOLD INSTALLATION DETAILS, REFER TO PAGE WB 2.0
2. DEDICATED CIRCUITS ARE NOT REQUIRED
3. IT IS CRITICAL THAT MANIFOLD, THERMOSTAT (ZONE), AND LOOP NUMBERS CORRESPOND CORRECTLY TO TUBING LAYOUT PAGES

WIRELESS CONTROLS DIAGRAM

Scale: NTS Conceptual Only

REVISIONS:	BY:

WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

SAMPLE PROJECT
JOB# 00000
Town, State

WIRELESS CONTROLS DIAGRAM

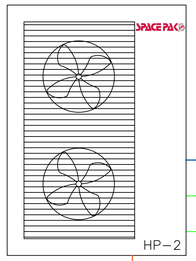
DATE:	00/00/2022
SCALE:	NTS
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBE 3.0

CONTAINED WITHIN MECH ROOM

CONTAINED WITHIN WARMSOURCE-HP

HP-2 | BOILER BOOST | HP-1 | SECONDARY LOOP

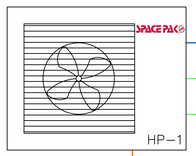
15 | 4 | 3 | 2



240 VAC
50A BREAKER REQ.

120V CIRCULATOR PUMP
DISPLAY (8)
MODBUS BLACK 485B-
MODBUS RED 485A+
MODBUS GROUND TO SCREW

9
HP-2 REMOTE TOUCHSCREEN DISPLAY



240 VAC
30A BREAKER REQ.

(12) 120V SUITABLE WIRE TYP.

120V CIRCULATOR PUMP
DISPLAY (8)
MODBUS BLACK 485B-
MODBUS RED 485A+
MODBUS GROUND TO SCREW

HP-1 REMOTE TOUCHSCREEN DISPLAY

1

PUMP 1

PUMP 2

MODBUS

BUFFER HEAT

BOOST HEAT

warmboard

120 VAC
6.3 AMP

(7) 22AWG/2C SHIELDED BELDEN 8450 OR EQ.

MODBUS
10

22AWG/2C

(14) SIGNAL WIRE TYP.

5

YEL
PRP
ORG
BRN
WHT / YEL
WHT / YEL

RELAY

(13) 240V SUITABLE WIRE TYP.

L1
L2
G
30A BREAKER REQ.

BLU
RED
GRN / YEL
BLK
BLK

BUFFER TANK

6

BLK
WHT
BLU
YLW

CB TRANSFORMER

120V 1A

11

(13) 240V SUITABLE WIRE TYP.

240 VAC
60A BREAKER REQ.

SYSTEM COMPONENTS

ITEM	COMPONENT	SIZE	QTY	SUPPLIER
(1)	SMART RESET CONTROLLER		1	WARMBOARD
(2)	SECONDARY LOOP PUMP	ALPHA	1	WARMBOARD
(3)	HP–1 PUMP	UPS 26–150	1	WARMBOARD
(4)	BOILER BOOST PUMP		1	WARMBOARD
(5)	RELAY		1	WARMBOARD
(6)	CIRCUIT BREAKER TRANSFORMER		1	WARMBOARD
(7)	MODBUS WIRE		100'	WARMBOARD
(8)	DISPLAY WIRE		65'	WARMBOARD
(9)	REMOTE TOUCHSCREEN DISPLAY		2	WARMBOARD
(10)	MODBUS		1	WARMBOARD
(11)	ELECTRIC BOILER BOOST	EB–9	1	WARMBOARD
(12)	120V WIRING PER INSTALLER			FIELD SUPPLIED
(13)	240V WIRING PER INSTALLER			FIELD SUPPLIED
(14)	SIGNAL WIRING PER INSTALLER			FIELD SUPPLIED
(15)	HP–2 PUMP	N/A	1	WARMBOARD

* ITEMS SHOWN IN RED NOT SUPPLIED BY WARMBOARD

WIRING LEGEND

240 VAC
120 VAC
Wired Signal

DEDICATED CIRCUITS (240 VAC)

UNIT	MCA	BREAKER
HP-1	24A	30A
HP-2	35A	50A
EB-9	38A	60A
BTR	30A	30A

* ITEMS SHOWN IN RED NOT SUPPLIED BY WARMBOARD

WIRED CONTROLS DIAGRAM

Scale: NTS Conceptual Only

REVISIONS:	BY:

WARMBOARD, INC.
100 ENTERPRISE WAY, SUITE G300
SCOTTS VALLEY, CALIFORNIA 95066
1.800.556.0595
WARMBOARD.COM

warmboard

SAMPLE PROJECT
JOB# 00000
Town, State

WIRED CONTROLS DIAGRAM

DATE:	00/00/2022
SCALE:	NTS
DRAWN:	N. Willy
REVIEWED:	MSH
SHEET:	WBE 3.1