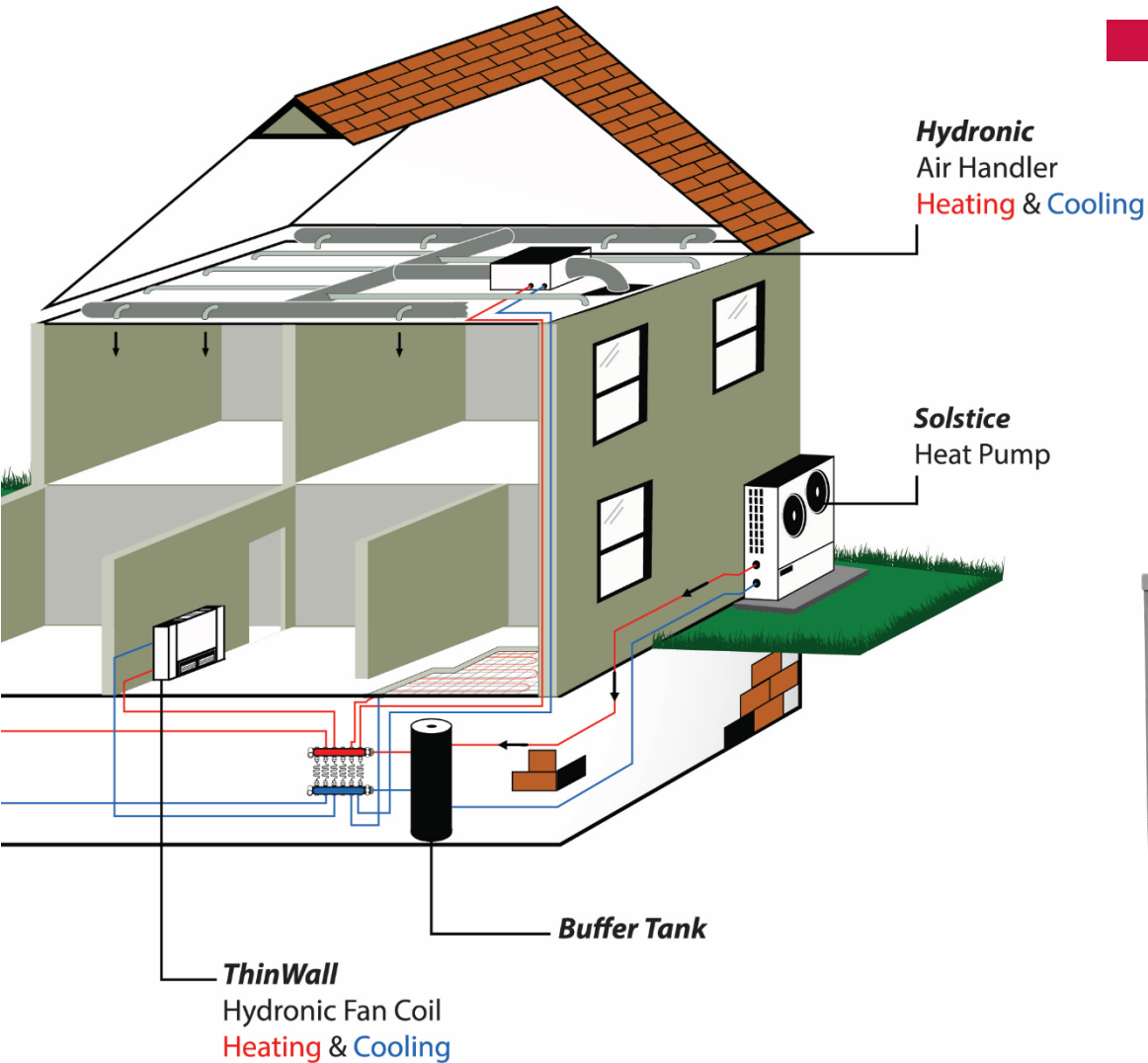




# HYDRONICS

## Virtual Certification Training



# HVAC Division



ARROW UNITED INDUSTRIES



**MESTEK, INC.**

# Jim Bashford

---



## SpacePak National Sales & Training Manager

Jim has been with SpacePak for over 4 years and most recently promoted to the National Sales and Training Manager. In addition to his role in sales management, Jim has used his extensive knowledge of all SpacePak products to continually expand his role within the company, taking on greater responsibility with the training side of the business including instructing our SpacePak Systems and Applications seminars.

Before joining the SpacePak team, Jim was a manufacturer's representative for three years working with a variety of HVAC products. He has over 20 years of experience in the HVAC industry which includes experience as a contractor and business owner where he spent many years selling and installing SpacePak products.



# Lead Registration/Certified Contractor Form

- One Form Per Company
- Installing Companies Only

Once form is completed, email to [maharrington@mestek.com](mailto:maharrington@mestek.com)

Email to send leads to

**\*IMPORTANT\***

Email that receives leads MUST add [info@spacepak.com](mailto:info@spacepak.com) to their safe senders list to ensure delivery!



Class Date: \_\_\_\_\_

Installer Company Name: \_\_\_\_\_

Primary Contact Person: \_\_\_\_\_

Zip Code: \_\_\_\_\_

Street Address 1: \_\_\_\_\_

Street Address 2: \_\_\_\_\_

City: \_\_\_\_\_

State/Country: \_\_\_\_\_

Phone: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Fax: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Email: \_\_\_\_\_

*There is only one email address per company where leads will be sent, please enter here. Make sure the chosen email is one where the leads will continue to be accounted for by current employees overtime and after individuals leave or change emails. A general or group email over a personal email is preferable.  
Example; sales@yourcompany.com*

Web Site URL: \_\_\_\_\_

*Adding our logo and website link on your company's website will increase your search rankings, site traffic, and leads.*

Training Location?  
☐ In-Person  
☐ Online

Which Certification Training Courses did you attend?  
☐ SpacePak Small Duct High Velocity Certification  
☐ SpacePak Hydronics/Air-to-Water Heat Pumps Certification  
☐ Master Certification (Both of the Above)

☐ I agree to follow up on the homeowner leads that SpacePak sends to me.  
☐ I agree to add [info@spacepak.com](mailto:info@spacepak.com) to my safe senders contact list and acknowledge that failing to do so may prevent me from receiving and following up with SpacePak leads.

*Above must be legible as this is needed for entering into the website lead lists.*

# Contractor Locator Map

Find a Certified Contractor

Adjust Radius

Click Here For A Consultation

Brings homeowners to request a consultation form and sends as a lead to local contractors and rep

01085 30mi Find Me a Contractor

**EWS Plumbing & Heating**  
339 Main Street  
Monson  
MA, 01057  
tel: 413-267-8983

**Charland Refrigeration**  
North Road  
Westfield  
MA, 01085  
tel: 413-564-0333

**Ambient Heating and A/C**  
185 Kendall St  
Granby  
MA, 01033  
tel: 413-427-3070

**ASM Sheetmetal**  
140 West St  
West Hatfield  
MA, 01088  
tel: 413-247-0550

**Comfort Heating & Cooling**  
7 Hinckley Street  
Florence  
MA, 01062  
tel: 413-579-2380

Contractor Listing

*Only contractors that can be found on this map are granted the extended warranty*



Find a Certified Contractor

Representative Locator

SpacePak System

SpacePak Hydronics

WaterWorks

About Us

Resources

Contact Us

Warranty

Technical Library

# Central Air Anywhere

Learn More

For all Warranty &  
Registration info  
Visit our Website!



Find a Certified Contractor

Representative Locator

SpacePak System

SpacePak Hydronics

WaterWorks

About Us

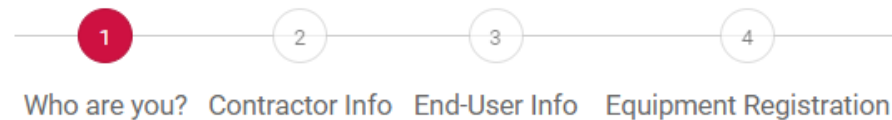
Resources

Contact Us

Warranty

Technical Library

# Warranty Registration



Who are you?

☐ Homeowner/End-user

☐ Installing Contractor

Next

# Warranty & Product Registration

---

## To be eligible for extended warranties:

- Must be a SpacePak Certified Contractor
- Project/equipment must be registered at <https://www.spacepak.com/warranty>

### SpacePak Air-to-Water (inverter series only)

- A NON-CERTIFIED contractor will receive a two (2) year parts and five (5) year compressor warranty
- A **CERTIFIED** contractor will receive a five (5) year parts and a ten (10) year compressor warranty

### SpacePak SDHV, hydronic fan coils and associated equipment

- A NON-CERTIFIED contractor will receive a one (1) year parts warranty
- A **CERTIFIED** contractor will receive a five (5) year parts warranty

### SpacePak Buffer Tanks

- A standard ten (10) year warranty will be issued on all buffer tanks

# SpacePak Team Provides **Pre-Sale Support**

[PreSaleSupport@SpacePak.com](mailto:PreSaleSupport@SpacePak.com)

**Pre-Sale Support is a team of application engineers who provide optimal turnaround in answering your questions regarding system design and layout as well as assistance in equipment selection and job quoting.**

- Available to Representatives, Wholesalers and Contractors
- Any questions regarding equipment already shipped should be directed to: (413) 564-5530
- [TechnicalService@SpacePak.com](mailto:TechnicalService@SpacePak.com)





## **As a certified contractor you will receive:**

- **Extended 5year warranty on SDHV with product registration**
- **Extended 5year Parts 10year compressor warranty on inverter series ATW heat pumps**
- **Certified installer recognition on Spacepaks website**
- **Lead generation support**
- **Constant contact about new Spacepak updates and information**
- **Marketing support (mailing, social media etc.)**
- **Presales and priority technical support**

# Air-to-Water **Heat Pump** or Air-to-Water **Chiller**?

## Are they the same or are they different?

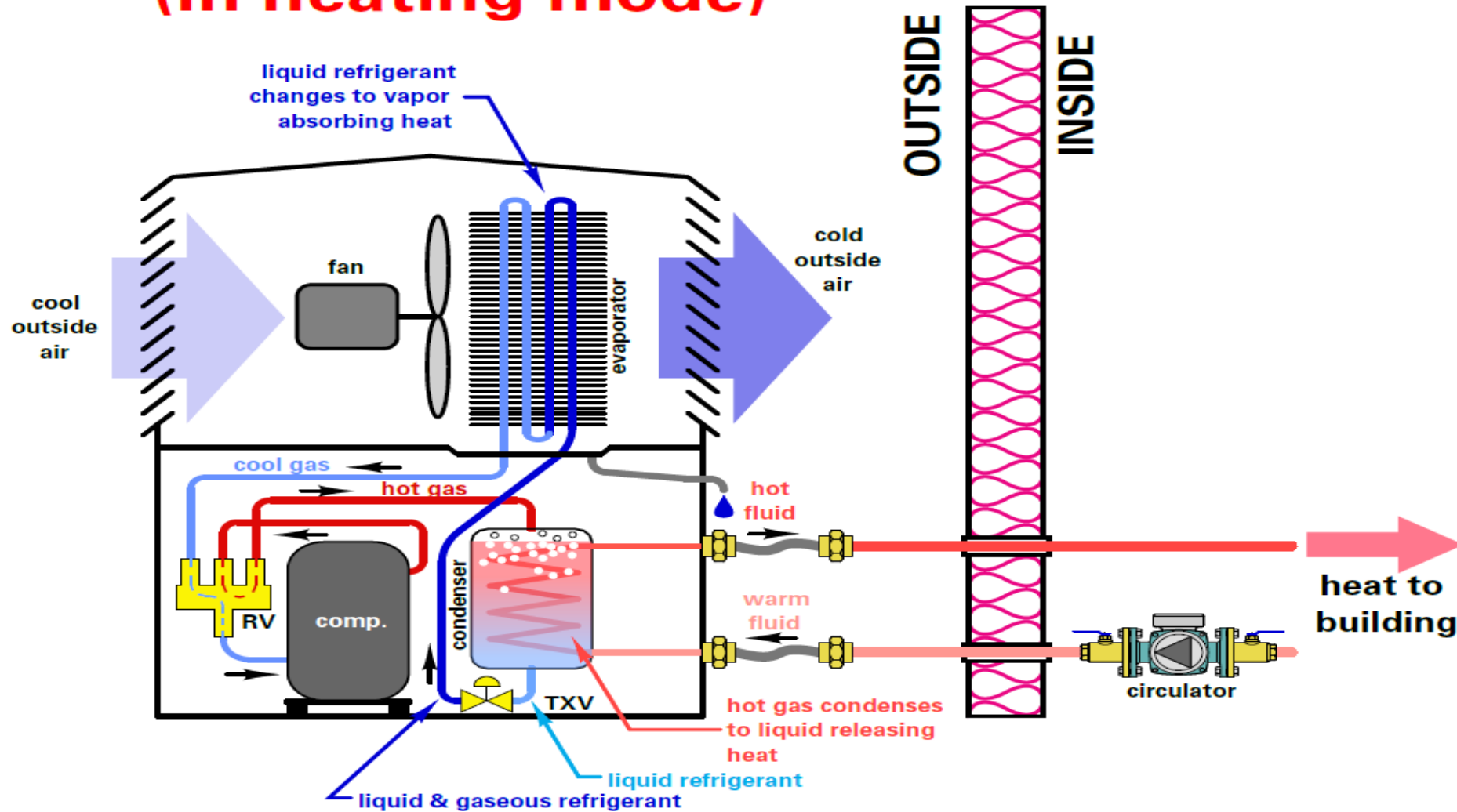
SpacePak units are both a **Heat Pump** and a **Chiller**. They can be called either, as they perform both operations. The deciding factor is depending on your geographic location and the units primary use (**Heating** or **Cooling**).

*If you are in the South, you will most likely call it a **Chiller**.*

*If you are in the North or have a primary heating need then you will be calling it a **Heat Pump**.*

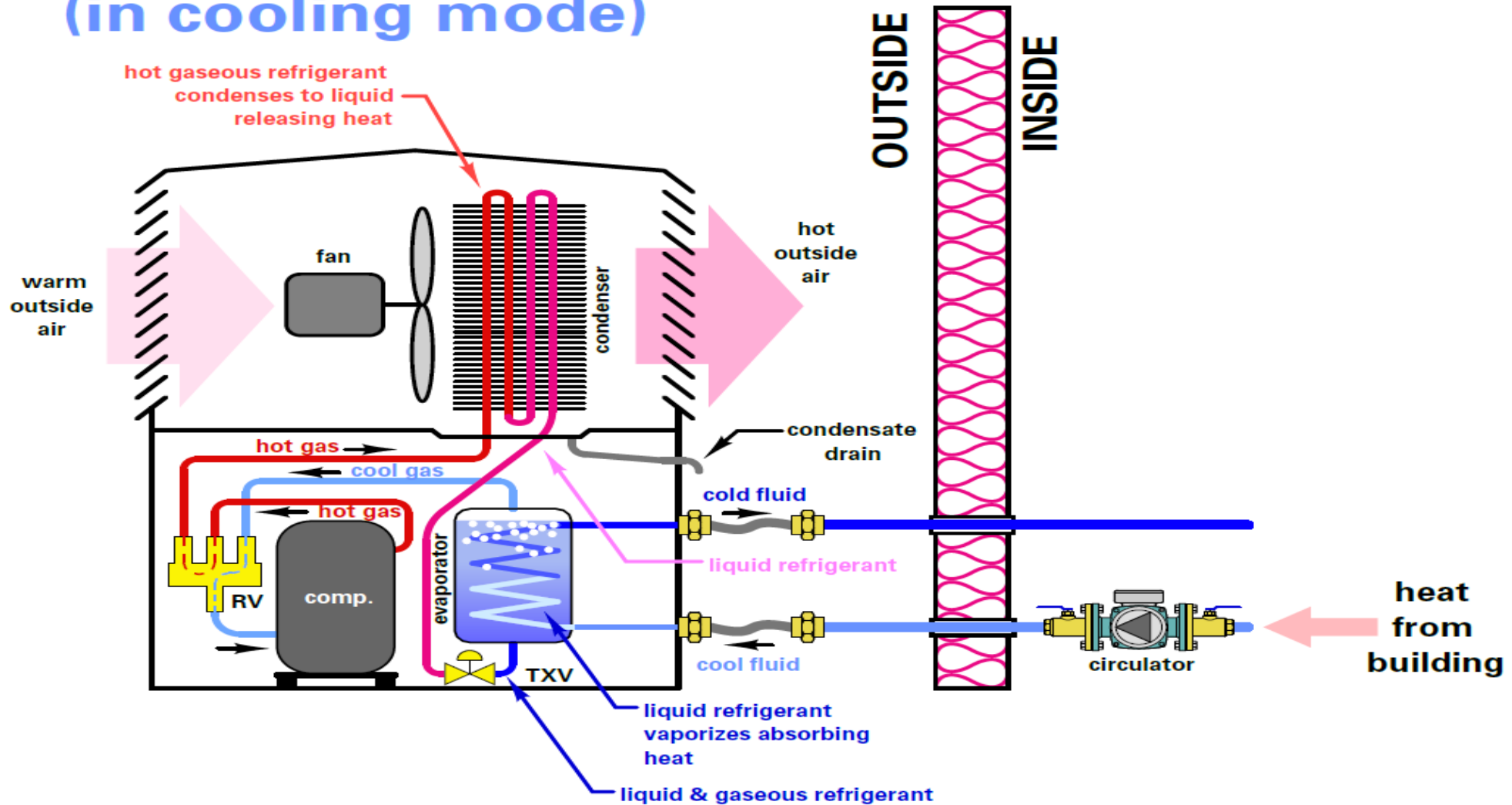
# Heat Pumps- How Do They Work?

(in heating mode)



# Chillers- How Do They Work?

(in cooling mode)



# The Heat Pump Solution- **WHY?**

- No refrigerant in occupied space
- Refrigerant volume 25% - 33% of conventional DX
- No refrigerant charge on site - **no refrigeration license required**
- Outdoor chiller runs independent of indoor blower
- Better humidity control by varying air flow & water temperature



# Coefficient of Performance (**COP**=the measure of efficiency)

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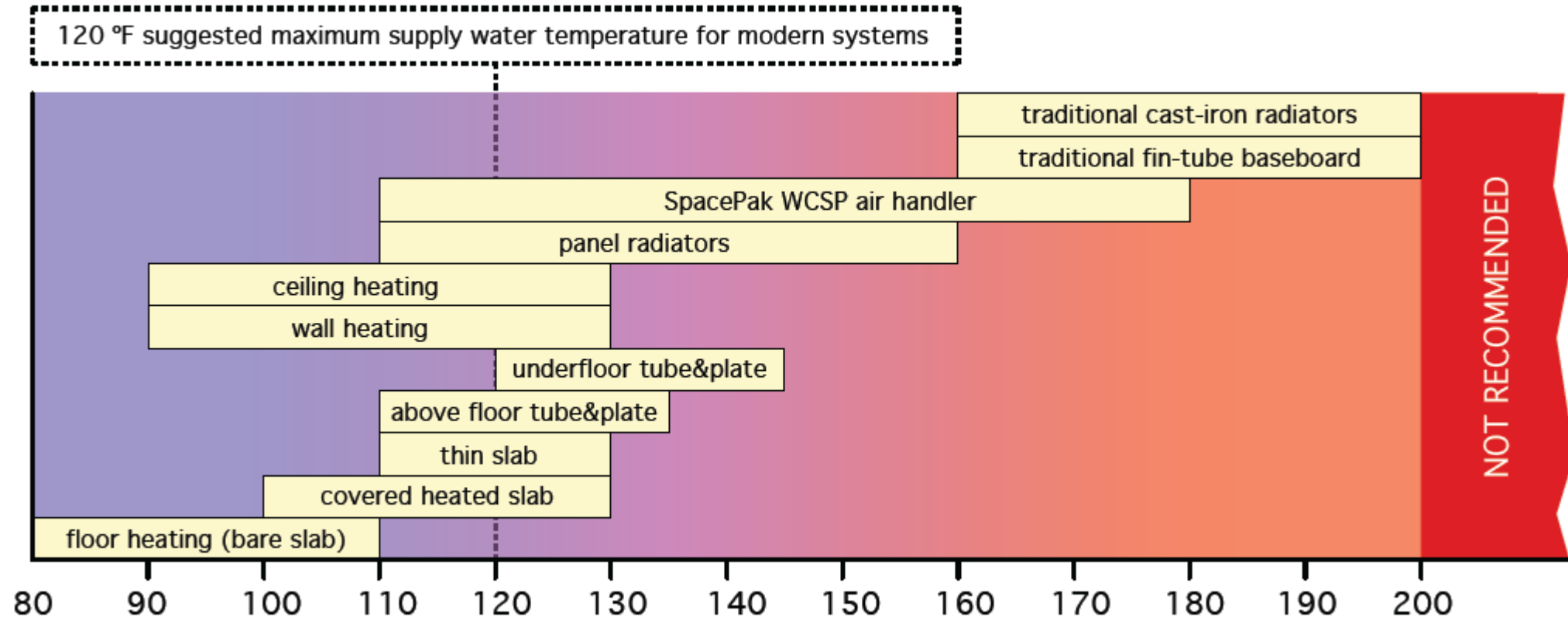
“COP” can be thought of as a “Dollar”

For example, if the unit is running at the COP of 1, that would mean with 1 Dollar worth of Energy input you would receive 1 dollar worth of energy back (100% efficient)

In a higher operational COP of 3, it would show that with 1 Dollar worth of energy input you would receive 3 dollars worth of energy output in return - resulting in a much higher efficiency.

**Note:** This is the general unit of measure for efficiency for air-to-water heat pumps

# Preferred Water Temperatures (**WE DELIVER**)

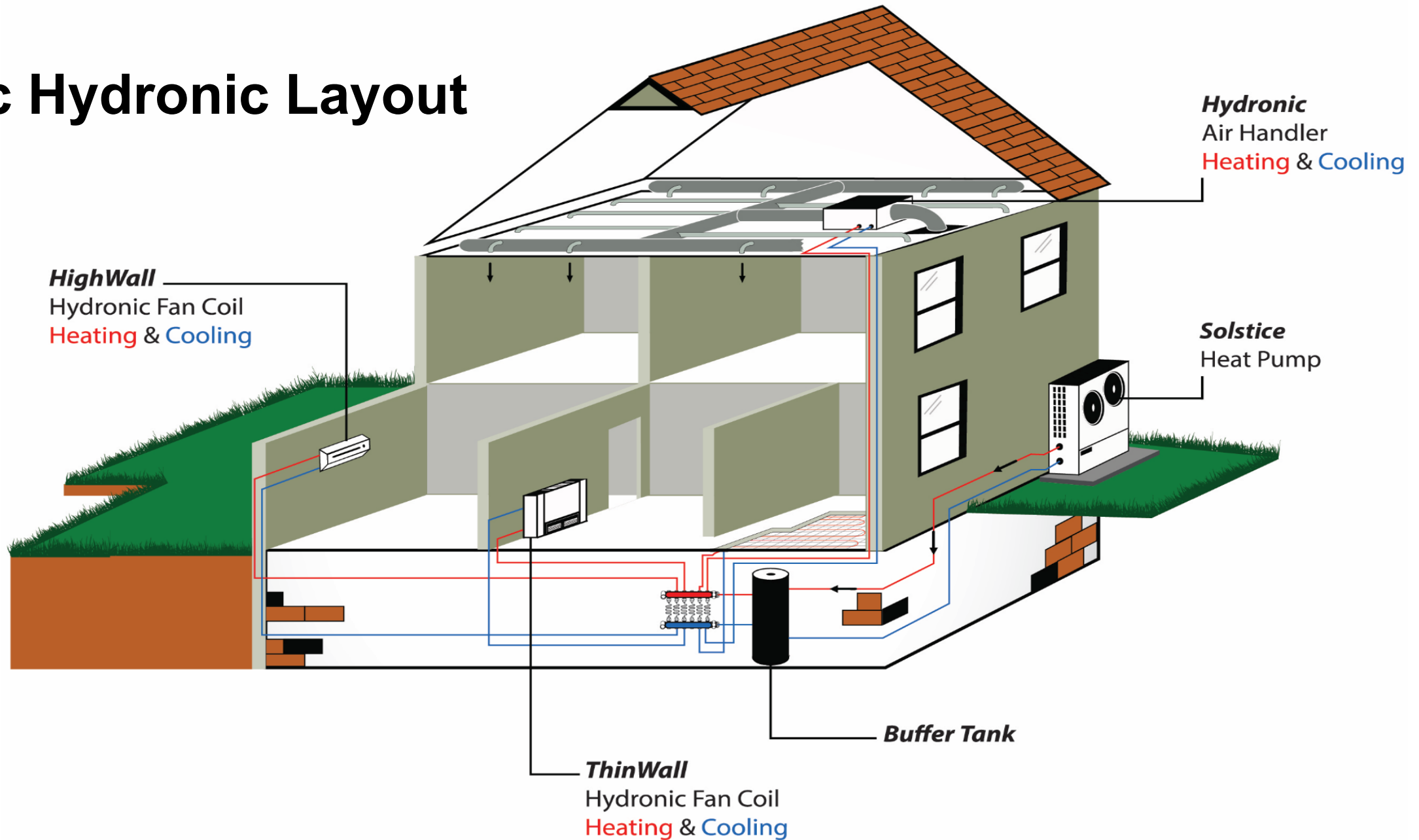


**Note:** These required temperatures make our Heat Pumps a perfect fit for these applications

# Are there any Questions?



# Basic Hydronic Layout



# Why Does Water Work?

---

- Flexibility
- Ease of zoning (limited only by one's ability to size systems)
- Water carries more BTUs (per physical pipe size)
- Integrate with existing hydronic, solar, geothermal
- Partial load capabilities ( vary water temperatures and flows)
- Simpler maintenance - Water vs DX.. No reclaiming
- Not restricted in length and lift of line set
- Better dehumidification



# Our Mono-Block Heat Pumps Can be Installed in Remote Locations

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**Note:** Distances are only limited by the ability to size the pump and piping in accordance with required flow requirements and pressure drop, this creates opportunity for unlimited applications!

# Solstice Mono-Block Offering



ENERGY STAR 2019  
Emerging Technology Award



# SCM Installation Pictures

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# Low Ambient Heat Pump (LAHP-48)

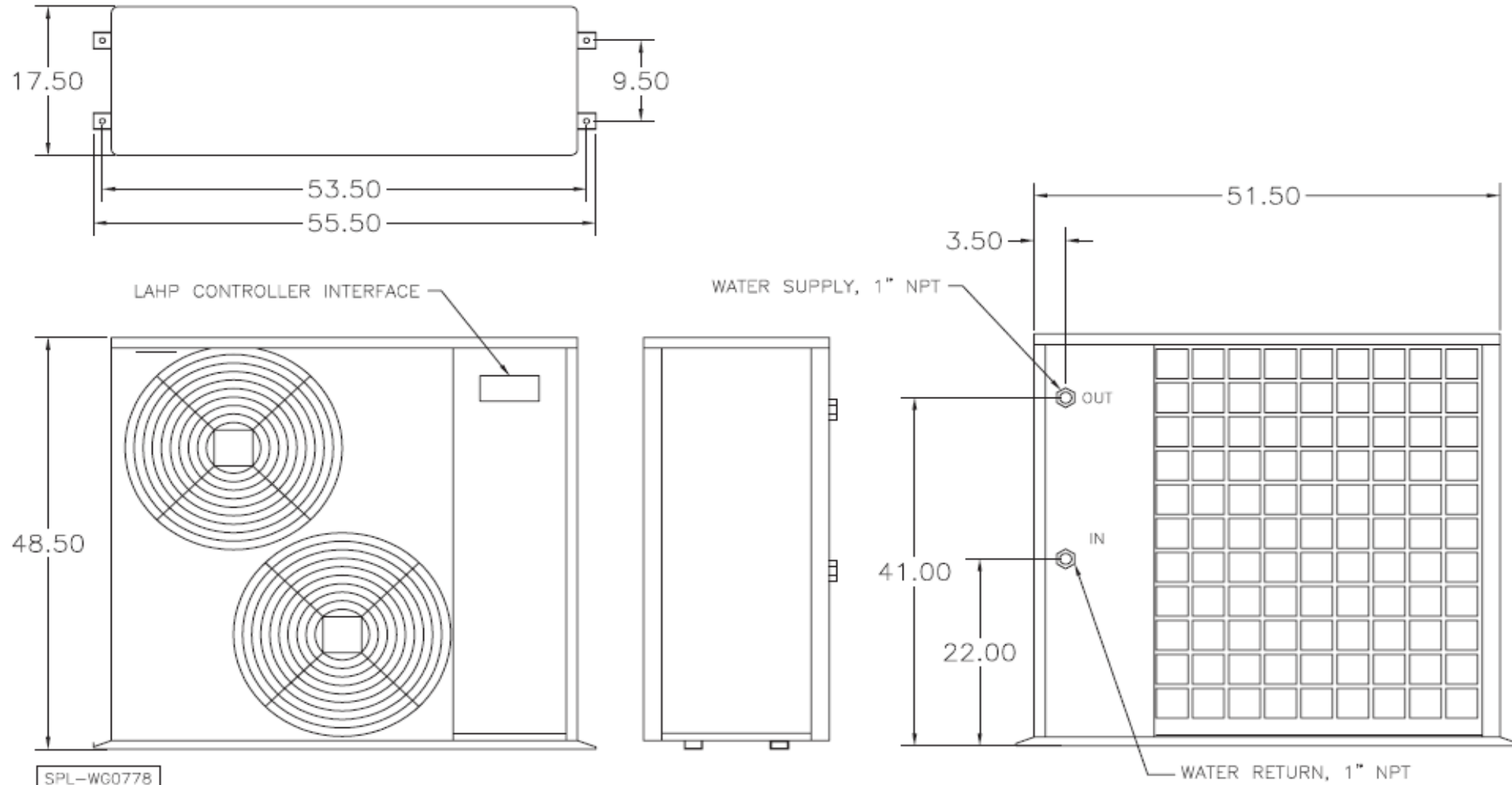


- Enhanced Vapor Injection Copland Compressor
- Provides Low Ambient Heating in Severe Conditions
- 66,480BTU/h at 47F Ambient
- 3.3 Tons of Cooling Capacity at 95F Ambient
- Simple Piping and Pumping with Easy Zoning
- Modulating Fans for Higher Efficiencies
- Low Ambient Freeze Protection

**ENERGY STAR 2019**  
Emerging Technology Award



# LAHP Dimensions (**Weight Approx. 380lbs**)



# LAHP Unit Specifications

Model	LAHP - 048	COP
Heating Capacity (47°F/8°C Ambient temp. 120°F/50°C Supply Water)	66,480 BTU/h (18.9kW)	3.26
Heating Capacity (17°F/-8°C Ambient temp. 120°F/50°C Supply Water)	46,440 BTU/h (13.6kW)	2.35
Heating Capacity (5°F/-15°C Ambient temp. 120°F/50°C Supply Water)	42,240 BTU/h (12.4kW)	2.12
Cooling Capacity (95°F/35°C Ambient temp. 44°F/6.7°C Supply Water)	40,000 BTU/h (11.7kW)	2.43
Volts	230V/1ph/60Hz	
Minimum water supply temperature	42°F (5.5°C)	
Maximum water supply temperature	131°F (55°C)	
Minimum operating ambient temperature	-8°F (-22°C)	
Maximum operating ambient temperature	105°F (40°C)	
Minimum water flow	10 GPM (37.9 l/min)	
Rated water flow	11 GPM (41.6 l/min)	
Pressure drop at recommended flow	17.1 ft/7.4 PSI (35.8 kPa)	
Heating current	31A	
Cooling Current	23.5A	
Noise level at max fan speed (Heating or Cooling)	62 dB (A)	
Compressor	EVI Scroll	
Installed weight	386 lbs (175 kg)	

# LAHP Heating and Cooling Outputs

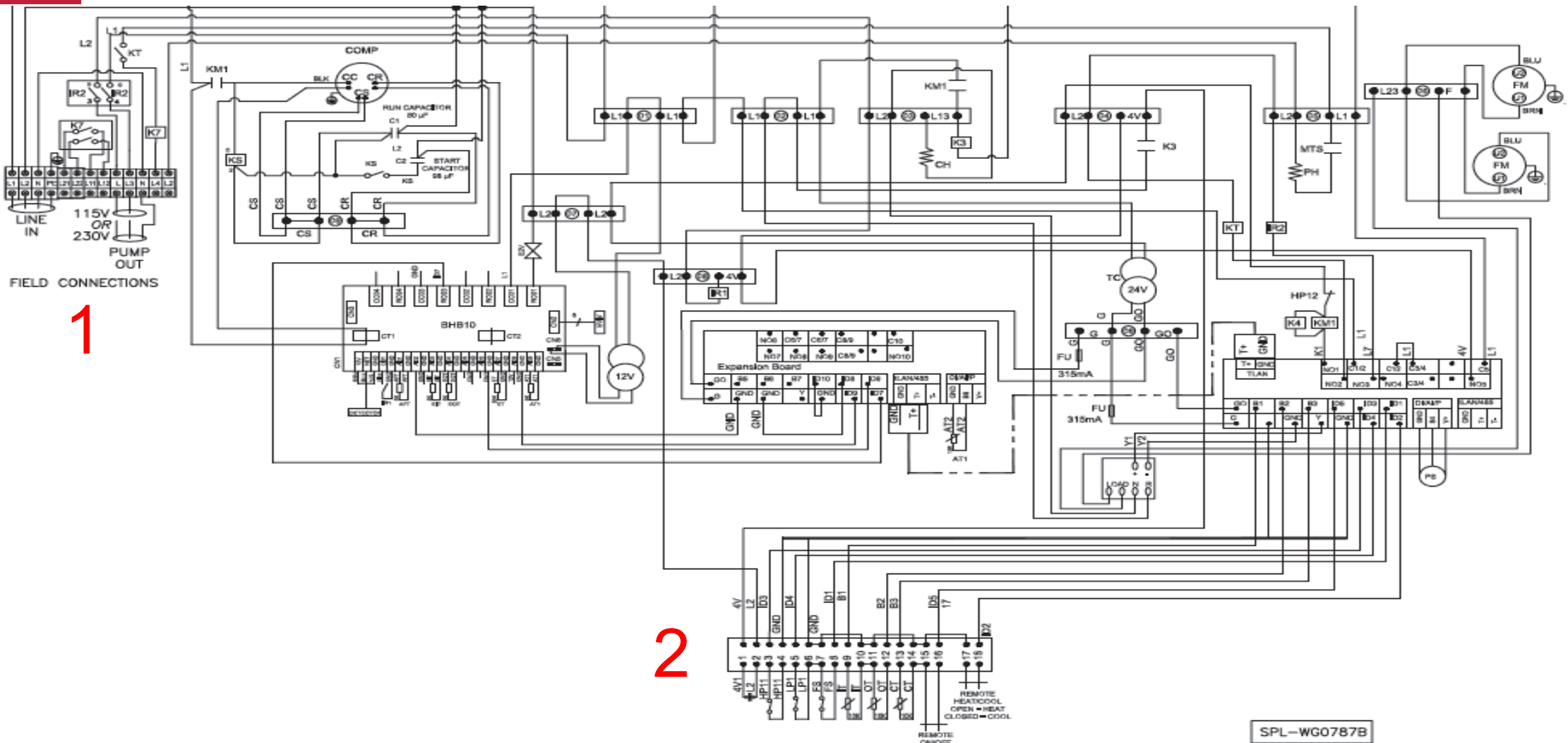
## Heating Outputs

## Cooling Outputs

Supply Water Temp °F	Ambient Temp °F	Capacity BTU/hr	Water DP ft WC	Watts	COP	Supply Water Temp °F	Ambient Temp °F	Capacity BTU/hr	Water DP ft WC	Watts	COP
110	-5	37,500	14.6	3,880	2.30	42	70	41,100	15.0	4,298	2.80
	17	44,800	14.6	3,970	2.70		82	39,950	15.0	4,414	2.65
	47	60,580	14.6	4,263	3.75		95	38,800	15.0	4,897	2.32
120	-5	38,500	14.6	4,513	2.00	44	70	42,500	15.0	4,190	2.97
	17	46,440	14.6	5,790	2.35		82	41,250	15.0	4,238	2.85
	47	66,480	14.6	5,963	3.26		95	40,000	15.0	4,820	2.43
130	-5	40,425	14.6	5,249	1.86	47	70	44,600	15.0	4,240	3.08
	17	48,762	14.6	5,371	2.18		82	43,200	15.0	4,274	2.96
	47	69,804	14.6	5,768	3.04		95	41,800	15.0	4,708	2.60

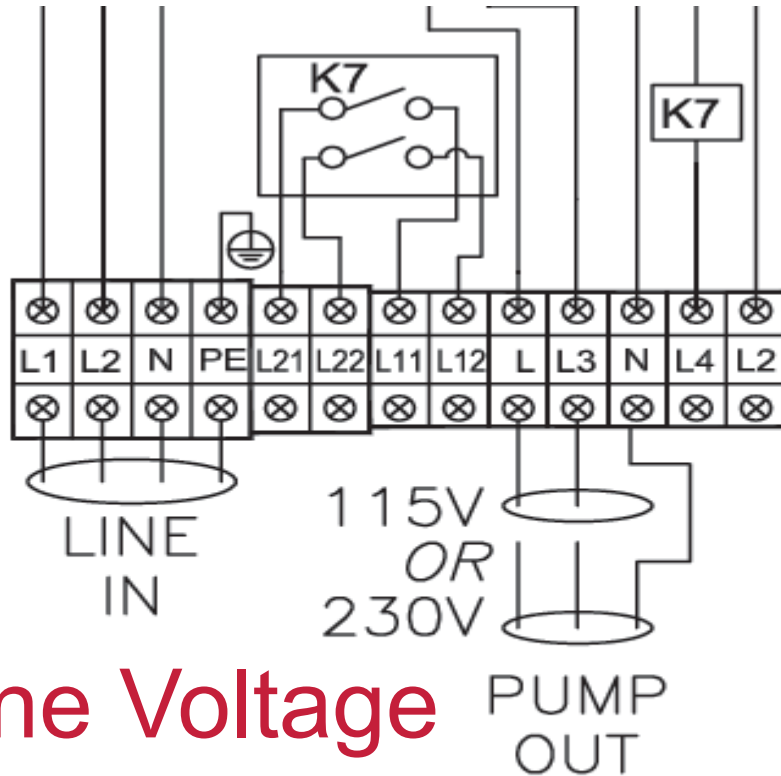
All data based upon pure water @ 11.0 GPM

# LAHP Wiring Overview



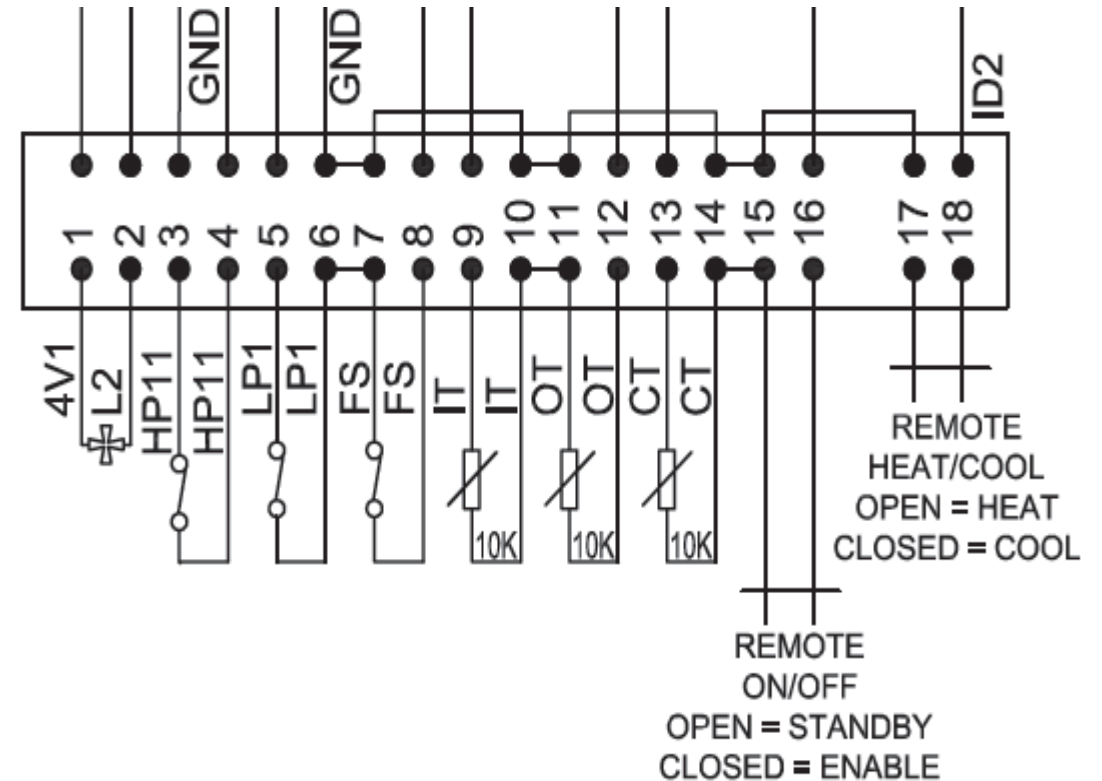
SPL-WG0787B

# LAHP Wiring Connections



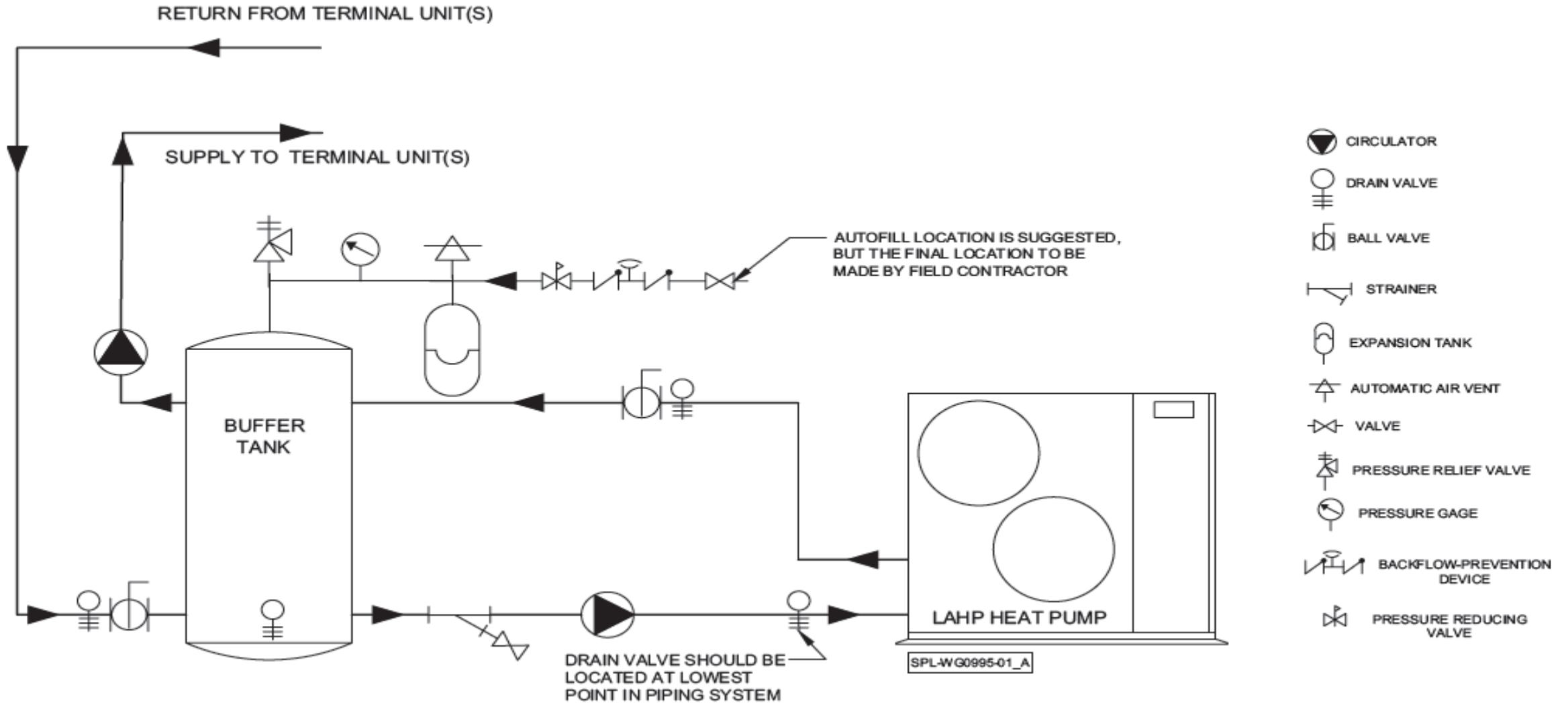
## 1-Line Voltage

FIELD CONNECTIONS



## 2-Control Connections

# LAHP Basic Piping (**Keep it Simple**)



# LAHP Glycol Concentrations (**30% minimum, 50% maximum**)

Ethylene Glycol %	30	40	50
Min. Ambient Temp for Operation	2°F/-17°C	-13°F/-25°C	-36°F/-38°C
SpacePak Capacity Multiplier	0.93	0.91	0.89
Pressure Drop Multiplier (Cooling)	1.16	1.25	1.36
Pressure Drop Multiplier (Heating)	1.16	1.22	1.28
Minimum Expansion Volume / System Volume			
Heating and Cooling (Gallons)	1 gallon expansion per 15 gallons system volume		
Heating only, HP only (Gallons)	1 gallon expansion per 20 gallons system volume		
Heating Only, with Boiler (Gallons)	1 gallon expansion per 15 gallons system volume		
Propylene Glycol %	30	40	50
Min. Ambient Temp for Operation	8°F/-13°C	-7°F/-22°C	-29°F/-34°C
SpacePak Capacity Multiplier	0.96	0.93	0.88
Pressure Drop Multiplier (Cooling)	1.34	1.5	1.65
Pressure Drop Multiplier (Heating)	1.34	1.46	1.5
Minimum Expansion Volume / System Volume			
Heating and Cooling	1 gallon expansion per 15 gallons system volume		
Heating only, HP only	1 gallon expansion per 20 gallons system volume		
Heating only, with Boiler	1 gallon expansion per 15 gallons system volume		

**Note:** Higher percentages are due to the assumed colder ambient conditions and system operation

# LAHP Installations

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# Are there any Questions?



# NEW- SIM Inverter Series (Mono-Block)

## Standard Features

- Full Inverter Mitsubishi Compressor
- User-friendly Touch Screen Control
- Ultra Quiet operation
- Low Ambient Cooling Capabilities
- No Field Refrigerant
- Low Amp Draw (5 Ton = 21 A )
- 130 to 44 Degree Output Temperature Ranges
- 5-year parts 10-year compressor warranty (when installed by a SpacePak certified contractor)

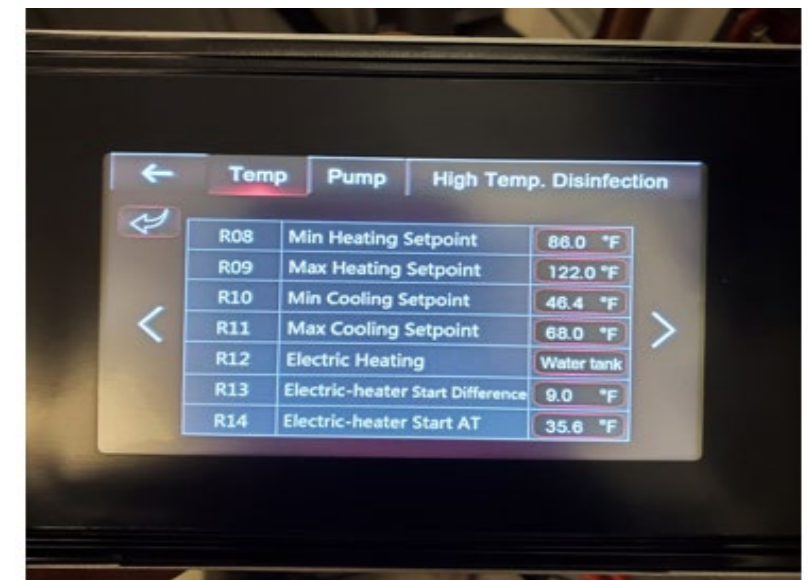
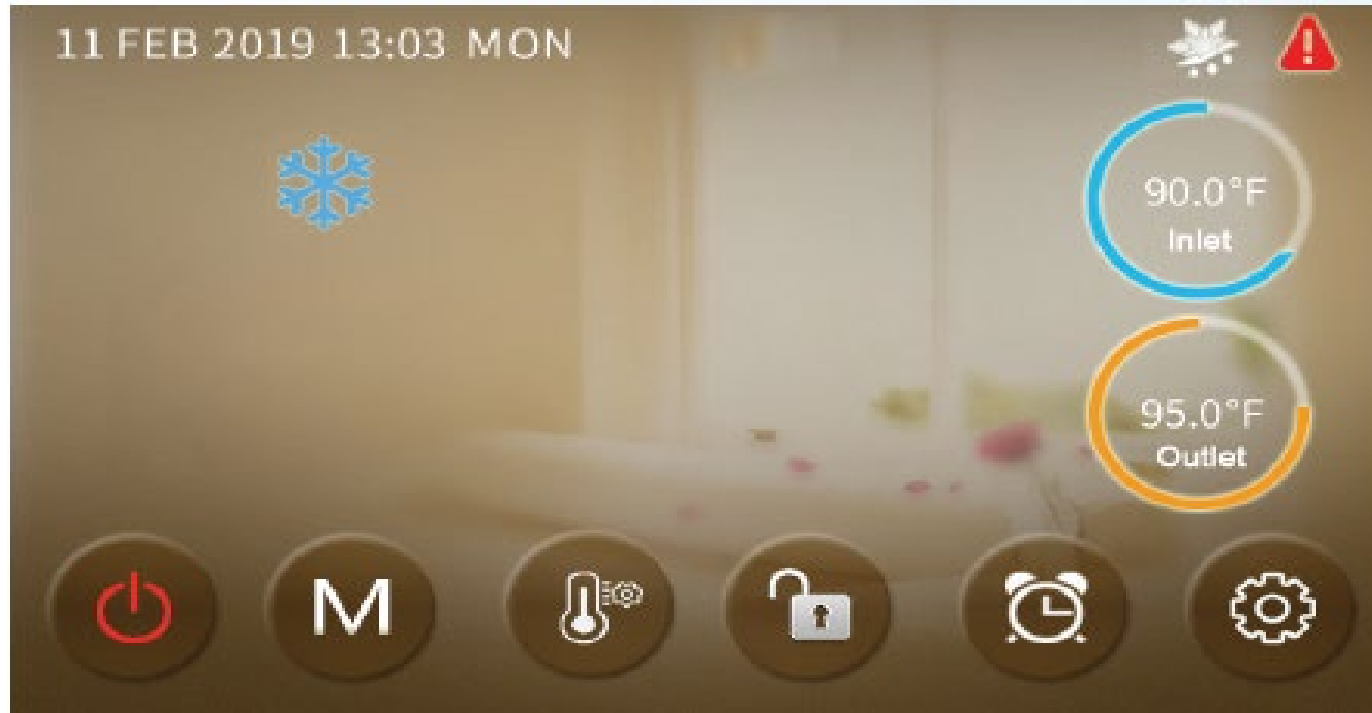


SIM-036



SIM-060

# SIM Touch Screen Control



User friendly touch screen control allows for control outside by the unit or inside in the mechanical room.

# SIM-036 Inverter Mono Block



Max Heating Capacity* (90hz)	BTU/h	38,755
Min Heating Capacity* (30hz)	BTU/h	13,191
Max Cooling Capacity** (90hz)	BTU/h	34,423
Min Cooling Capacity** (30hz)	BTU/h	12,704
Heating COP*		Up to 5.01
Cooling EER**		Up to 12.97
Maximum Running Current	A	18
Compressor Rating Load	A	9.7
Locked Rotor Current	A	35
Fan Motor Rating Current	A	0.8
Minimum Circuit Ampacity	A	20
Max Fuse/Circuit Breaker/Overload Device	A	30
Power Supply		230/1ph/60hz
Compressor Quantity		1
Compressor Type		Rotary
Fan Quantity		1
Fan Power Input	W	200
Max Fan Speed	RPM	750
Sound Power Level	dB(A)	54
Water Pressure Drop at rated flow	PSI	6
Water Connection	inch	1
Rated Water Flow	GPM	7
Unit Net Dimensions (L/W/H)	inch	38.6 x 18.3 x 35.4
Unit Shipping Dimensions (L/W/H)	inch	40.9 x 19.3 x 36.2
Net Weight	lb.	242.5
Shipping Weight	lb.	271

Test Condition (AHRI 550/590)

\*\*Cooling :

Ambient Temperature, DB: 95°F

Entering/Return Water Temperature: 59°F

\*Heating:

Ambient Temperature:(DB/WB): 45°F/43°F

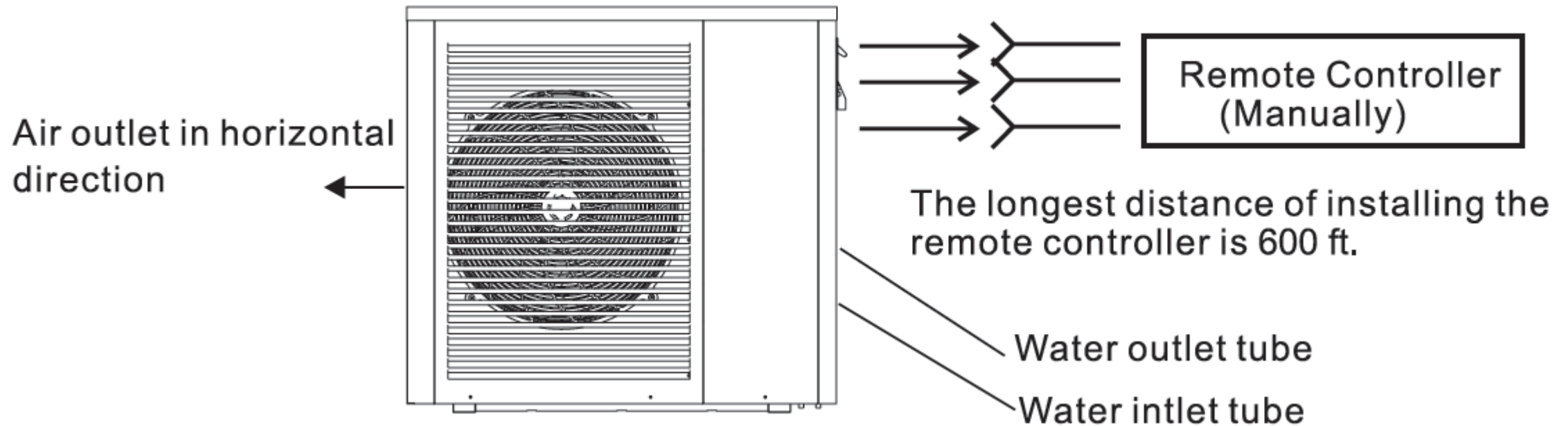
Entering/Return Water Temperature: 86°F

# Glycol-Water System (Mono-Block)

**Figure 1** SIM Glycol Concentrations (10% Minimum, 50% Maximum)

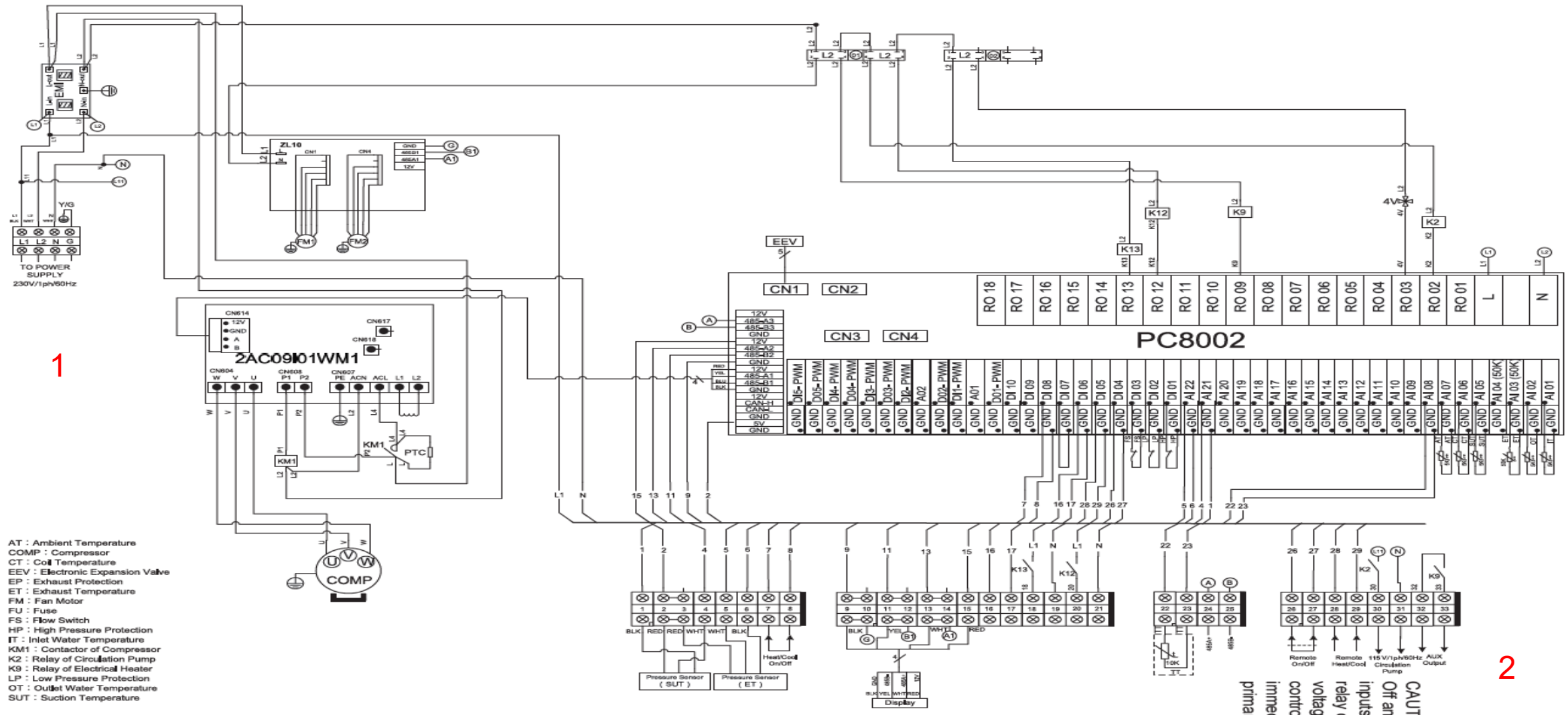
Ethylene Glycol %	10	20	30	40	50
Min. Ambient Temp for Operation	23°F/-5°C	14°F/-10°C	2°F/-17°C	-13°F/-25°C	-36°F/-38°C
SpacePak Capacity Multiplier	0.98	0.96	0.93	0.91	0.89
Pressure Drop Multiplier (Cooling)	1.06	1.12	1.16	1.25	1.36
Pressure Drop Multiplier (Heating)	1.06	1.12	1.16	1.22	1.28
Minimum Expansion Volume / System Volume					
Heating and Cooling (Gallons)	1 gallon expansion per 15 gallons system volume				
Heating only, HP only (Gallons)	1 gallon expansion per 20 gallons system volume				
Heating Only, with Boiler (Gallons)	1 gallon expansion per 15 gallons system volume				
Propylene Glycol %	10	20	30	40	50
Min. Ambient Temp for Operation	26°F/-3°C	18°F/-8°C	8°F/-13°C	-7°F/-22°C	-29°F/-34°C
SpacePak Capacity Multiplier	0.99	0.98	0.96	0.93	0.88
Pressure Drop Multiplier (Cooling)	1.10	1.20	1.34	1.5	1.65
Pressure Drop Multiplier (Heating)	1.10	1.20	1.34	1.46	1.5
Minimum Expansion Volume / System Volume					
Heating and Cooling	1 gallon expansion per 15 gallons system volume				
Heating only, HP only	1 gallon expansion per 20 gallons system volume				
Heating only, with Boiler	1 gallon expansion per 15 gallons system volume				

# SIM-036 Touch Screen Display Wiring Layout

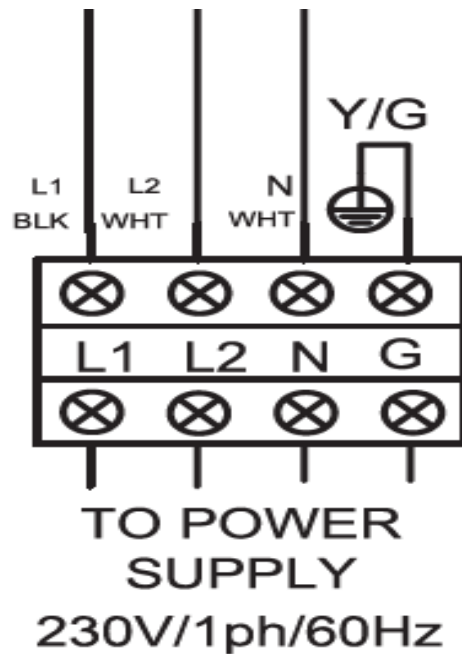


**NOTE:** A 65-foot 5 conductor shielded wire is supplied with the unit. In cases of longer runs field supplied shielded wire can be used however the factory supplied Molex connectors will have to be attached at either end for proper installation.

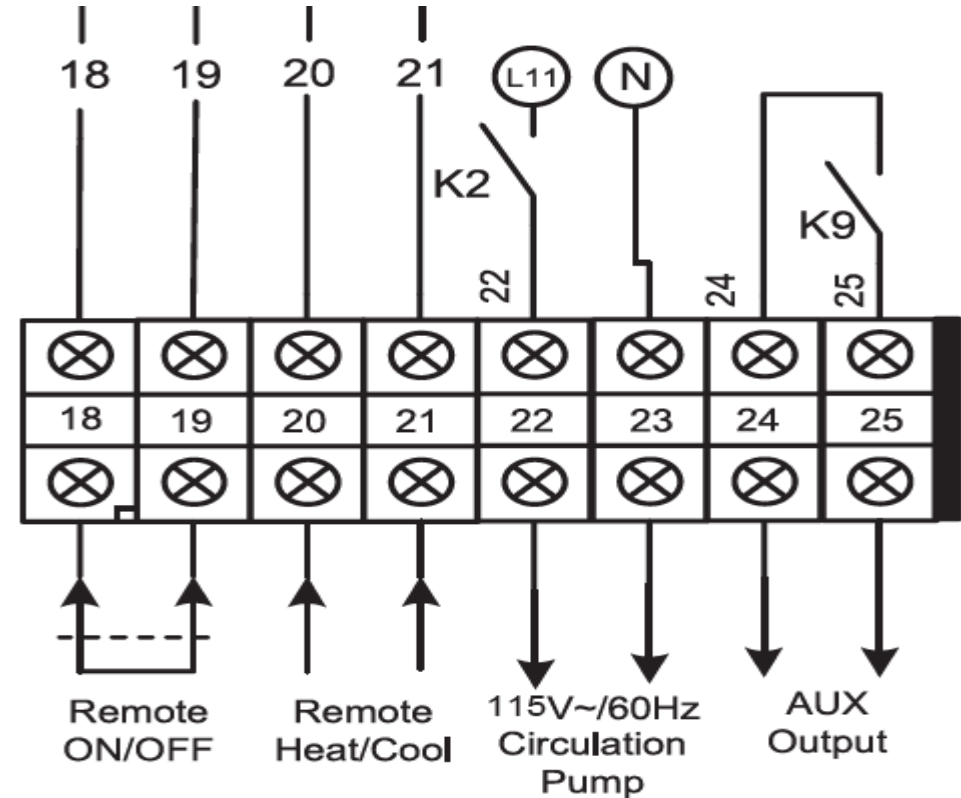
# SIM-036 Wiring Overview



# SIM-036 Field Wiring



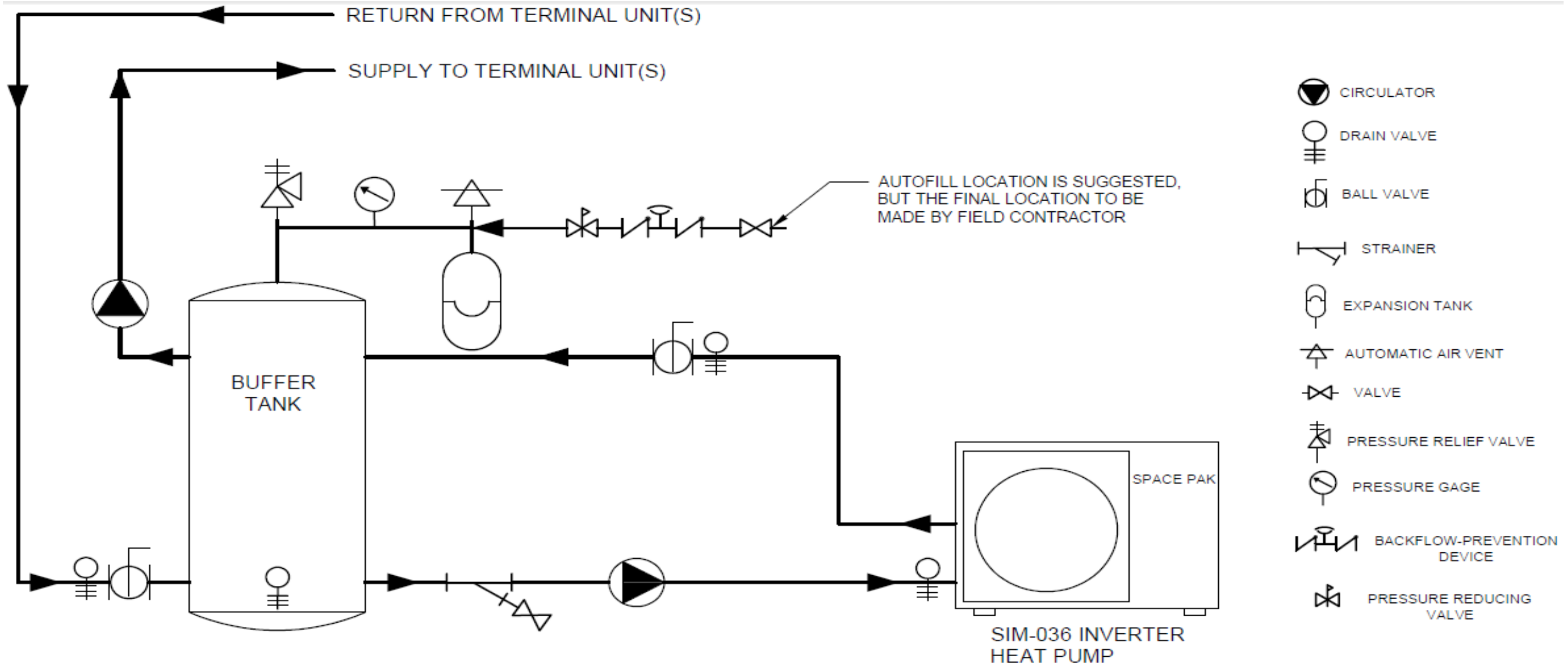
## 1-Line Voltage



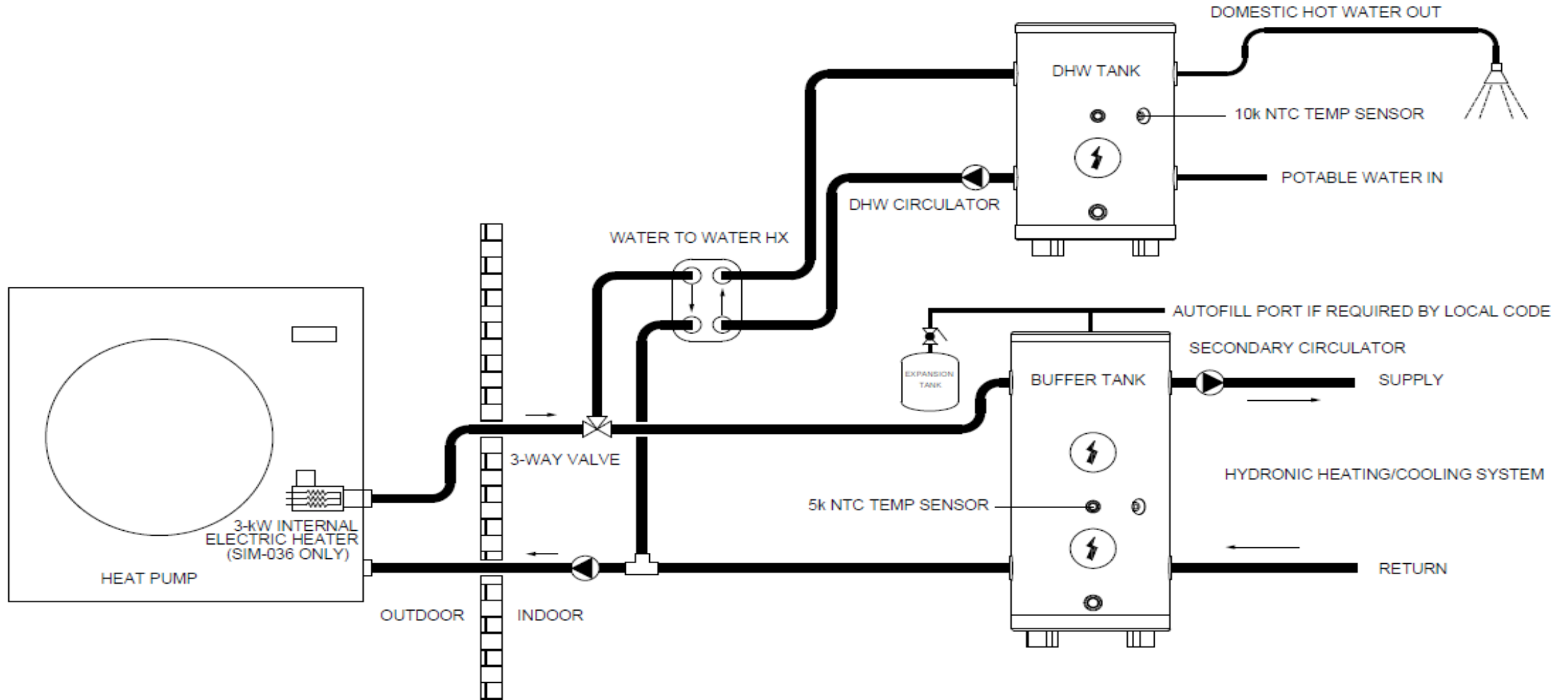
## 2- Control and Pump

**Note:** Depending on the control strategy chosen there may be the need to run additional low voltage signal wires from the mechanical room to the outside unit. (in addition to the touch screen control wiring)

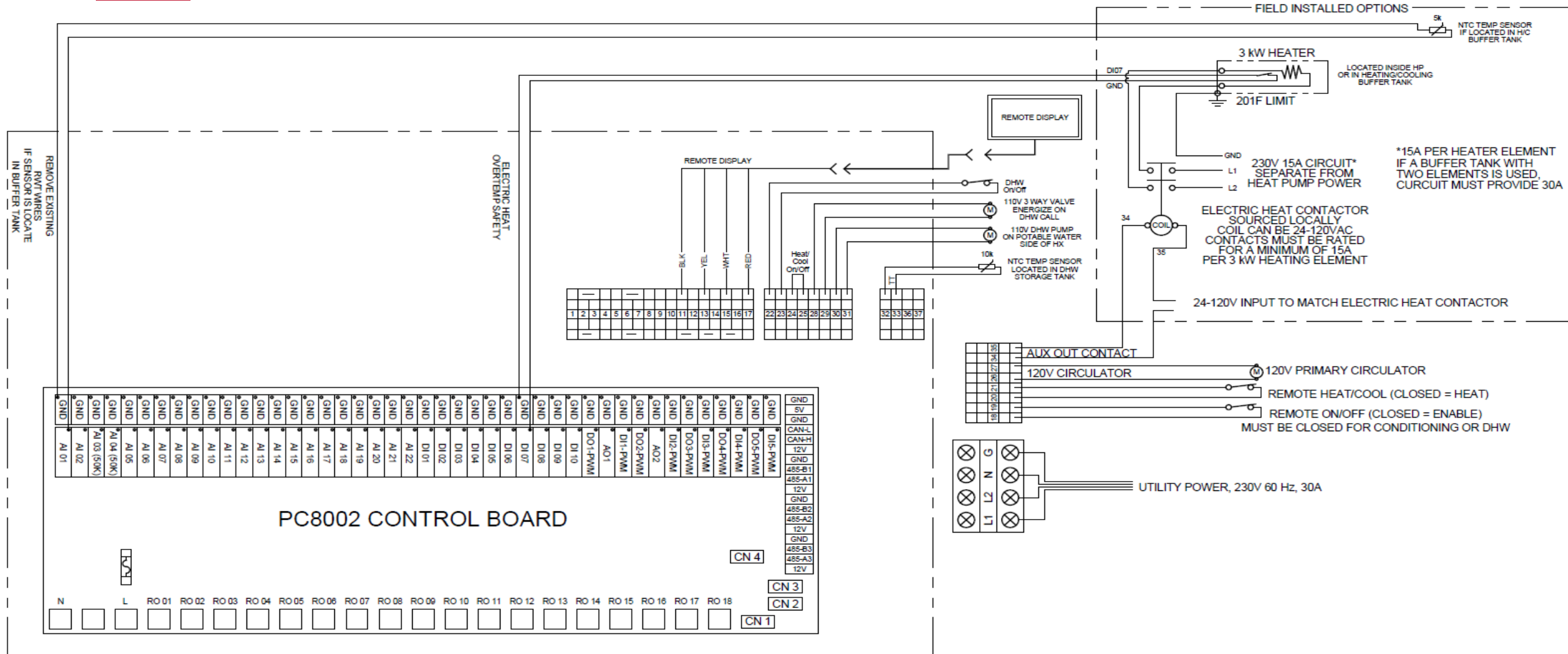
# SIM-036 Basic Piping (Basic)



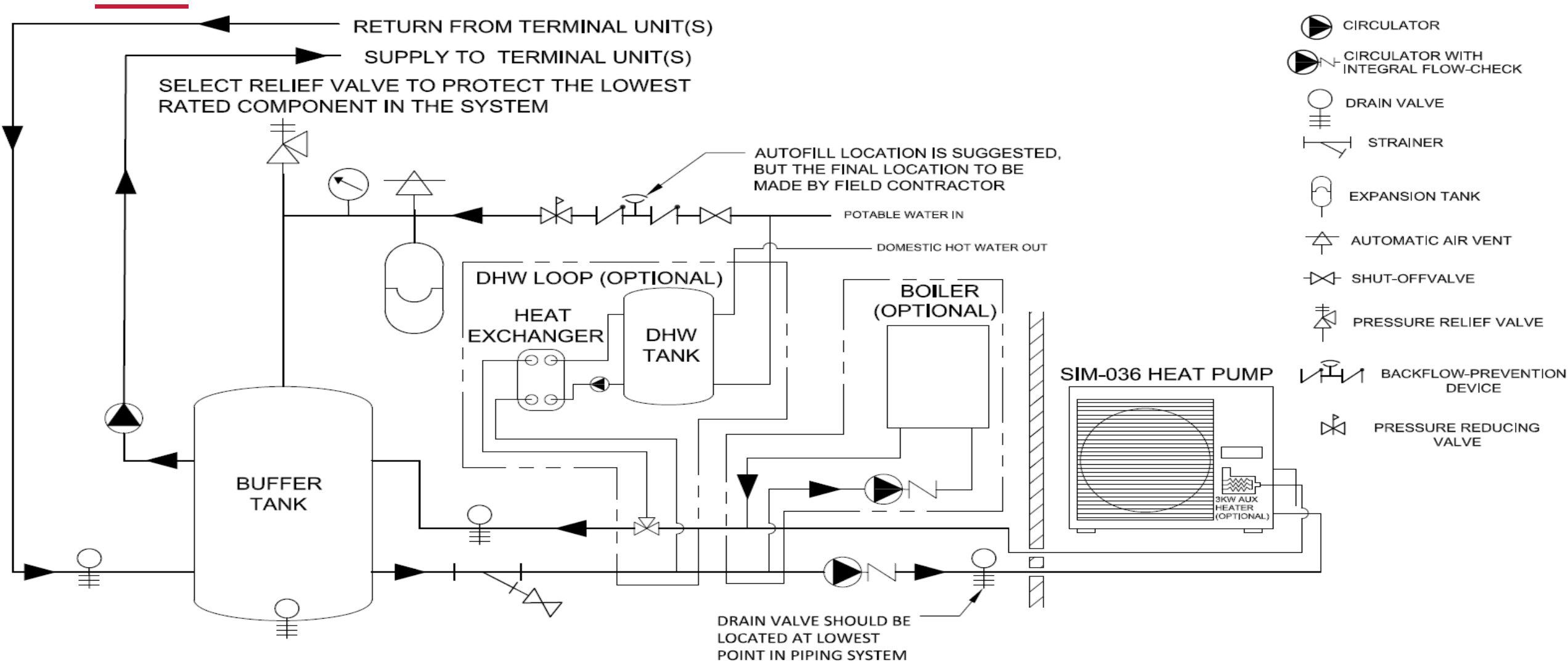
# SIM-036 Basic Heat and DHW Offset Piping



# SIM-036 with Optional Electric Heat and Hot Water Functions



# SIM-036 with Boiler and DHW Offset Piping



# SIM-060 Inverter Mono Block



Max Heating Capacity* (90hz)	BTU/h	70,666
Min Heating Capacity* (30hz)	BTU/h	25,413
Max Cooling Capacity** (90hz)	BTU/h	59,523
Min Cooling Capacity** (30hz)	BTU/h	17,884
Heating COP*		Up to 4.67
Cooling EER**		Up to 11.60
Maximum Running Current	A	21
Compressor Rating Load	A	19
Locked Rotor Current	A	50
Fan Motor Rating Current	A	2x0.8
Minimum Circuit Ampacity	A	26
Max Fuse/Circuit Breaker/Overload Device	A	40
Power Supply		230/1ph/60hz
Compressor Quantity		1
Compressor Type		Rotary
Fan Quantity		2
Fan Power Input	W	200x2
Max Fan Speed	RPM	750
Sound Power Level	dB(A)	58
Water Pressure Drop at rated flow	PSI	10
Water Connection	inch	1 1/4
Rated Water Flow	GPM	13
Unit Net Dimensions (L/W/H)	inch	39 x 13 x 52
Unit Shipping Dimensions (L/W/H)	inch	42 x 18 x 53
Net Weight	lb.	326
Shipping Weight	lb.	368

Test Condition (AHRI 550/590)

\*\*Cooling :

Ambient Temperature, DB: 95°F

Entering/Return Water Temperature: 59°F

\*Heating:

Ambient Temperature:(DB/WB): 45°F/43°F

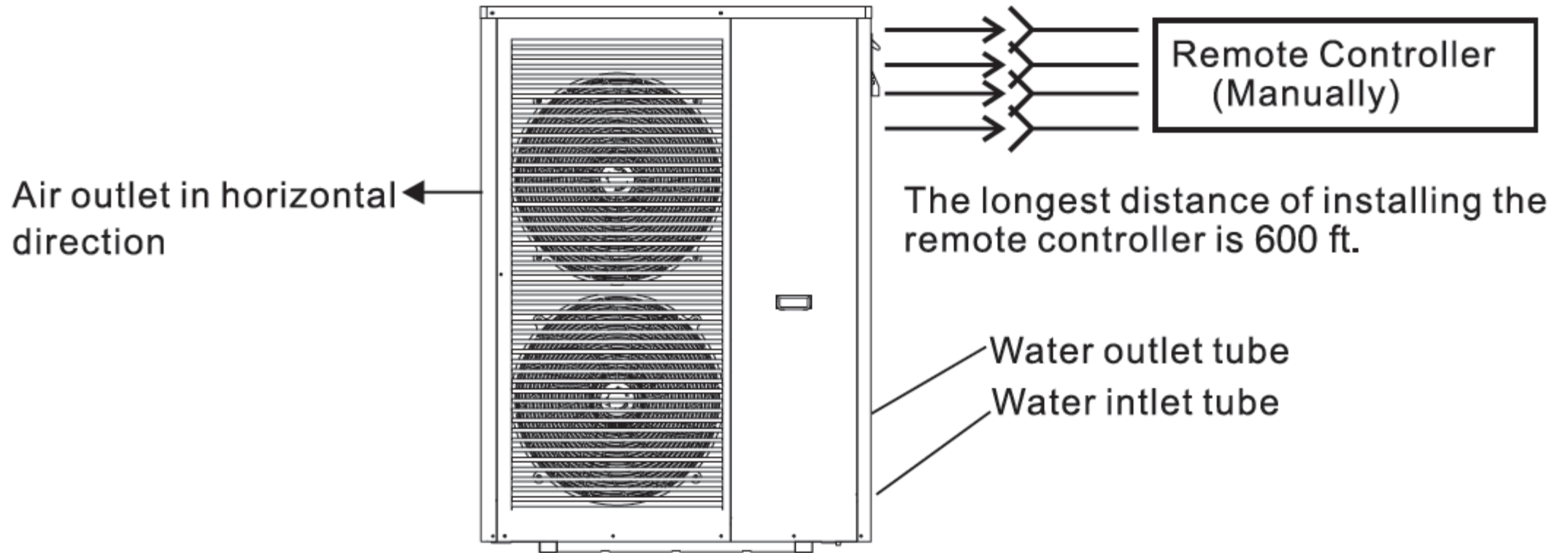
Entering/Return Water Temperature: 86°F

# Glycol-Water System (Mono-Block)

**Figure 1** SIM Glycol Concentrations (10% Minimum, 50% Maximum)

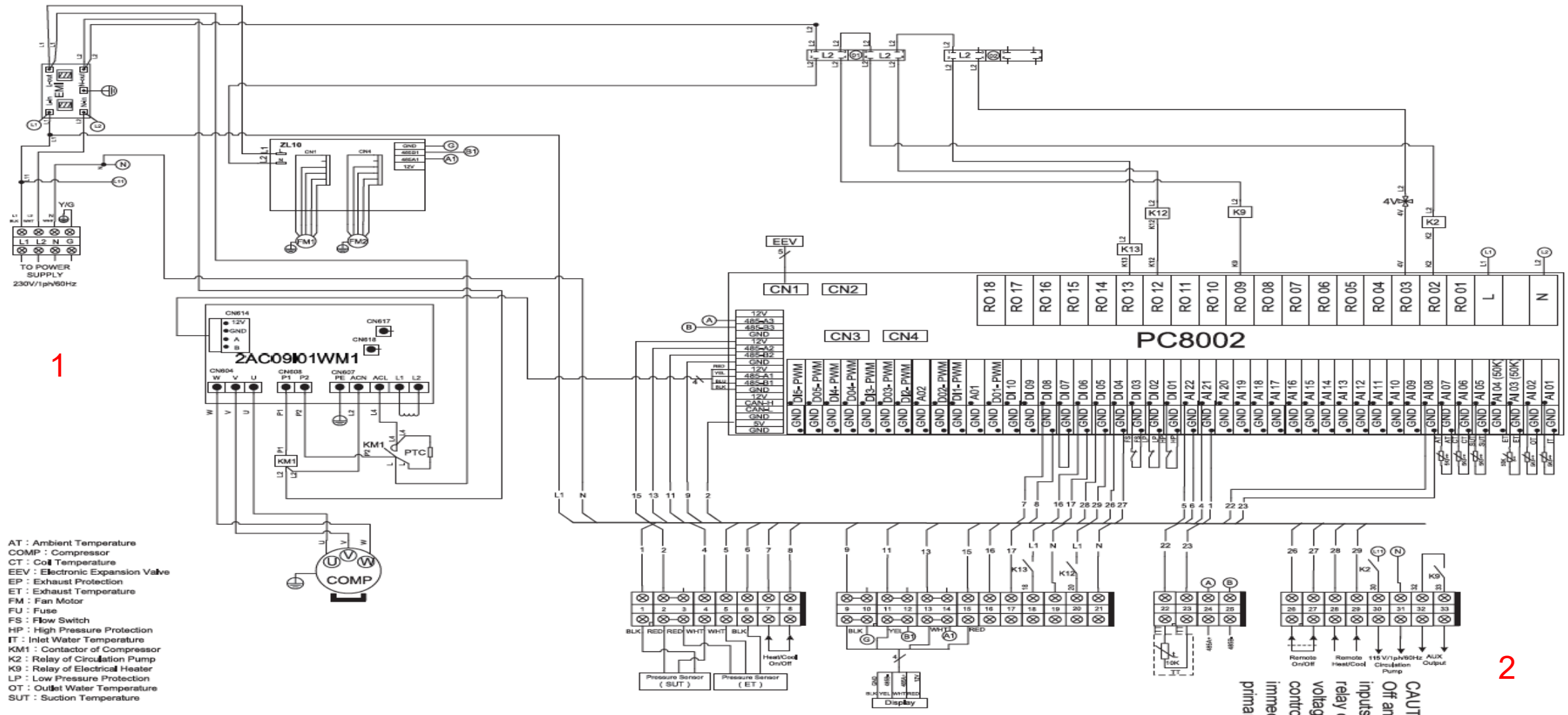
Ethylene Glycol %	10	20	30	40	50
Min. Ambient Temp for Operation	23°F/-5°C	14°F/-10°C	2°F/-17°C	-13°F/-25°C	-36°F/-38°C
SpacePak Capacity Multiplier	0.98	0.96	0.93	0.91	0.89
Pressure Drop Multiplier (Cooling)	1.06	1.12	1.16	1.25	1.36
Pressure Drop Multiplier (Heating)	1.06	1.12	1.16	1.22	1.28
Minimum Expansion Volume / System Volume					
Heating and Cooling (Gallons)	1 gallon expansion per 15 gallons system volume				
Heating only, HP only (Gallons)	1 gallon expansion per 20 gallons system volume				
Heating Only, with Boiler (Gallons)	1 gallon expansion per 15 gallons system volume				
Propylene Glycol %	10	20	30	40	50
Min. Ambient Temp for Operation	26°F/-3°C	18°F/-8°C	8°F/-13°C	-7°F/-22°C	-29°F/-34°C
SpacePak Capacity Multiplier	0.99	0.98	0.96	0.93	0.88
Pressure Drop Multiplier (Cooling)	1.10	1.20	1.34	1.5	1.65
Pressure Drop Multiplier (Heating)	1.10	1.20	1.34	1.46	1.5
Minimum Expansion Volume / System Volume					
Heating and Cooling	1 gallon expansion per 15 gallons system volume				
Heating only, HP only	1 gallon expansion per 20 gallons system volume				
Heating only, with Boiler	1 gallon expansion per 15 gallons system volume				

# SIM-060 Touch Screen Display Wiring Layout

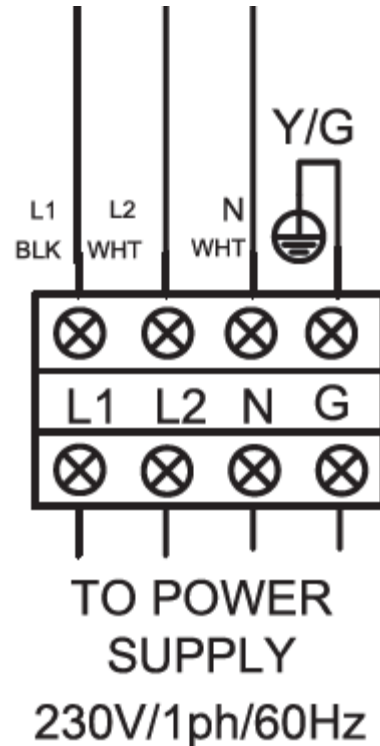


**NOTE:** A 65-foot 5 conductor shielded wire is supplied with the unit. In cases of longer runs field supplied shielded wire can be used however the factory supplied Molex connectors will have to be attached at either end for proper installation.

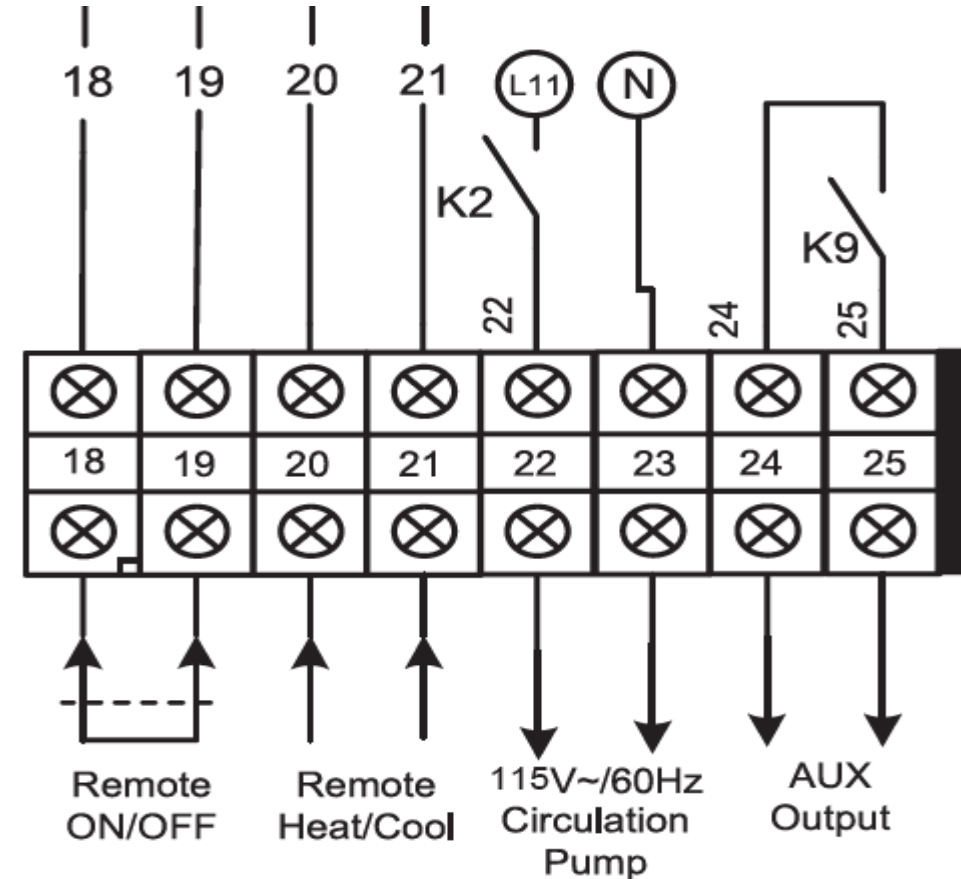
# SIM-060 Wiring Overview



# SIM-060 Field Wiring



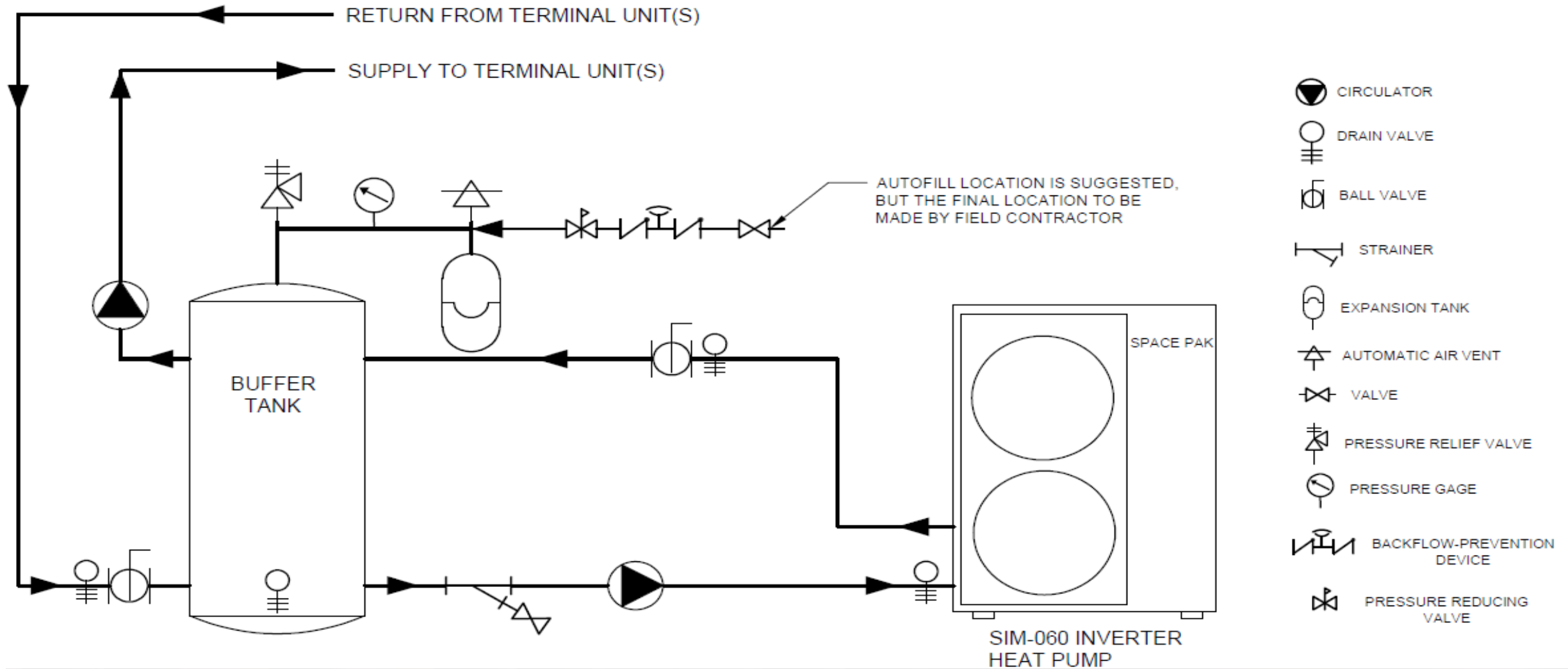
## 1-Line Voltage



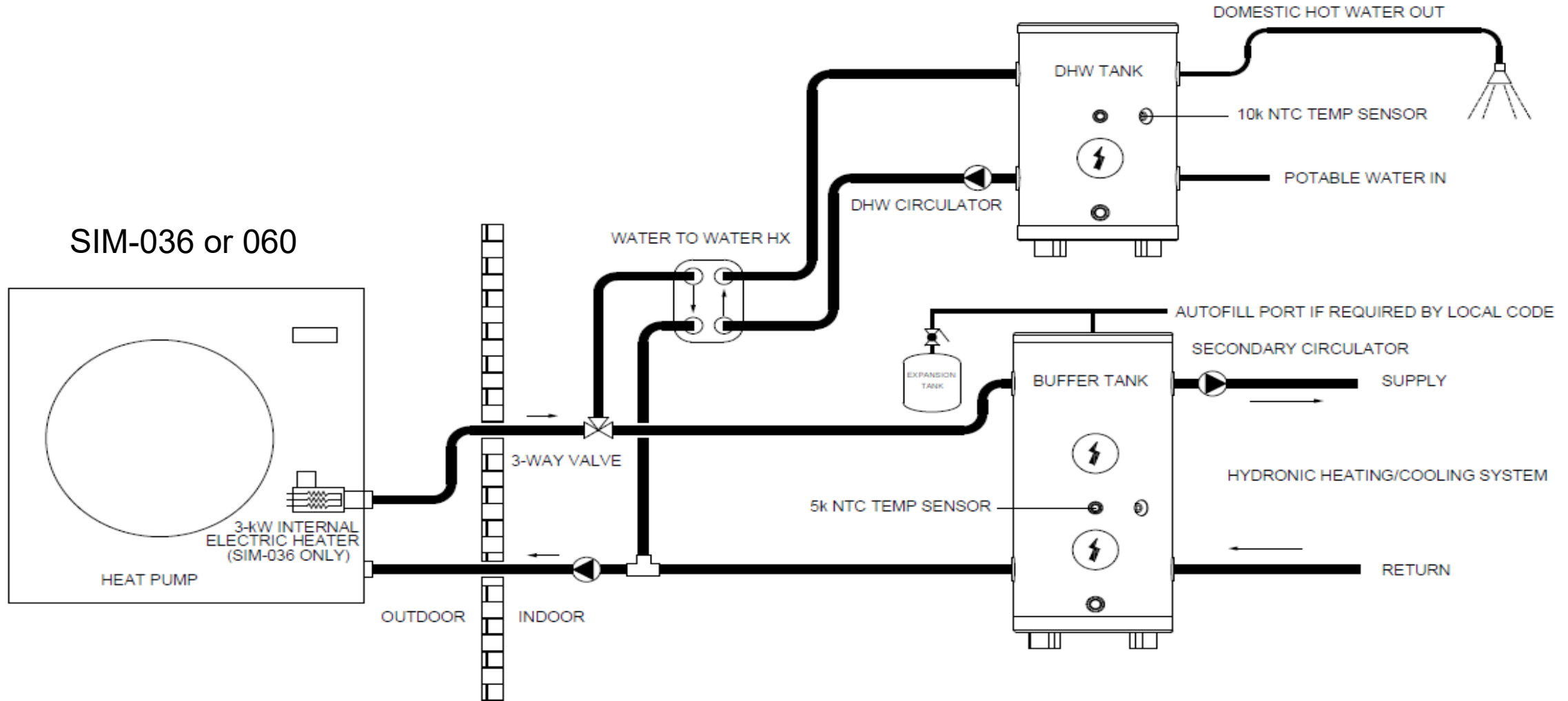
## 2- Control and Pump

**Note:** Depending on the control strategy chosen there may be the need to run additional low voltage signal wires from the mechanical room to the outside unit. (in addition to the touch screen control wiring)

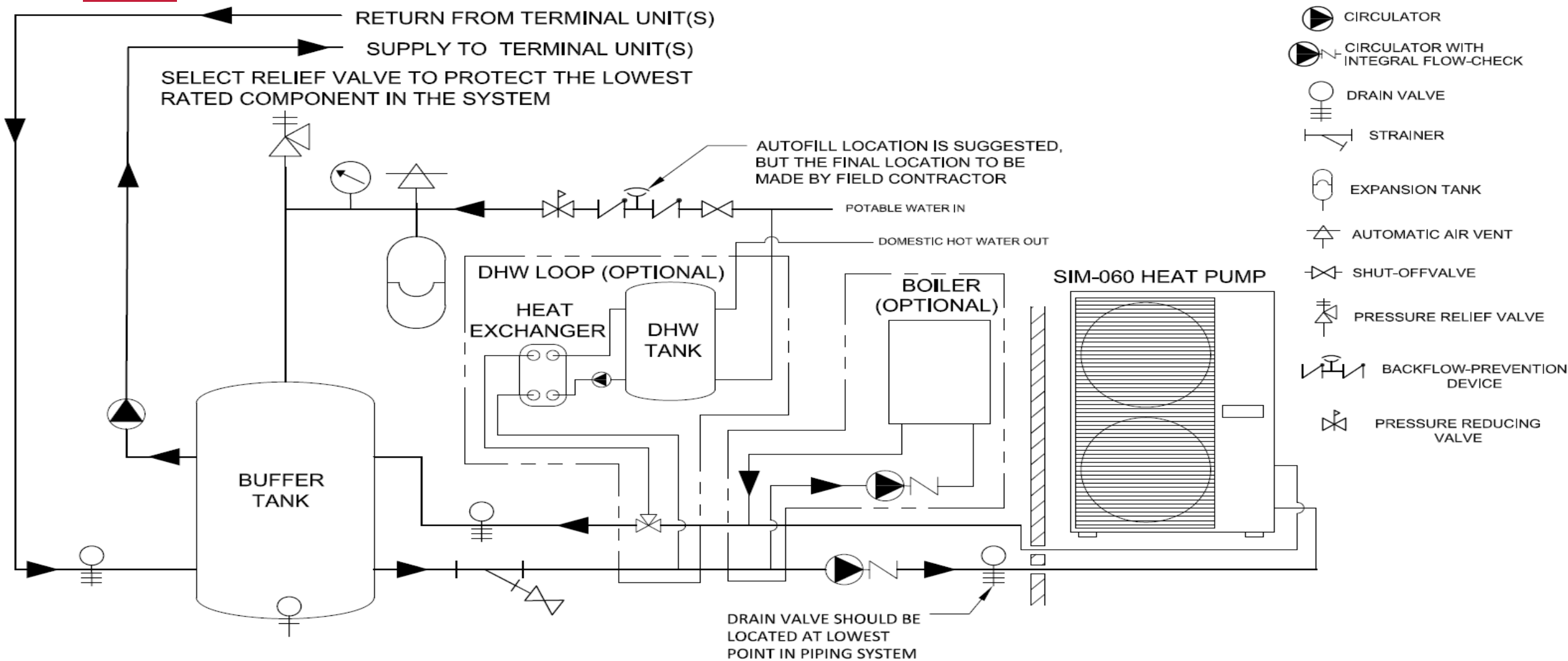
# SIM-060 Basic Piping (Basic)



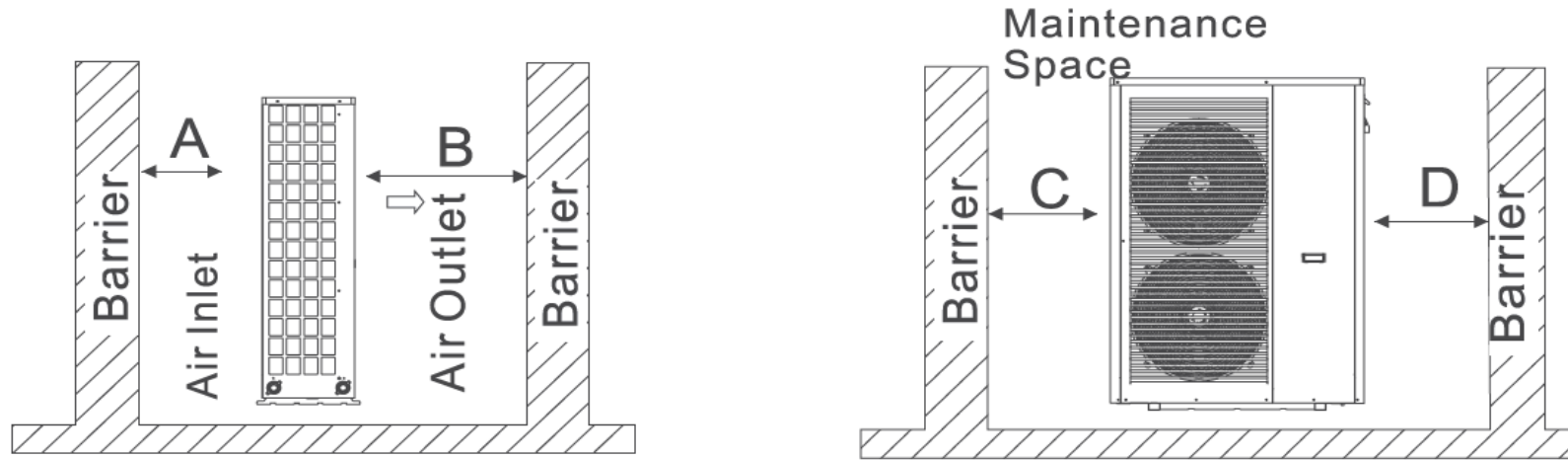
# SIM-060 Basic Heat and DHW Offset Piping



# SIM-060 with Boiler and DHW



# SIM Series Installation Clearances (Allow for Defrost)



The picture shows the location of horizontal air outlet unit.



## Attention

Requirements

A>20inch ; B>59inch ;

C>20inch ; D>40inch;

# SIM Installations

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# Are there any Questions?



# SIS- SpacePak Split Inverter Low Ambient Heat Pump

- 21,000-71,000 BTU/H Heating
- 2.5-5.2 Tons Cooling
- Panasonic EVI Inverter Compressor
- Precision Temperature Control
- No Water/Glycol Mix Outside
- Refrigerant Lineset Connects Units
- Indoor Unit Size & Piping Similar to Wall Hung Boilers
- 5year parts 10year compressor warranty (when installed by a SpacePak certified contractor)
- **Extreme Low Ambient Heating Performance to -20F**



Indoor Unit



Outdoor Unit

# SSI- Compressor and Fan Motors (**both inverter**)



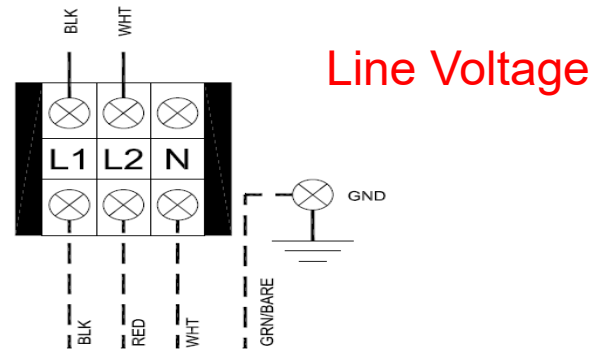
Units use inverter driven compressors with EVI technology for superior performance efficiency at temperatures as low as -22°F.



EC controlled modulating fan motors combined with high efficiency blade profile ensure quiet end efficient operation while exchanging energy with the outdoor air.

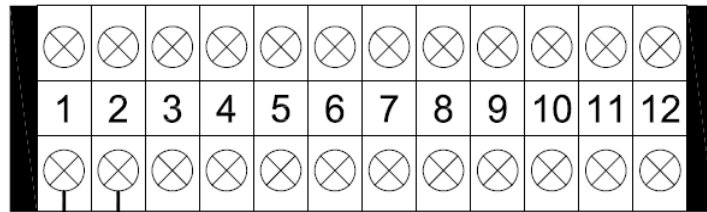
# SIS Specifications/ Basic wiring

## INDOOR MODULE



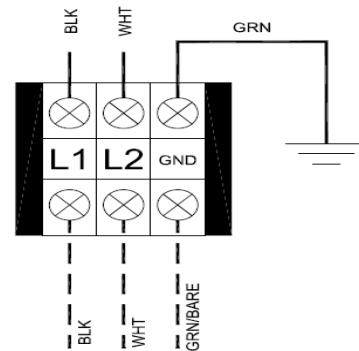
MIN CIRCUIT AMPACITY 15A  
MAX FUSE/BREAKER 15A

## INDOOR MODULE



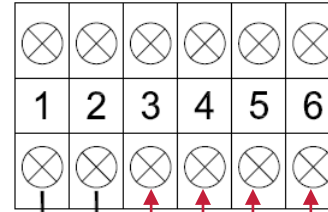
Communication wiring (provided)

## OUTDOOR MODULE



MIN CIRCUIT AMPACITY 40A  
MAX FUSE/BREAKER 50A

## OUTDOOR MODULE



On Heat  
Off Cool

		Outdoor	Indoor
Heating Capacity Range*	Btu/hr	20,473-71,574	
Heating Efficiency*	COP	Up To 3.09	
Heating Capacity Range**	Btu/hr	14,777-47,315	
Heating Efficiency**	COP	Up to 2.15	
Cooling Capacity Range***	Tons	2.5-5.2	
Cooling Efficiency***	EER	12.5	
Cooling Efficiency****	IPLV	17.14	
Water Temp Range	Deg F	40-130	
Compressor Frequency	Hz	30-90	
Power Supply	V/Ph/Hz	230/1/60	
MCA	Amps	40	15
MOPD	Amps	50	15
Refrigerant		R410A	
Refrigeration Connection		3/8 & 5/8 Flare	
Compressor		Panasonic Inverter-Drive EVI Scroll	N/A
Water Connection	N.P.T.	N/A	1"
Pressure drop (12 G.P.M)	P.S.I./ft W.C.	N/A	10.7/24.7
Fan Motor (Modulating)		EC Controlled	N/A
Noise Level (@3meters)	DBA	50	38
Net Weight	lbs	293	132
Shipping Weight	lbs	337	158
Net Dimensions (L/W/H)	Inches	35x15x55	17x14x30
Shipping Dimension (L/W/H)	Inches	37x17x55	33x21x17
Operating Ambient Temp	Deg F	-20-127	

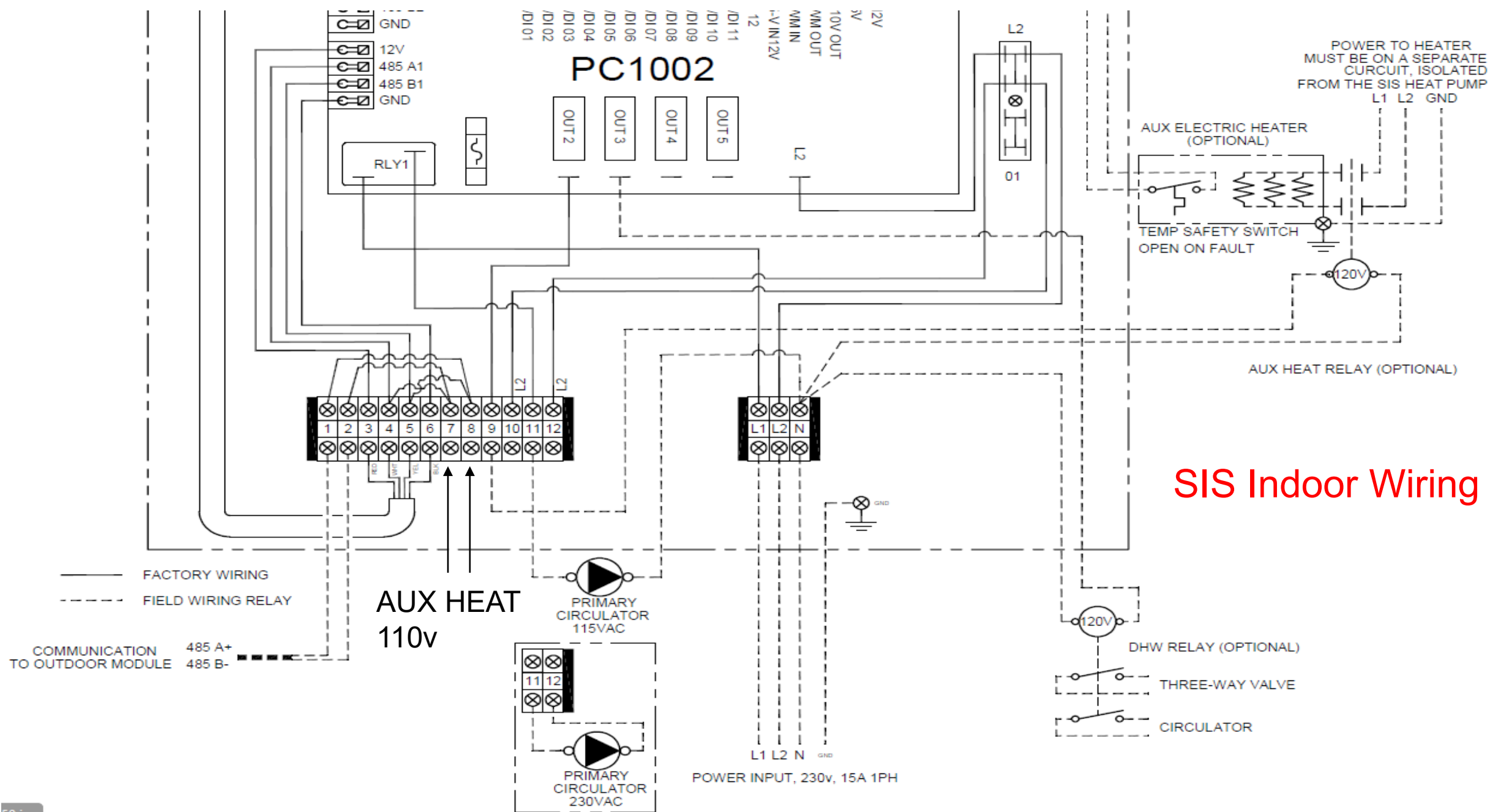
\*Water out- 120°F, Ambient- 47°F, G.P.M-12

\*\*Water out- 120°F, Ambient- 17°F, G.P.M-12

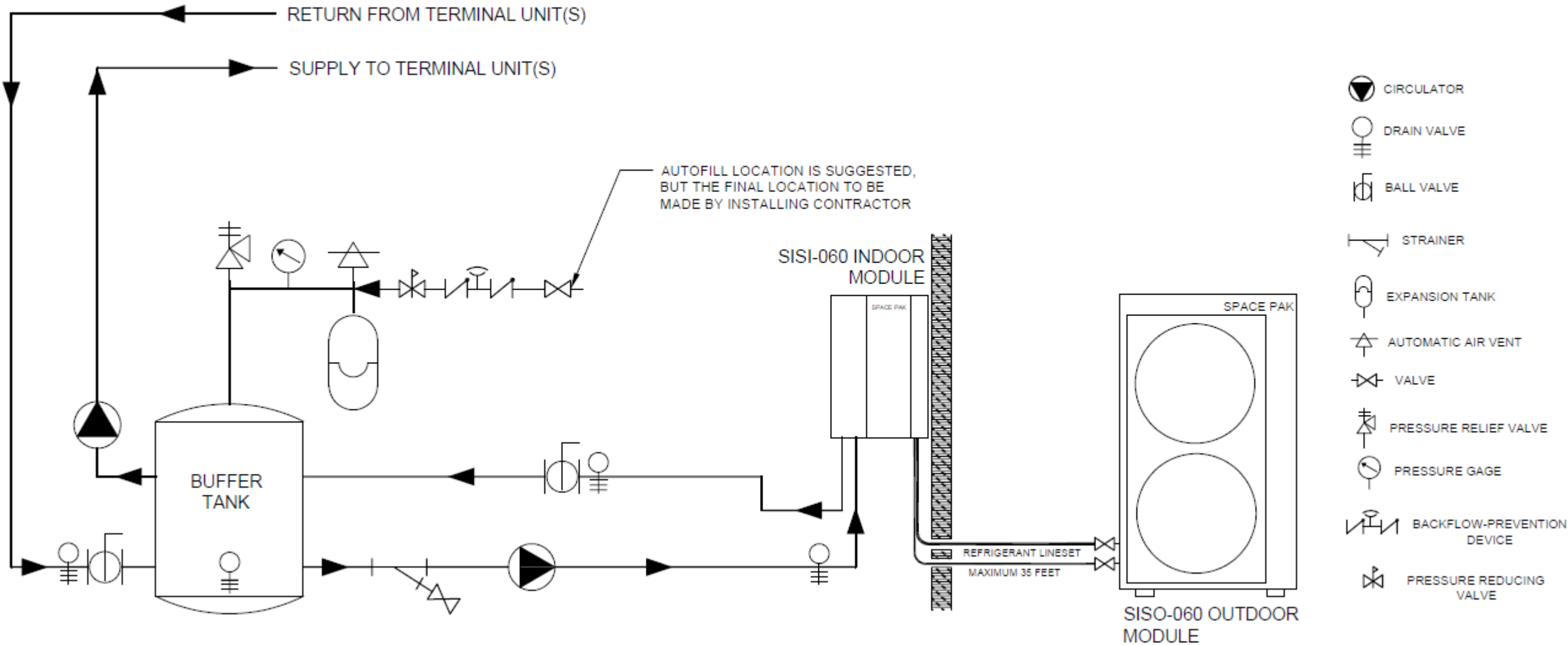
\*\*\*Water out- 45°F, Ambient (DB/WB) @- 95°F/86°F, G.P.M-12

\*\*\*\*IPLV is the recognized measurement of efficiency for Integrated Part Load Values in accordance with AHRI 550/590. Ambient temp = 95°F. Delivered Water = 44°F (8.5GPM)

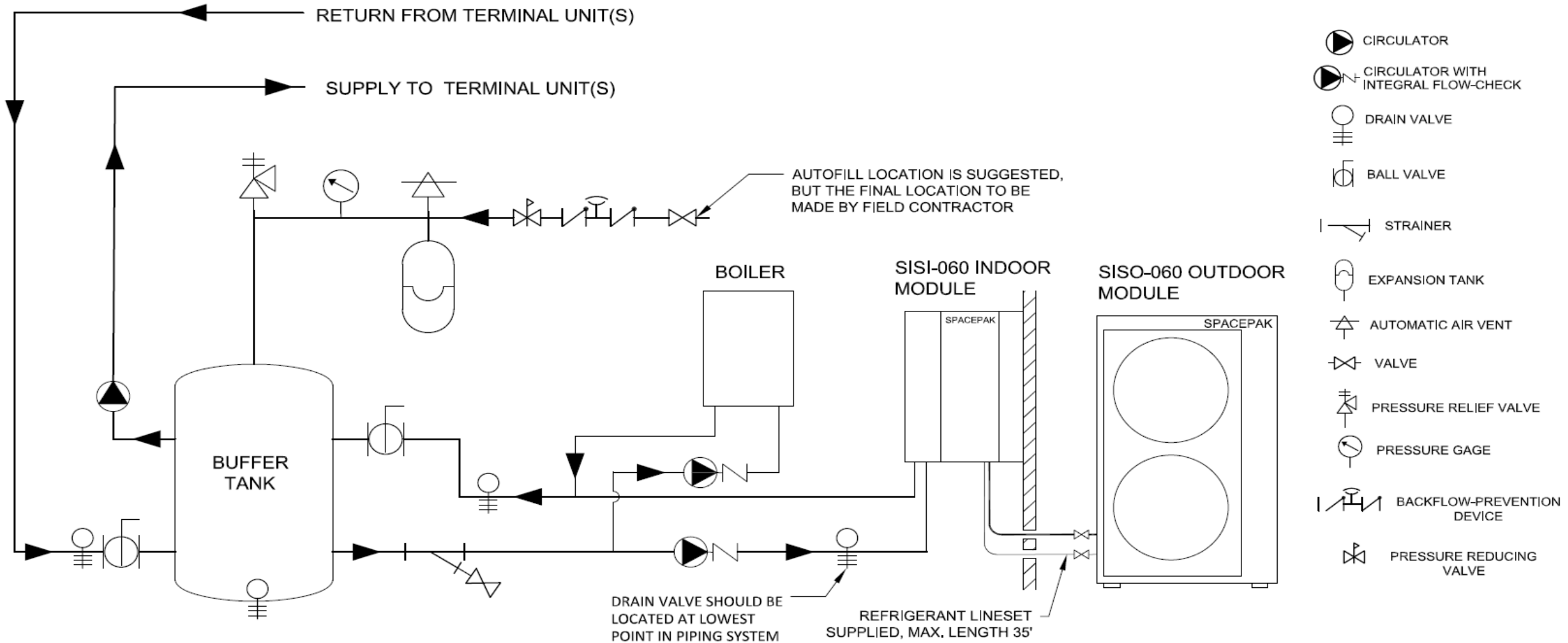
All data based on pure water



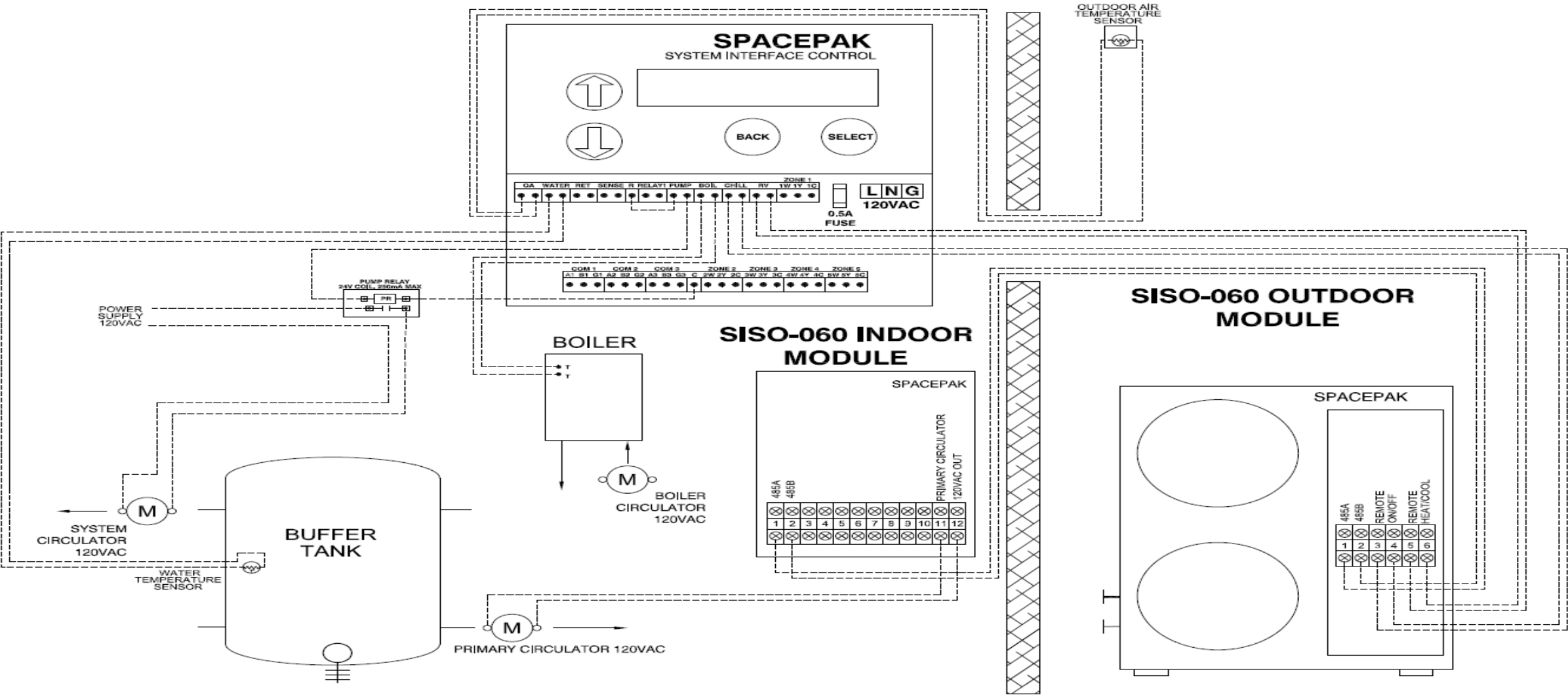
# SIS Piping Diagram (Basic)



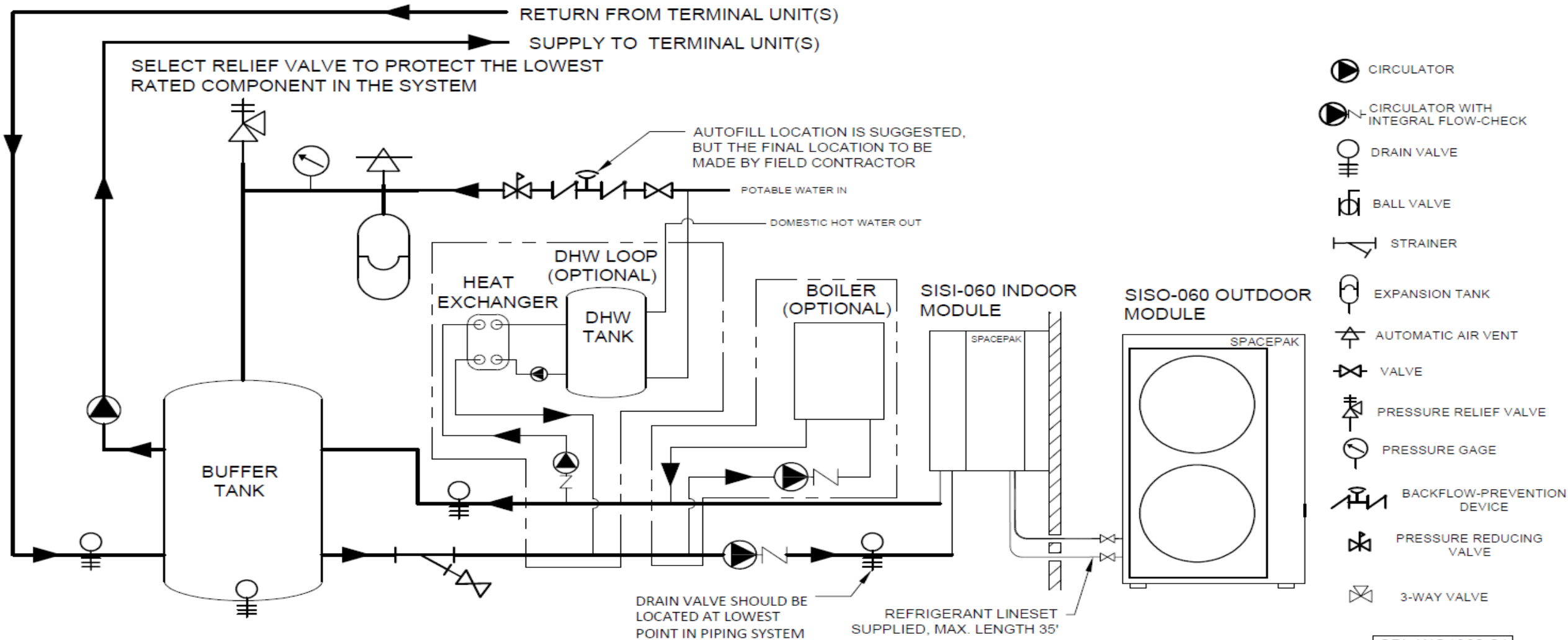
# SIS Piping with Boiler Backup



# SIS Wiring with Boiler Help Mode

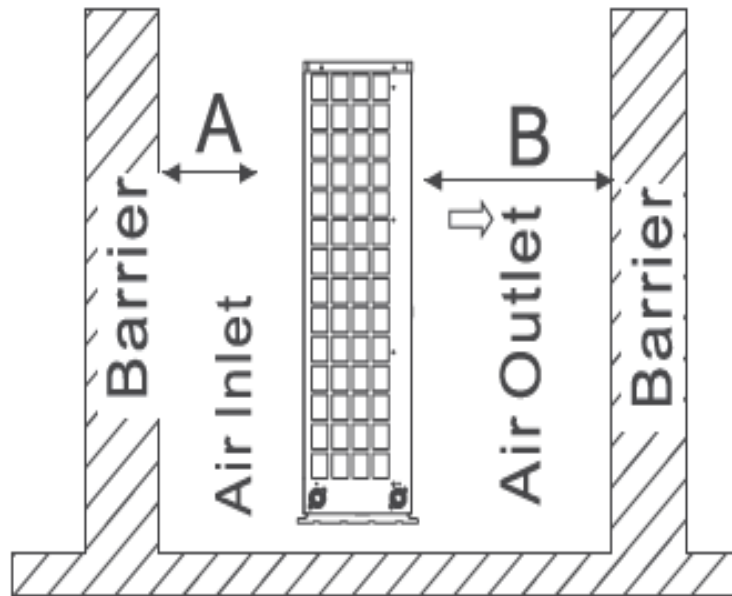


# SIS with Boiler and DHW Offset



SPL-WG1363-01

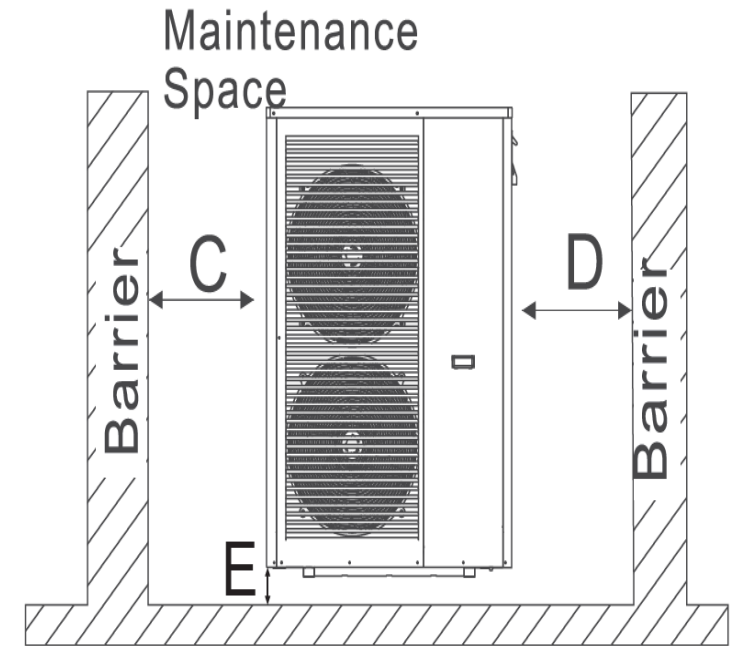
# SIS- Outdoor Clearances



## Attention

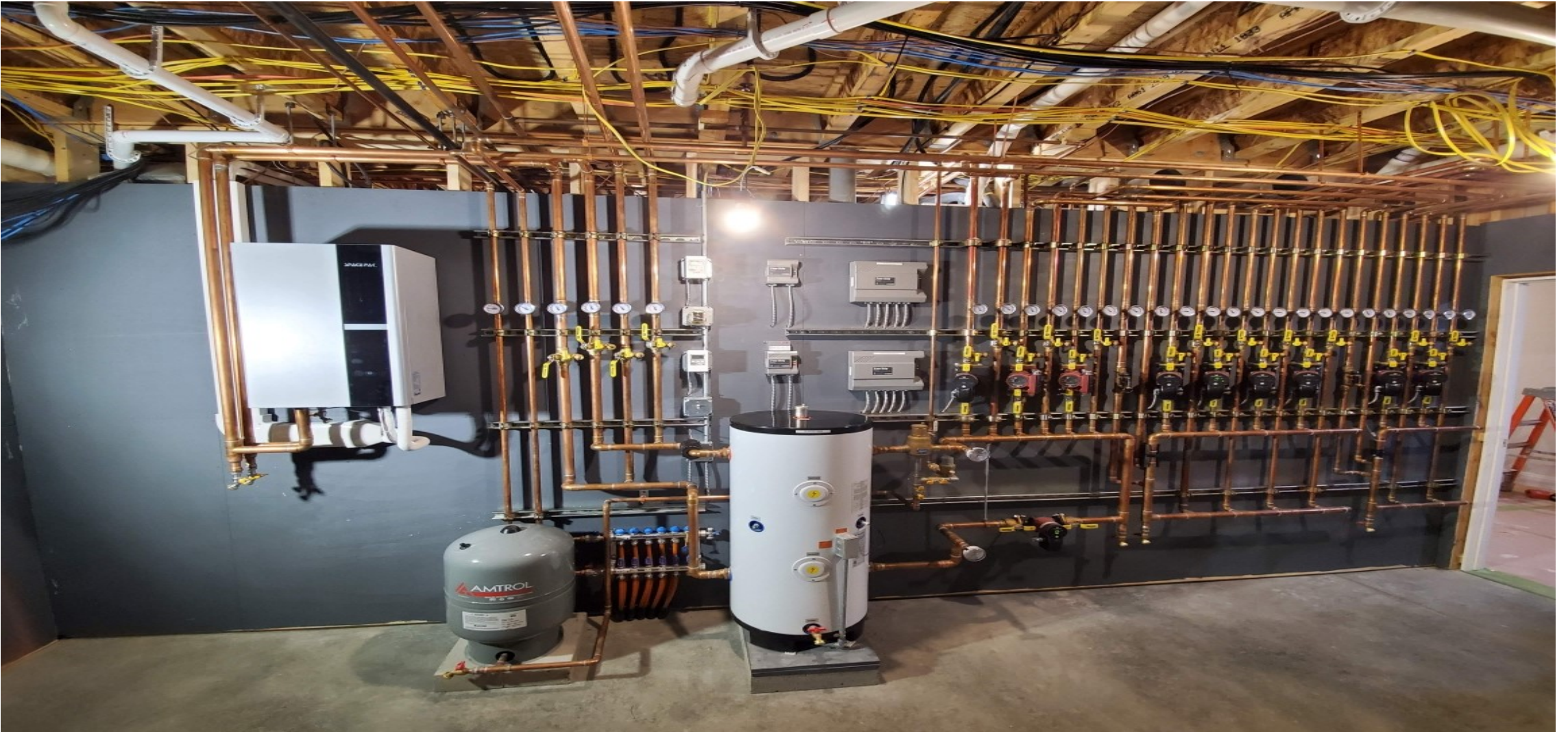
### Requirements

A > 20 inch ; B > 72 inch ;  
C > 20 inch ; D > 40 inch ;  
E = see note 1

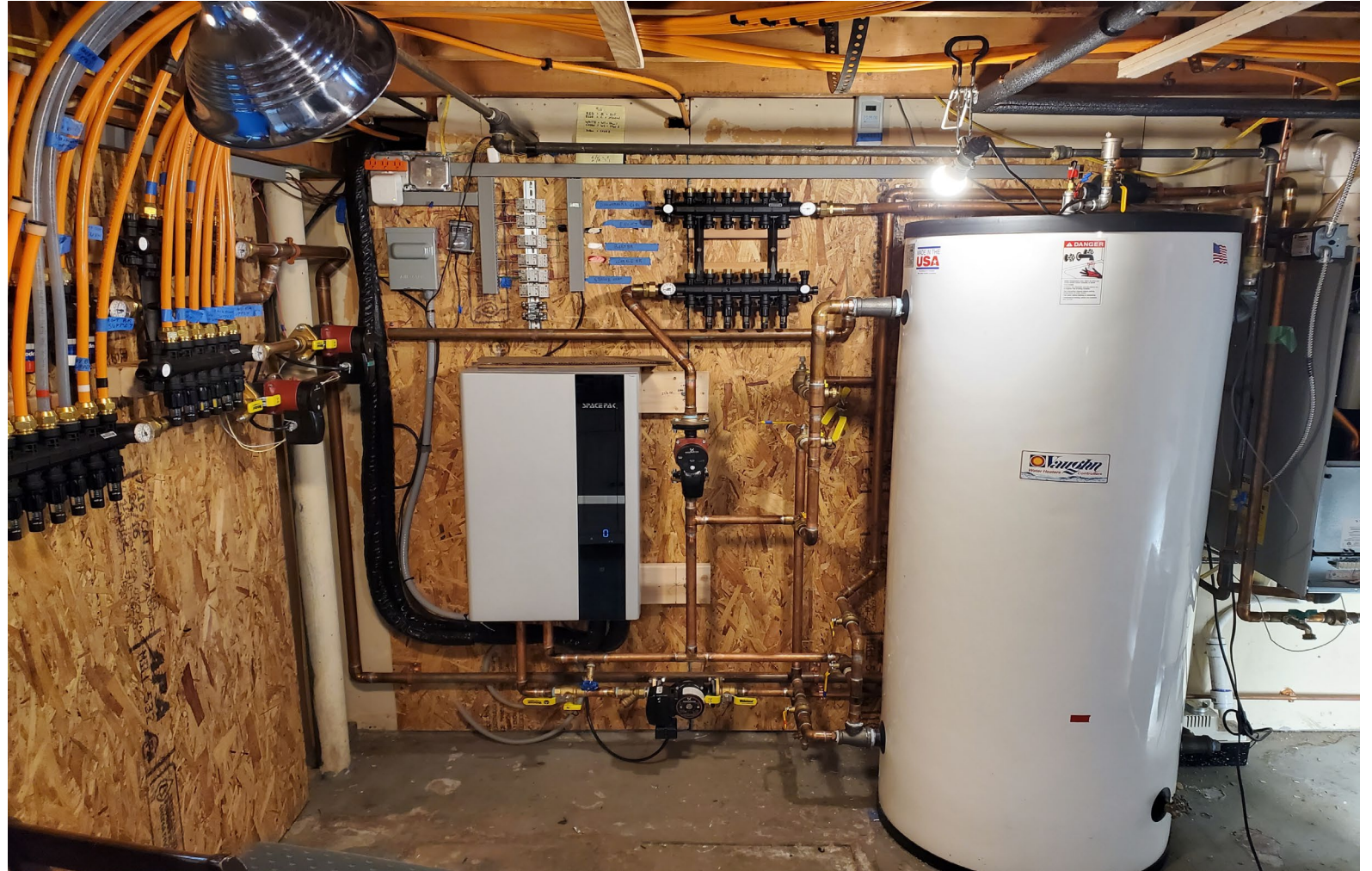


**Note 1:** The base of the unit should be located above winter snow level to allow proper drainage of condensate. The condensate should be provided a path to drain before refreezing in an area that could create an obstruction or hazardous conditions such as on a walkway.

# SIS- Installations (What do you see)



# SIS Install in Vermont (Beta Project)



# SIS Install 10k ft. Elevation Colorado (Beta Project)

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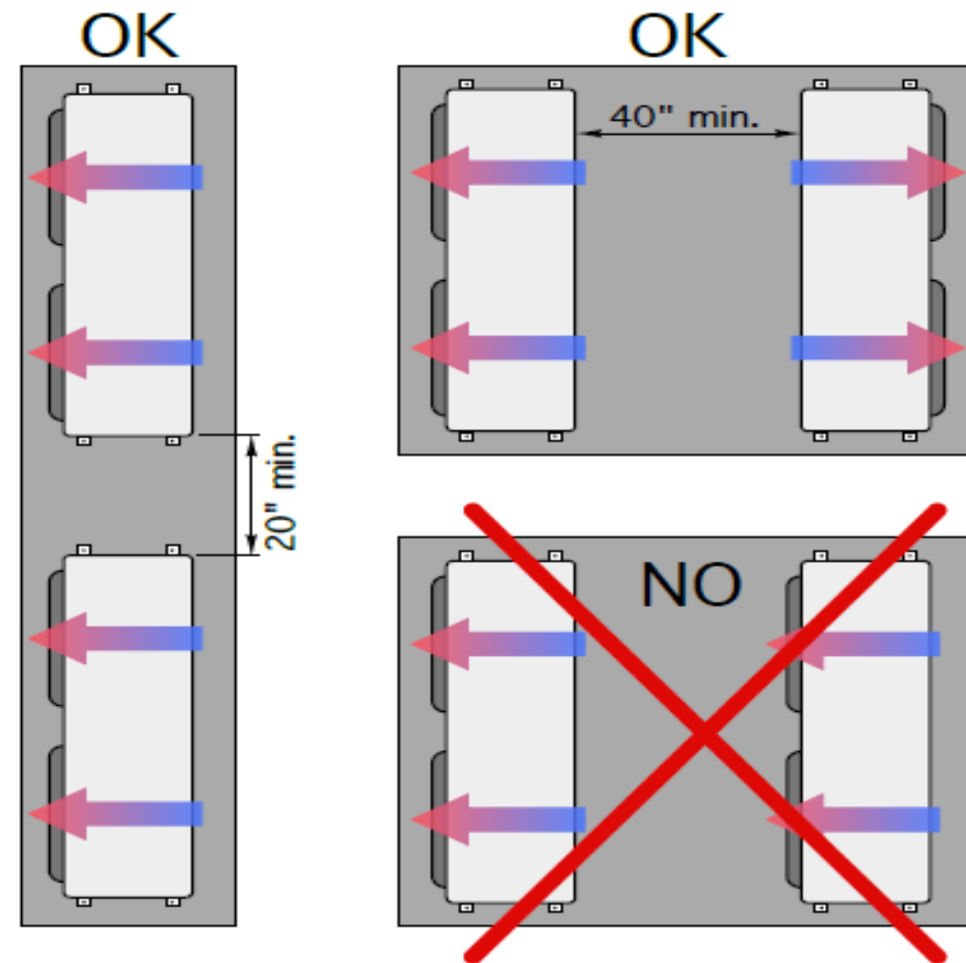


# Are there any Questions?



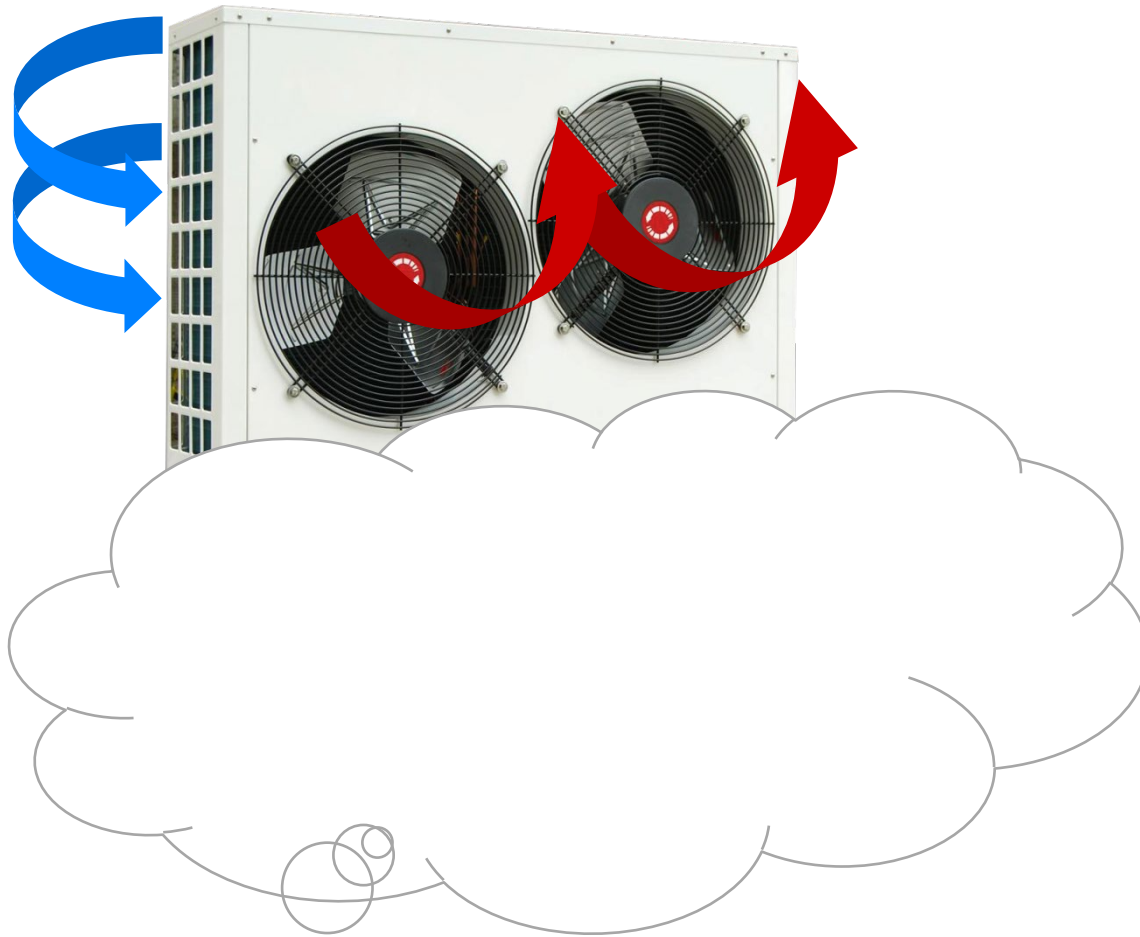
# When Installing Be Mindful of Air Flow and DEFROST RUNOFF!

- Airflow is crucial for system performance
- Assure foliage used to disguise does not cause any restrictions
- Be sure to locate away from any form of combustion exhaust



# Horizontal Discharge on all Heat Pump Models

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**Horizontal Discharge**  
allows install under  
decks & other remote  
installation options

# Chiller Install Allowing for Design & Air Flow and Defrost

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# Chiller Install with Potential for Air Flow Complications



# Heat Pump & Chiller Multi-Unit Installations

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# Multi-Unit Installations

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# Cold Weather Applications



# Are there any Questions?

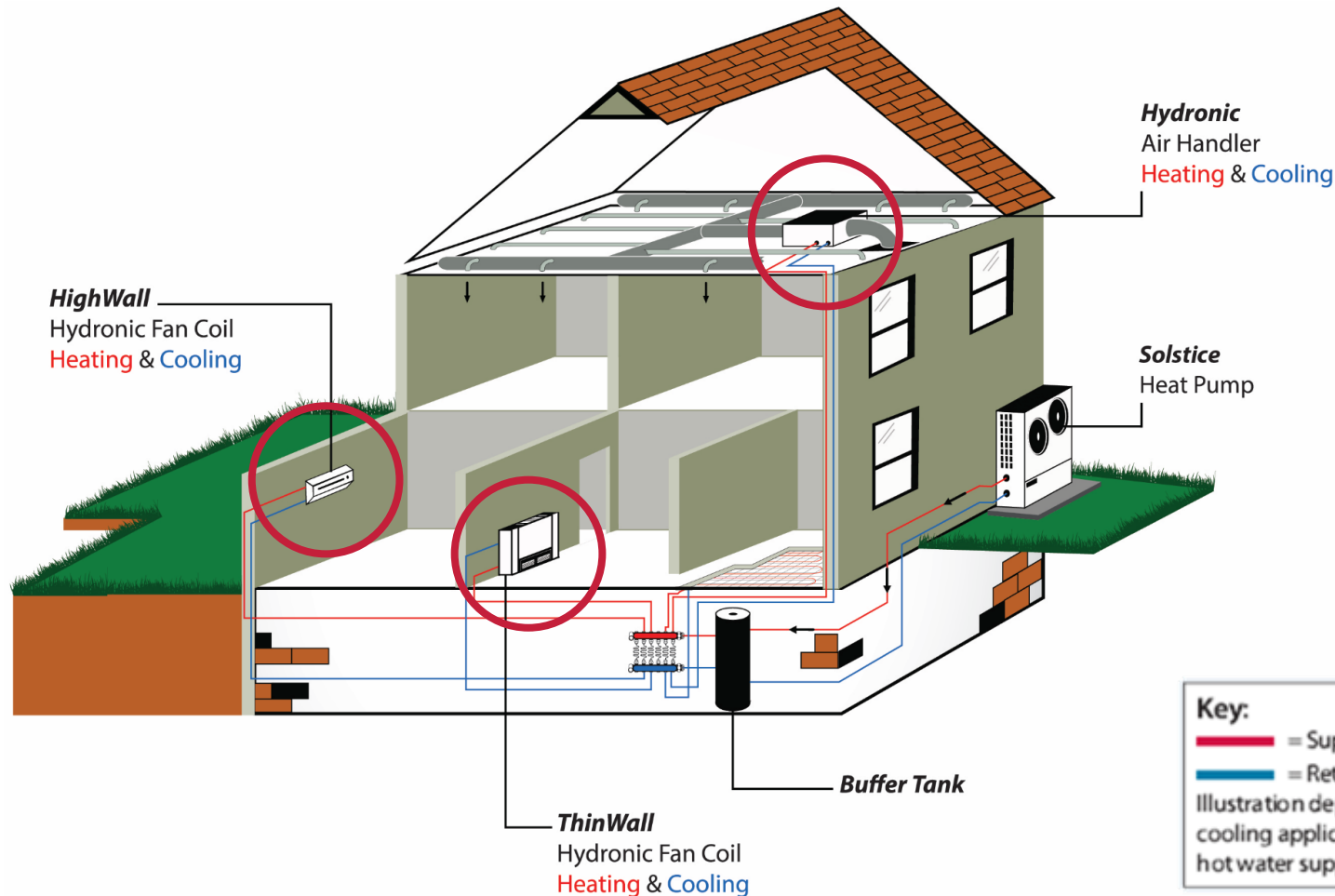


# Air Handlers & Fan Coil Units



## HYDRONICS

## Heating & Cooling



### Key:

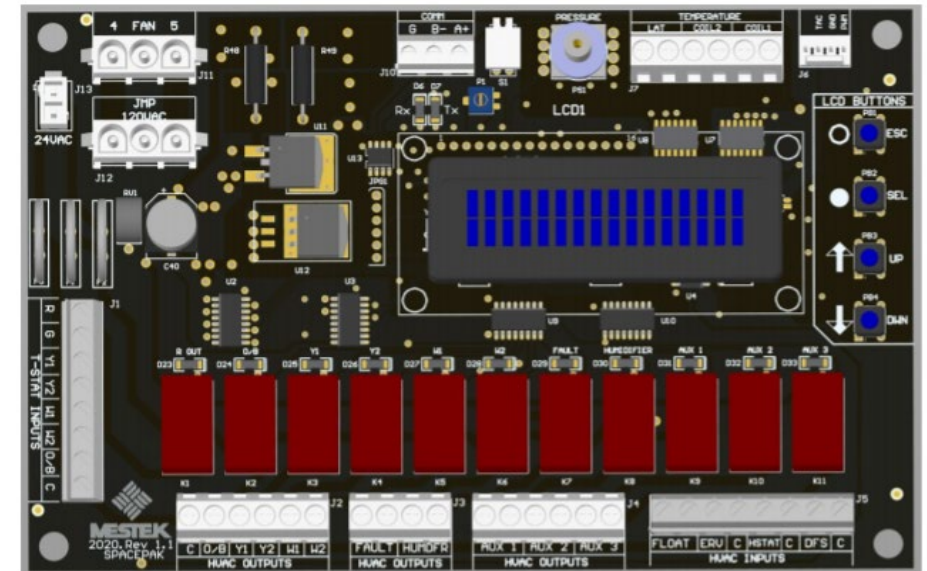
- = Supply
- = Return

Illustration depicts heating application. In cooling applications chilled water replaces hot water supply lines.

# WCSP-Hydronic Air Handler

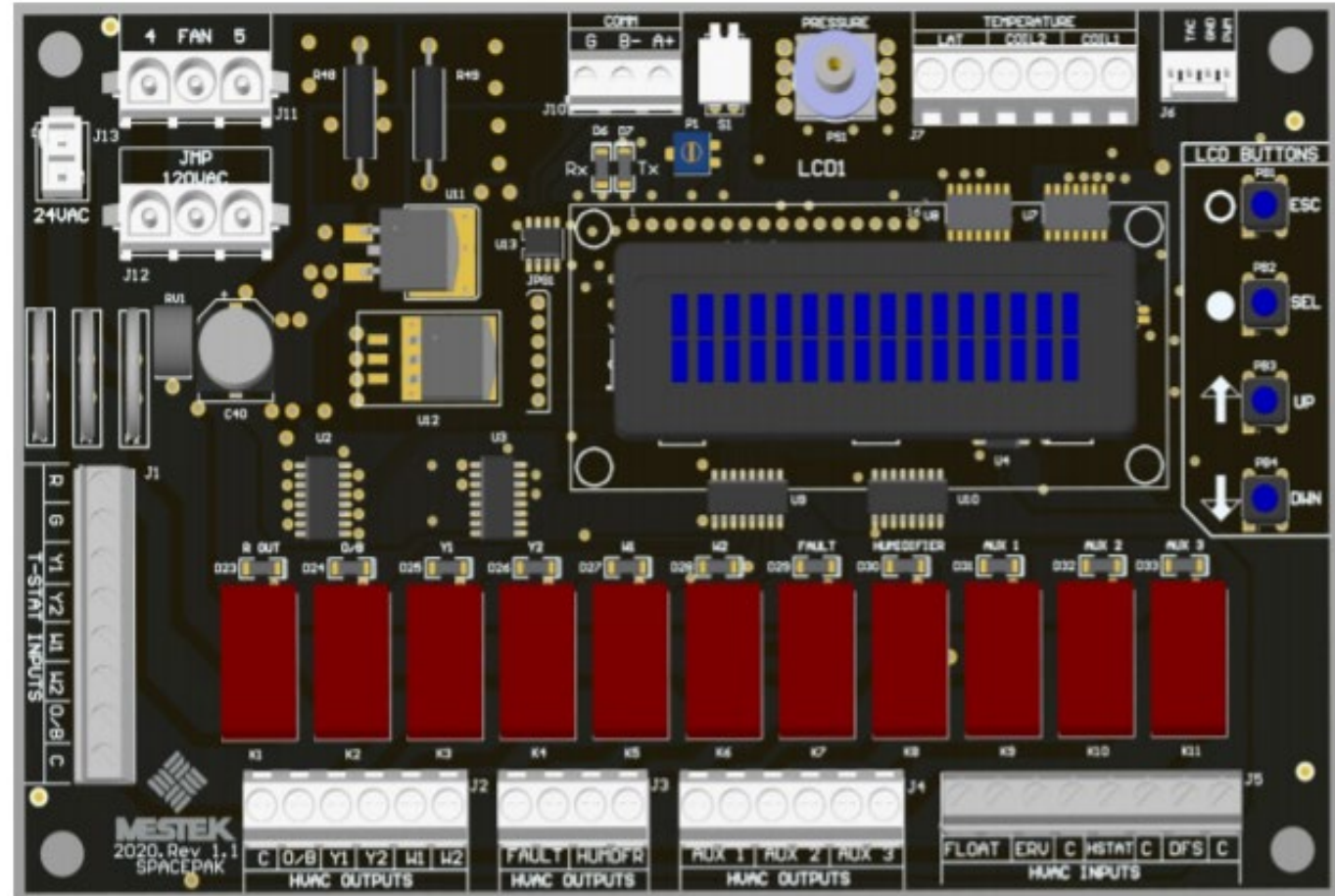
## Standard Features

- J+ Advanced Control
- 2 Line Display for Easier Setup
- High Efficiency EC Integrated Motor/Blower Assembly
- Mode Specific Adjustable Speed Control
- Heat Pump Compatible
- Chatleff Thermal Expansion Valve
- 6-Row Copper/Aluminum Evaporator Coil
- Slide Out Blower
- Sweat-Type Refrigerant Connections
- 24V 50/60hz Transformer
- Insulated Grey Cabinet
- Float Switch
- Mold Resistant Primary Drain Pan
- Anti-Vibration Foam Strips
- Stainless Steel Primary Drain Pan



# The New J+ Control Board

- More features and benefits for the contractor
- Digital display screen
- Screen displays (operating mode, cfm, %speed, S.P.)
- Speed is controlled by a static pressure tap on the blower
- Simpler wiring with less components
- Infinite speed variation
- Easy load matching
- Temperature sensors allow for delayed fan operation
- IAQ FRIENDLY!!!!!!



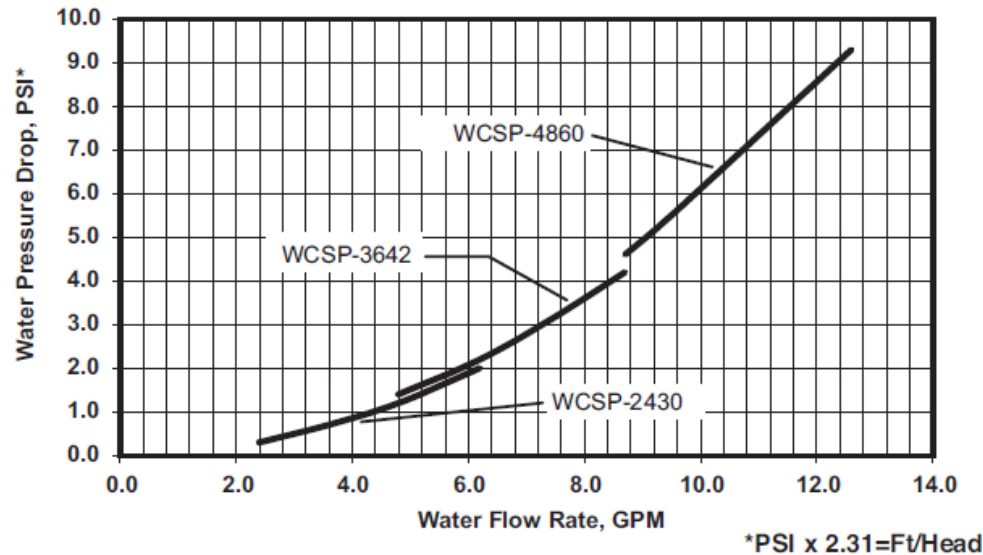
# WCSP Specifications

Model	Nominal System Capacity		Std. CFM @ 1.5" W.C.	Motor HP	F.L. Amps (115V/230V)	Connections	
	Nom. Tons	Cool MBH*				Water In Line	Water Out Line
WCSP-2430J/V	2	24	440	3/4	5.6/2.8	7/8"	7/8"
	2-1/2	30	550	3/4		7/8"	7/8"
WCSP-3642J/V	3	36	660	3/4	7.6/4	7/8"	7/8"
	3-1/2	42	850	3/4		7/8"	7/8"
WCSP-4860J/V	4	48	880	3/4	10.6/5.4	7/8"	7/8"
	5	60	1150	3/4		7/8"	7/8"

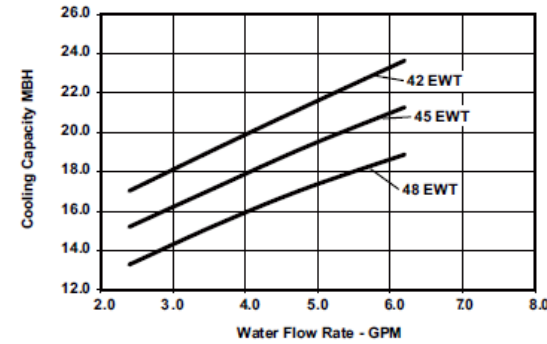
\* Capacities based on 42°F entering water temperature at 5 G.P.M.

# Capacity/Pressure Drop

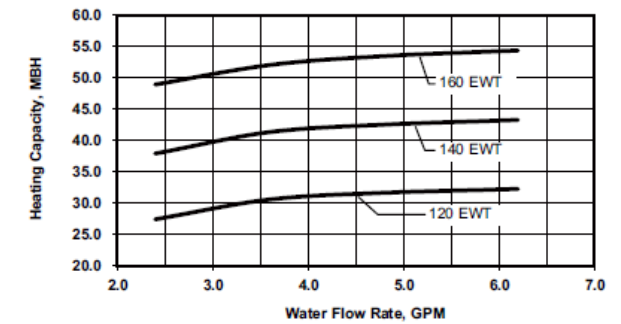
## Hydronic Coil Pressure Drop Characteristics



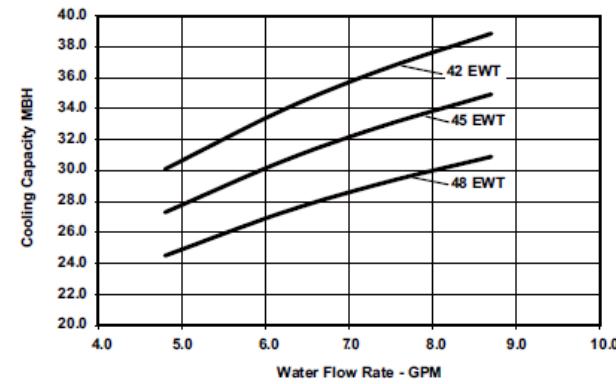
### WCSP-2430 @ 550 cfm Cooling Capacity



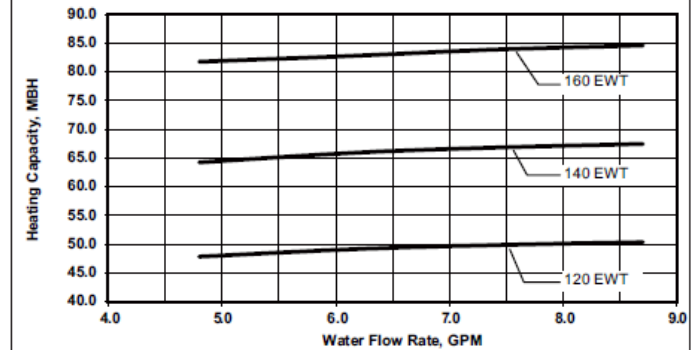
### WCSP-2430 @ 550 cfm Heating Capacity



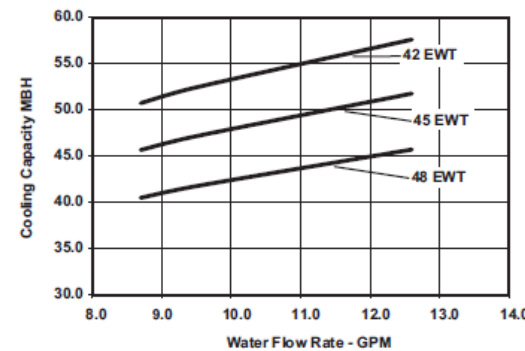
### WCSP-3642 @ 850 cfm Cooling Capacity



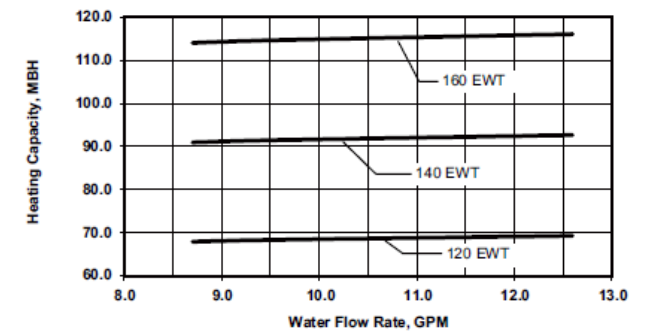
### WCSP-3642 @ 850 cfm Heating Capacity



### WCSP-4860 @ 1150 cfm Cooling Capacity



### WCSP-4860 @ 1150 cfm Heating Capacity



# Hydronic High Wall Fan Coil

## Standard Features

- Quiet Space-Saving Design
- Heating/Cooling
- Energy Efficient
- Low Ambient Capable Heat Emitter
- Hydronic Based - No Refrigerant
- Remote Control
- Auto-Swing Damper for Uniform Air Distribution
- Easy Installation
- EC-Step-Less Speed Modulation
- 8,100-25,700 BTU/h Heating Capacity
- 7,300-13,100 BTU/h Cooling Capacity



# Hydronic High Wall Outputs

## Specifications



Model	Output (BTU/hr)						Dimensional Data			Ship Wt. (lbs)
	Heating			Cooling						
	Entering Water Temperature									
	120°F	140°F	160°F	45°F	47°F	50°F	Length	Width	Height	
HW-06-ECM	8123	11331	14266	7300	6416	5085	34-7/16"	8-2/3"	11-13/16"	28
HW-15-ECM	11843	16553	20853	10614	9420	7475				30
HW-18-ECM	14641	20444	25734	13106	11638	9249				32

# Hydronic Thin Wall Fan Coil **Heating** & **Cooling**

## Standard Features

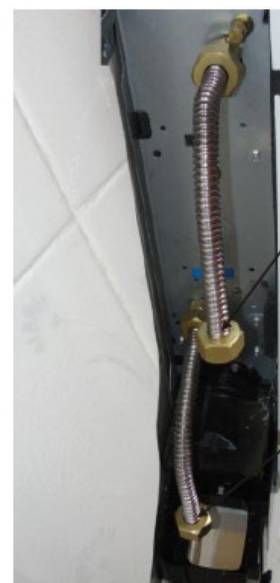
- Quiet Modern Space-Saving Design
- Heating & Cooling
- Hydronic Based – No Refrigerant
- Cross-Flow Blower
- Easy Installation
- Active Carbon Air Filtration
- 8,700 – 32,000 BTU/hr Heating Capacity
- 3,400 – 14,800 BTU/hr Cooling Capacity

**Note:** Tempered Glass Front with Touch Screen display available 2020



# Hydronic Thin Wall Outputs

## Specifications



Flexible water connector  
water outlet

Flexible water connector  
water inlet



Flexible water connector  
water outlet

Flexible water connector  
water inlet

Model	Output (BTU/hr)						Dimensional Data			Ship Wt. (lbs)
	Heating			Cooling						
	Entering Water Temperature									
	120°F	140°F	160°F	45°F	48°F	50°F	Length	Width	Height	
UT-87	4600	6936	8700	3400	2846	2505	27-5/8"	5-1/8"	26-3/8"	40
UT-135	8500	10710	13500	6500	5442	4789	35-3/8"			51
UT-196	11400	15606	19600	8500	7116	6262	43-5/16"			60
UT-246	14600	20114	24600	11900	9963	8767	51-1/2"			68
UT-320	17800	26010	32000	14800	12391	10904	59-1/8"			79

# Solstice Buffer Tanks

## Standard Features

- Durable Stainless Steel Construction
- (4) 1-1/2" NPT Female Thread (BT26-H/BT40-H)
- (4) 2" NPT Female Thread (BT80-H)
- Inner Tank 304 Stainless
- 3/4" Female Water Drain
- Insulation: Polyurethane Resin Foam
- White Outer Galvanized Steel Jacket
- 10 Year Warranty
- Two 3kW Electric Heaters



Model		BT13-H	BT26-H	BT40-H	BT80-H
Dimensions	Diameter	18-1/2"	18-1/2"	18-1/2"	18-1/2"
	A	29-1/6"	45"	60"	64-1/8"
	B	21-1/2"	37-3/4"	52-3/4"	55-1/2"
	C	19-5/8"	25 1/8"	34-1/8"	34-5/8"
	D	16-1/2"	20-1/2"	26-5/8"	32-1/2"
Port Diameter NPT	E	1-1/2"	1-1/2"	1-1/2"	2"
Capacity	US Gal	13	26	40	80
Max Water Flow	GPM	36	36	36	48
Ship Weight	lbs	40	84	104	130
Empty Weight	lbs	38	77	97	125
Full Weight	lbs	148	304	446	805
Min Circuit Ampacity	Amps	15	30	30	30

Note: 13 Gallon  
buffer has 1-3kw  
element

# Buffer Tank Sizing (Keep it Simple)

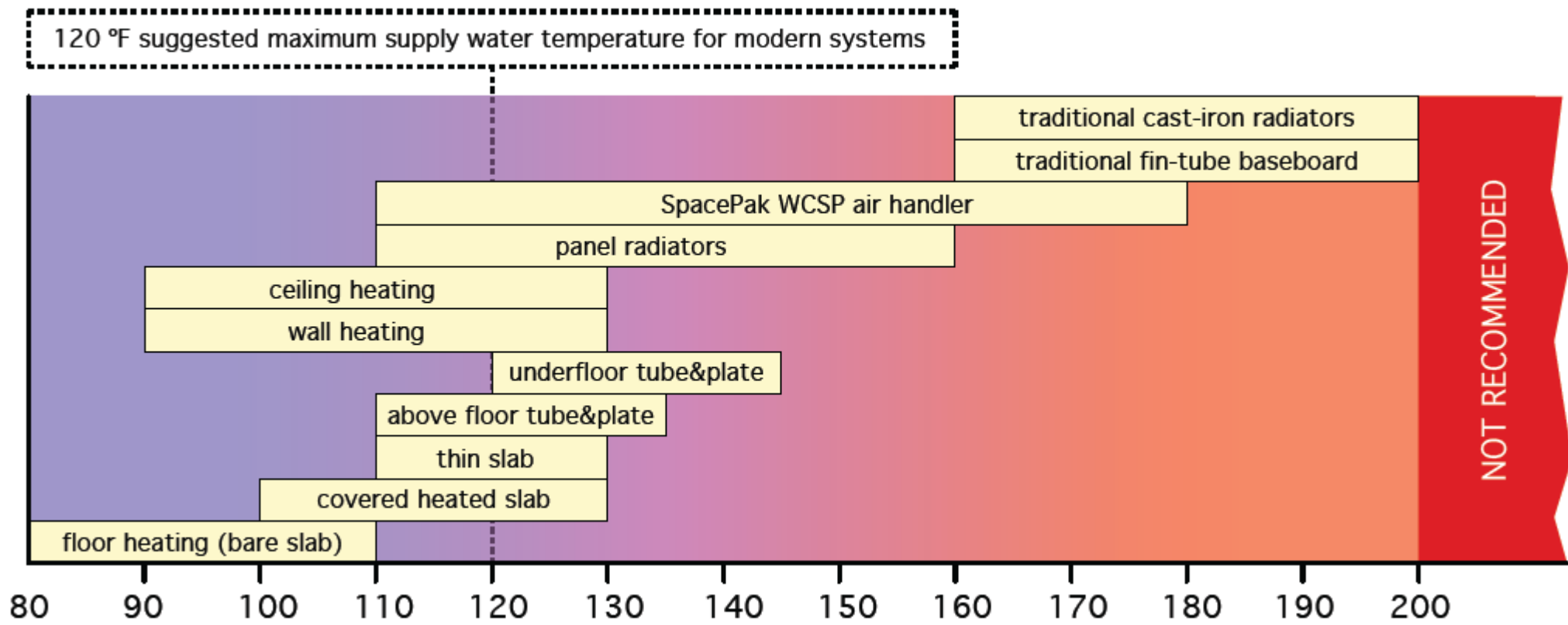
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Buffer/System Volume must be equal to or greater than 7.5 gallons per nominal ton of unit's capacity at its lowest turndown (Heating or Cooling whichever is larger)

**Example:** If the unit's minimum turndown is 20k btu then the smallest buffer tank suggested would be our new 13 Gallon 4 pipe Buffer Tank (BT13-H)

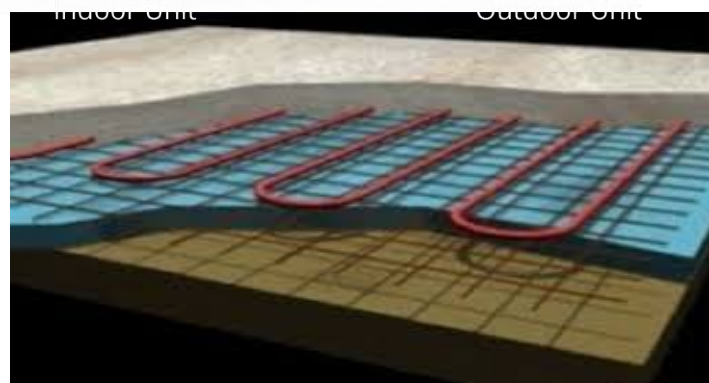
**Note:** Remember to consider the “systems” capacity. In a situation where there is a large volume (Cast Iron Radiators) you may want a larger buffer to accommodate a larger inrush of “load” and to prevent temperature swings.

# ATW Heat Pumps efficiently provide the low water temperatures needed for space heating



**Note:** These required temperatures make our Heat Pumps a perfect fit for these applications

# The perfect match for low temperature space heating in almost any climate



# Are there any Questions?



# Installation and Layout



## Piping Options/Considerations

# Take everything into account when sizing piping system

**Piping Pressure Losses\***

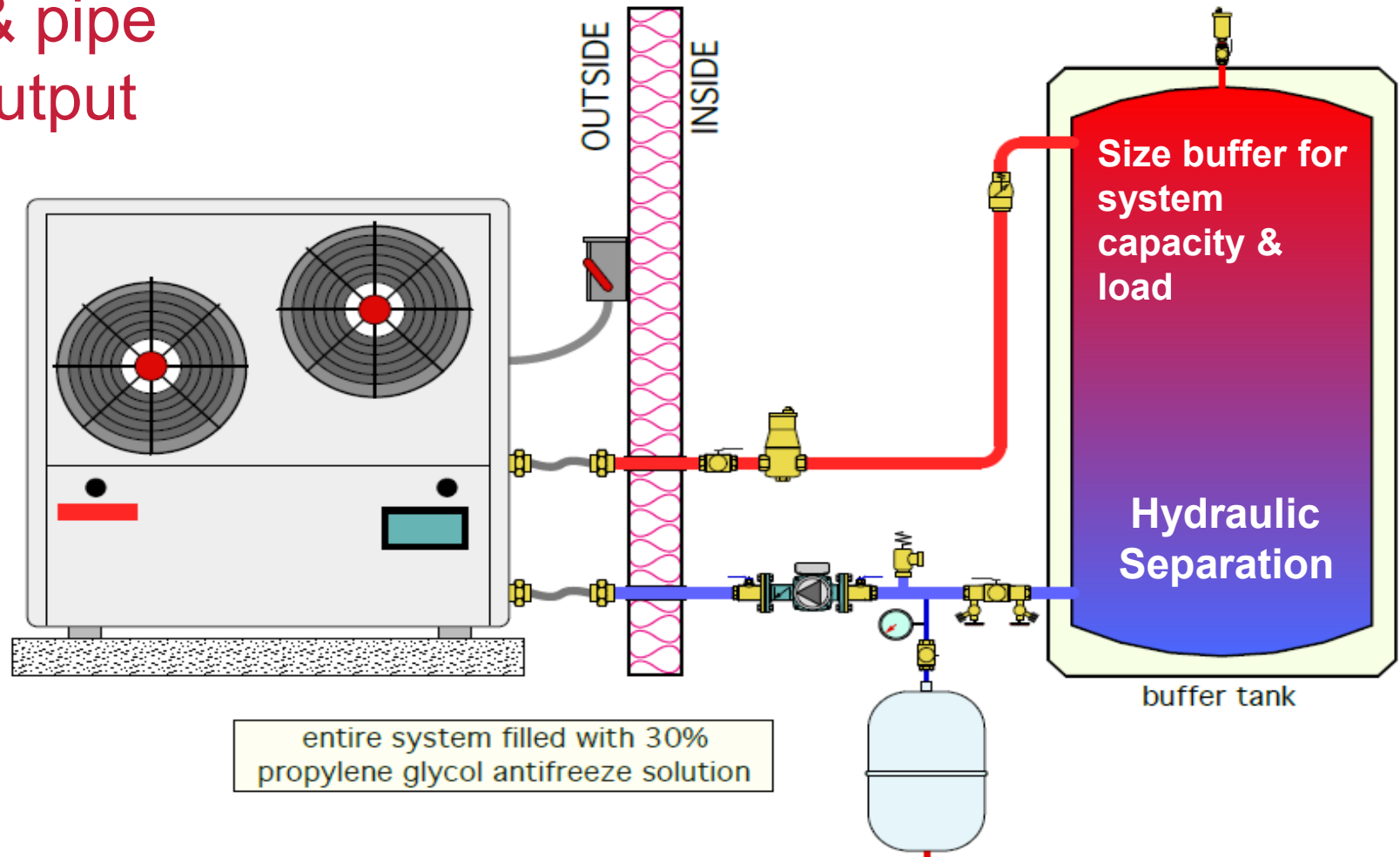
	Pressure Drop, Ft water/100Ft			
Flow rate GPM	1"	1-1/4"	1-1/2"	2"
<b>Pex Pipe</b>				
10	13.4	5.2	2.4	0.6
11	15.9	6.2	2.8	0.7
12	18.5	7.2	3.2	0.9
14	24.4	9.4	4.2	1.2
<b>Copper Pipe (Type L)</b>				
10	7.1	2.6	1.1	0.3
11	8.4	3.1	1.3	0.3
12	9.9	3.6	1.5	0.4
14	13.2	4.8	2	0.5

\*Remember to check the CV rating of your fittings and valves to make sure your getting the correct flow through the equipment.

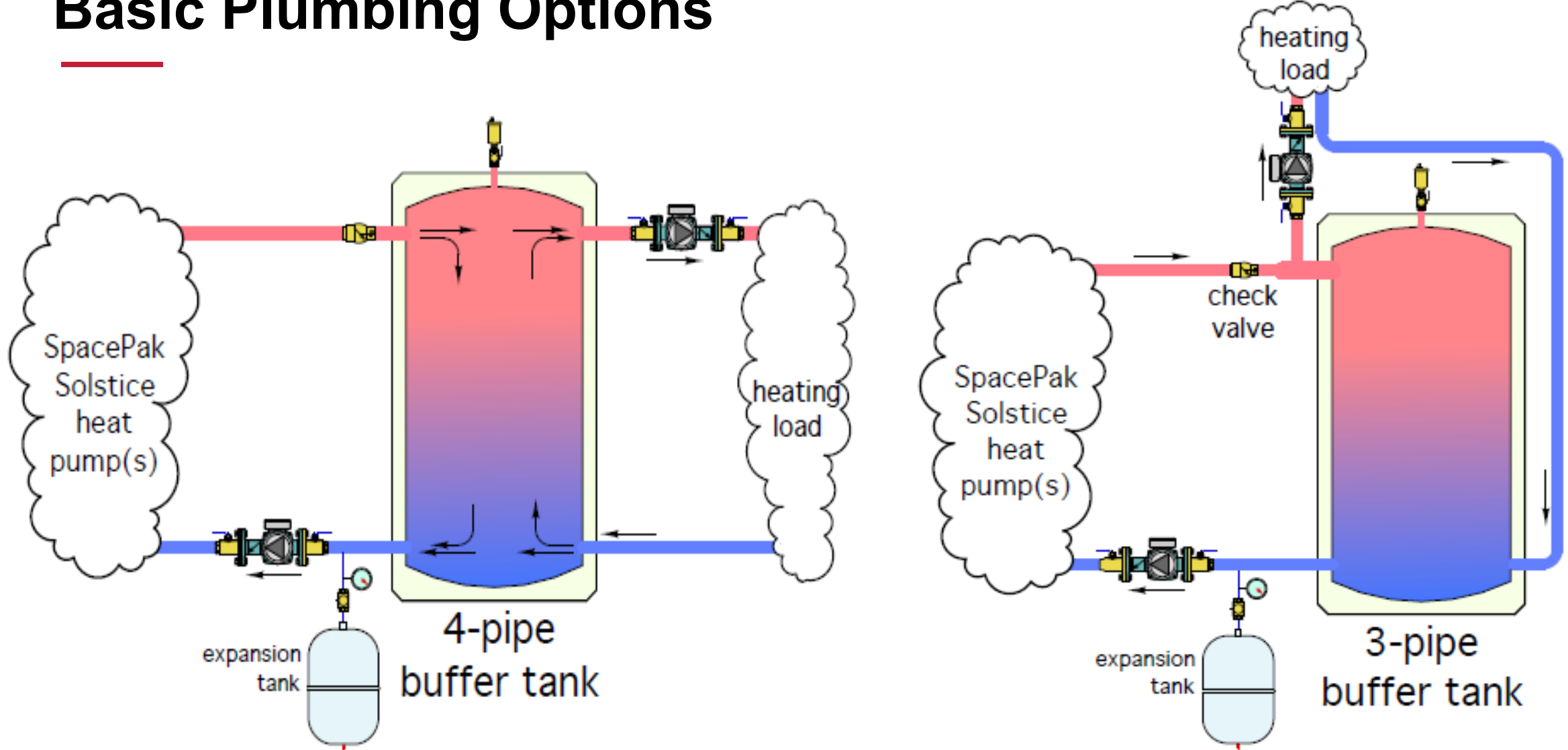
# The Basic System (the first step)

Be sure to size pump & pipe  
for required flow and output

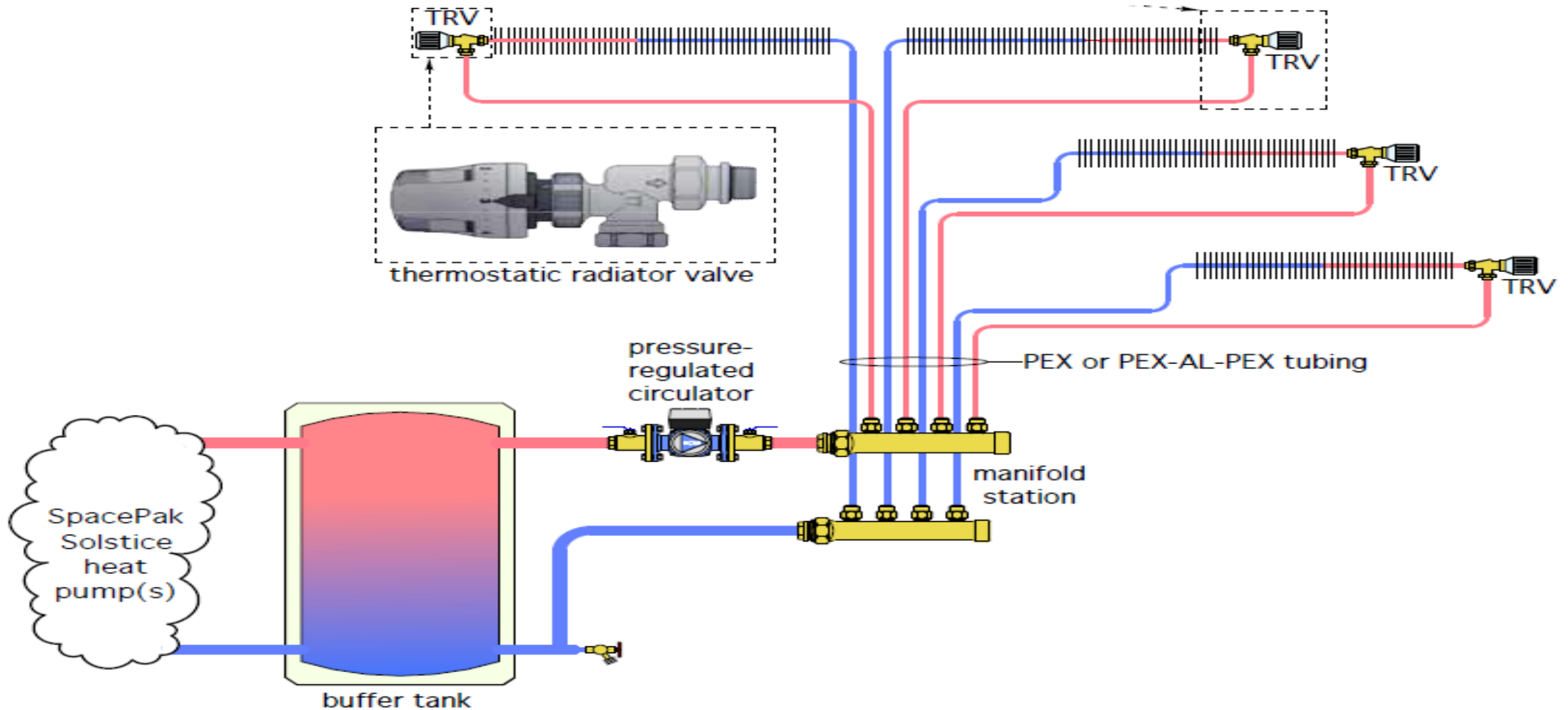
**NOTE:** Buffer tanks provide the  
location for hydraulic separation,  
the system can operate 12 GPM  
flow on heatpump side and 1 GPM  
on the system side



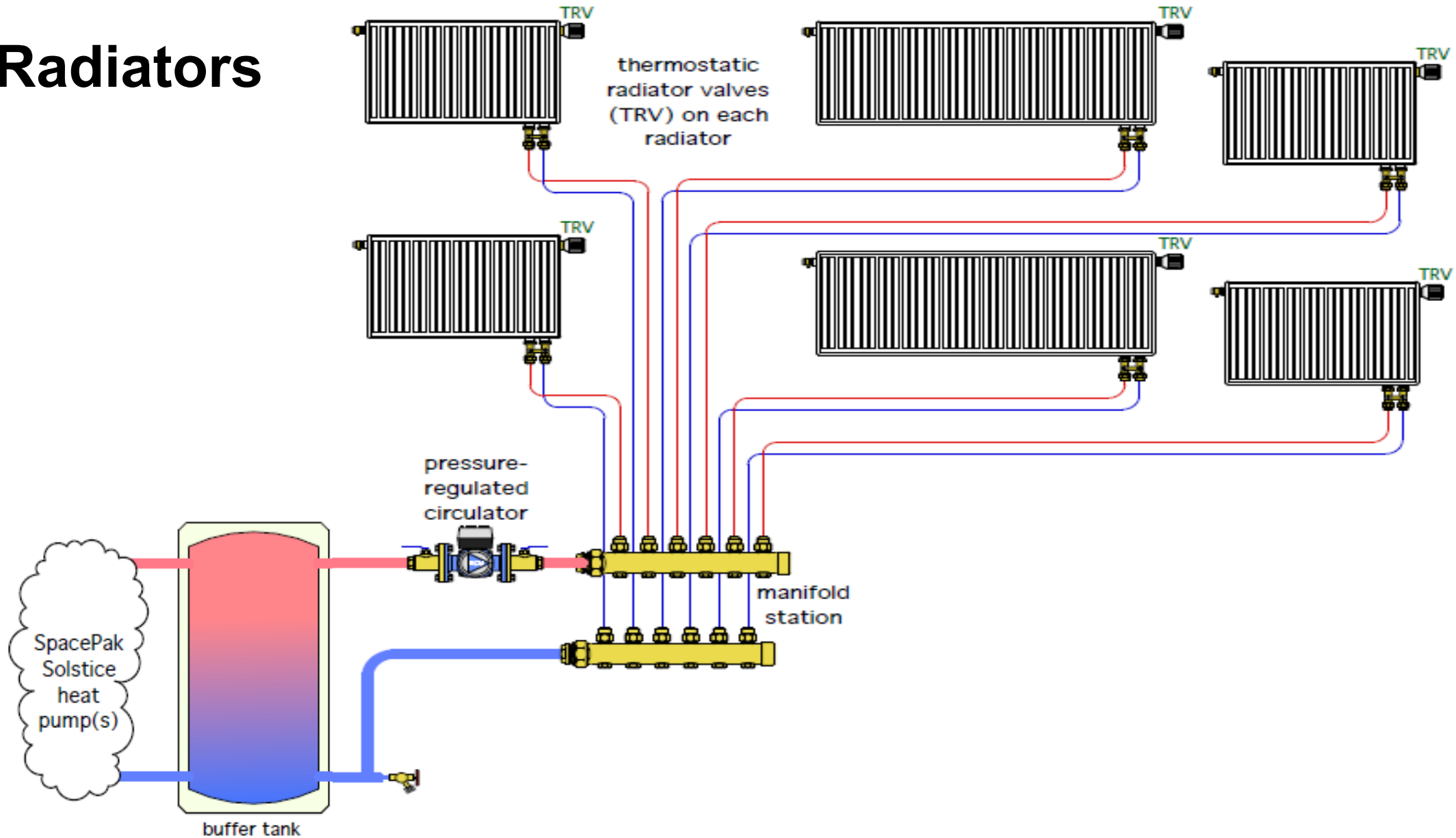
# Basic Plumbing Options



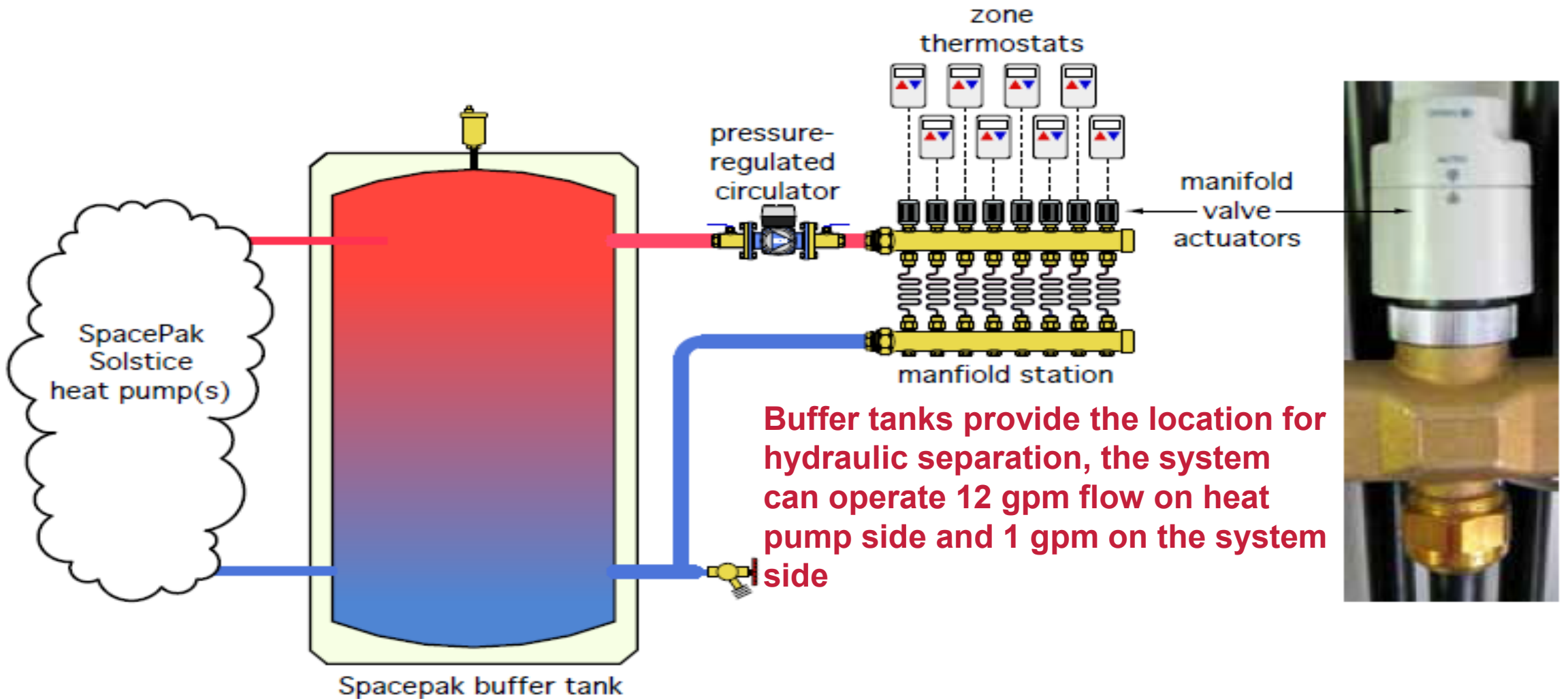
# Heat Pump with Thermostatic Valve Application



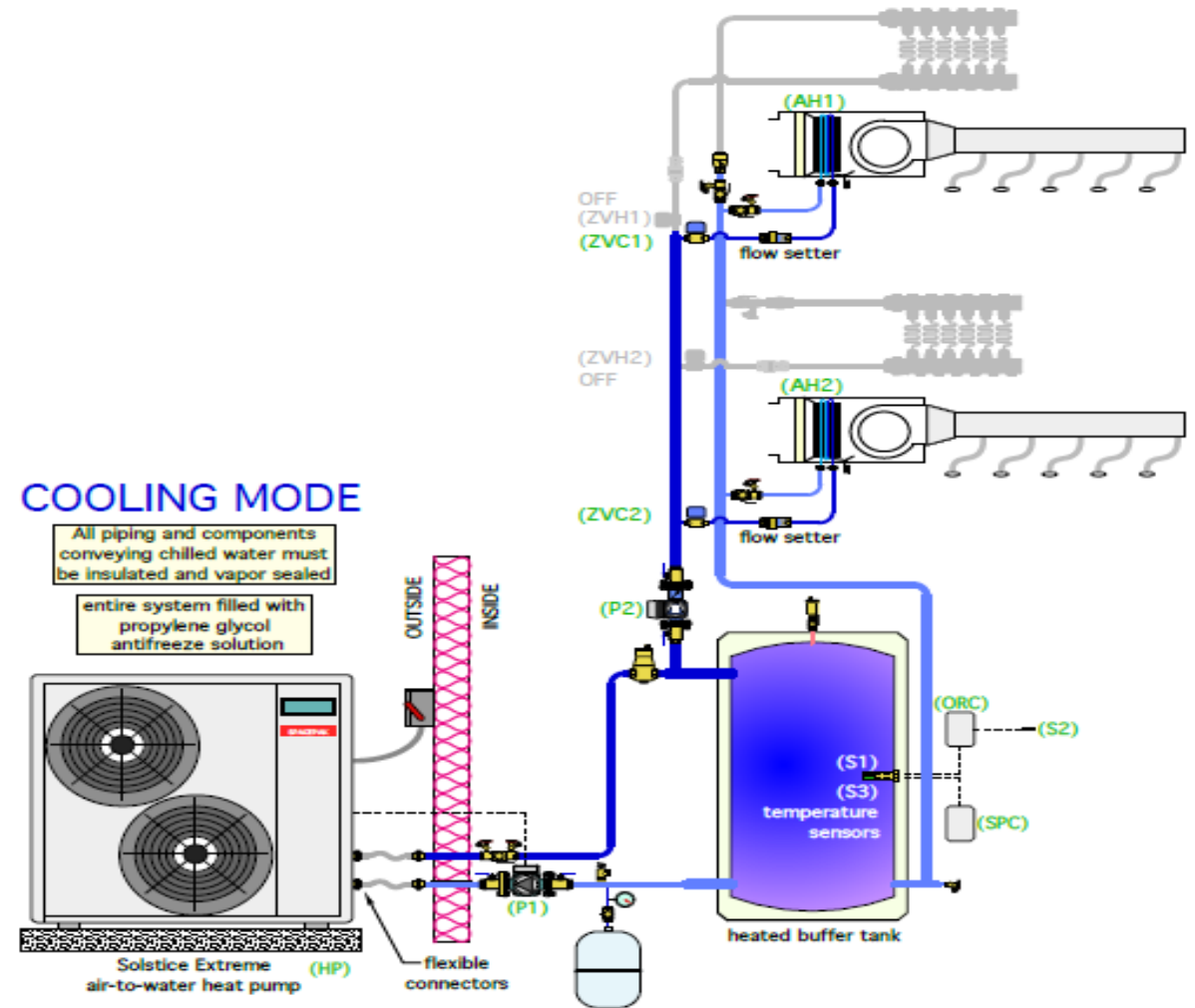
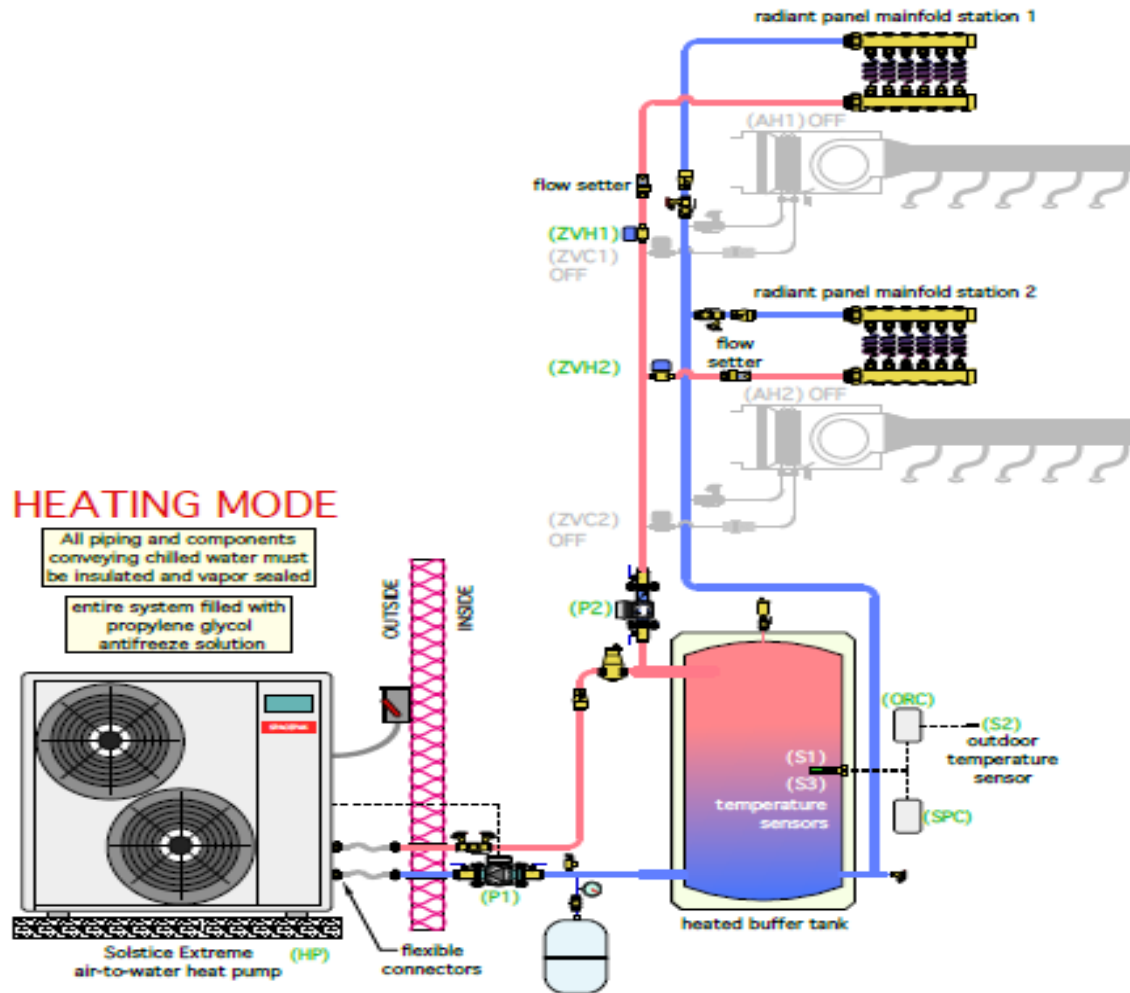
# Panel Radiators



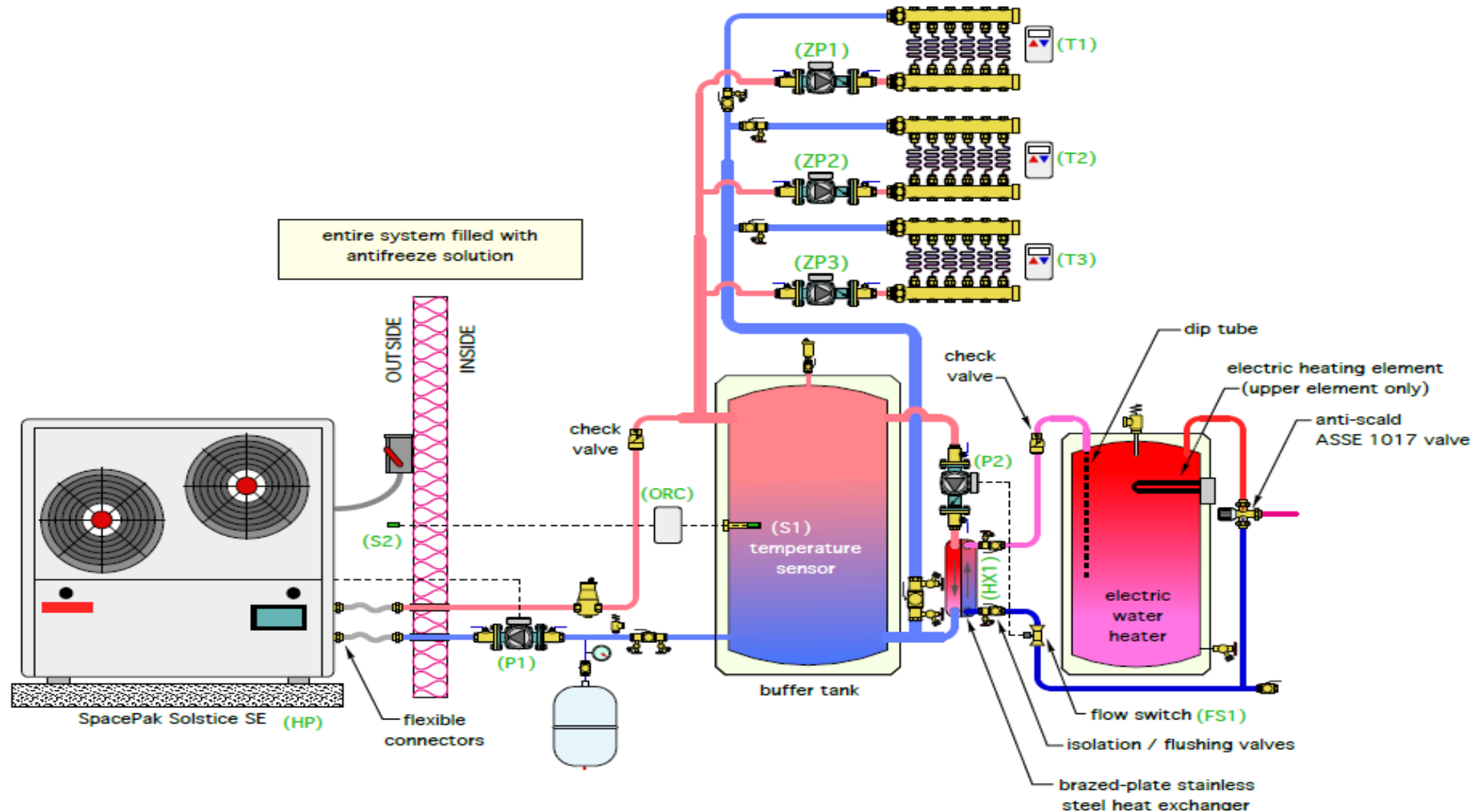
# Zoned Radiant Applications



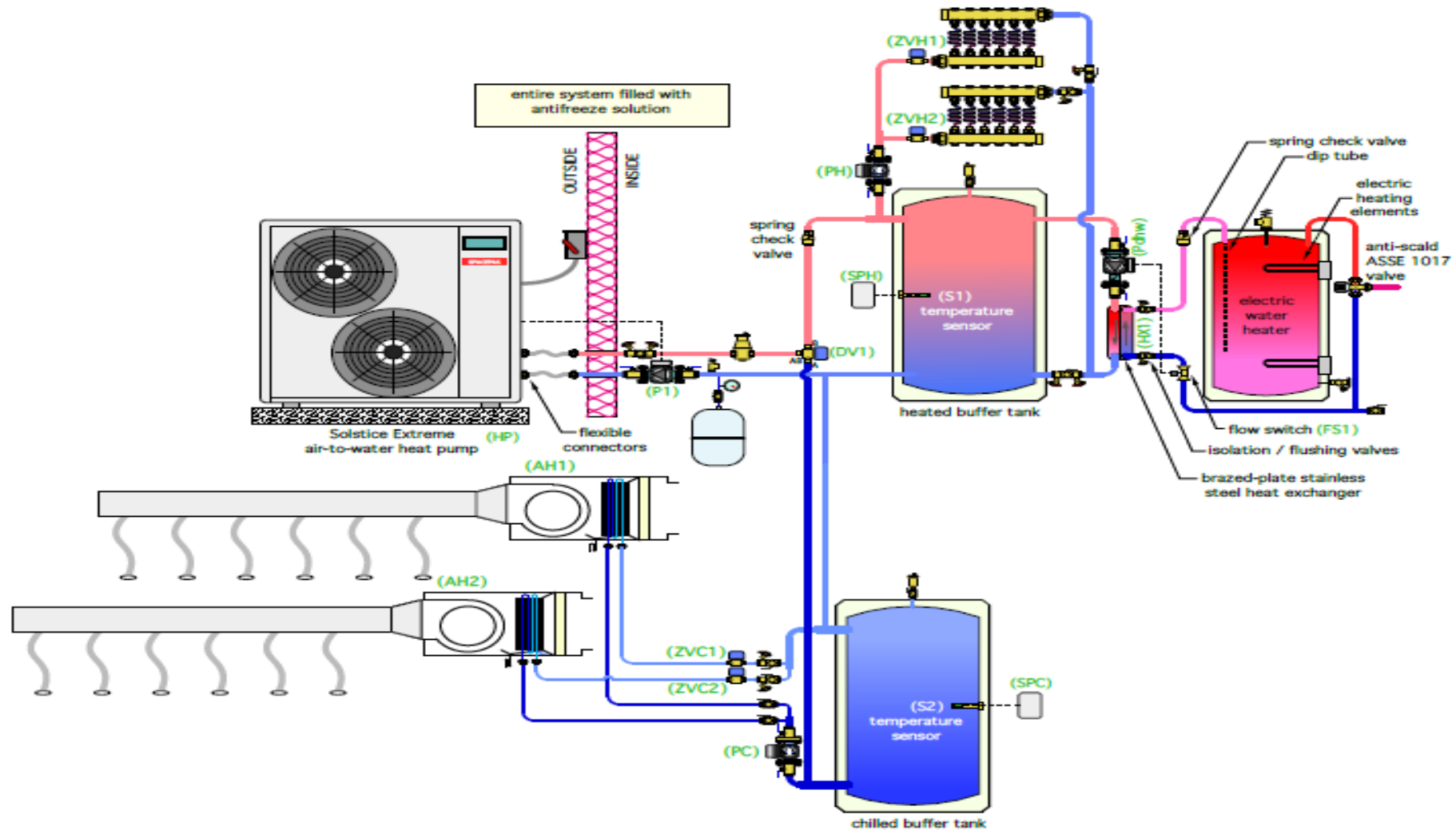
# Basic Heat / Cool Systems



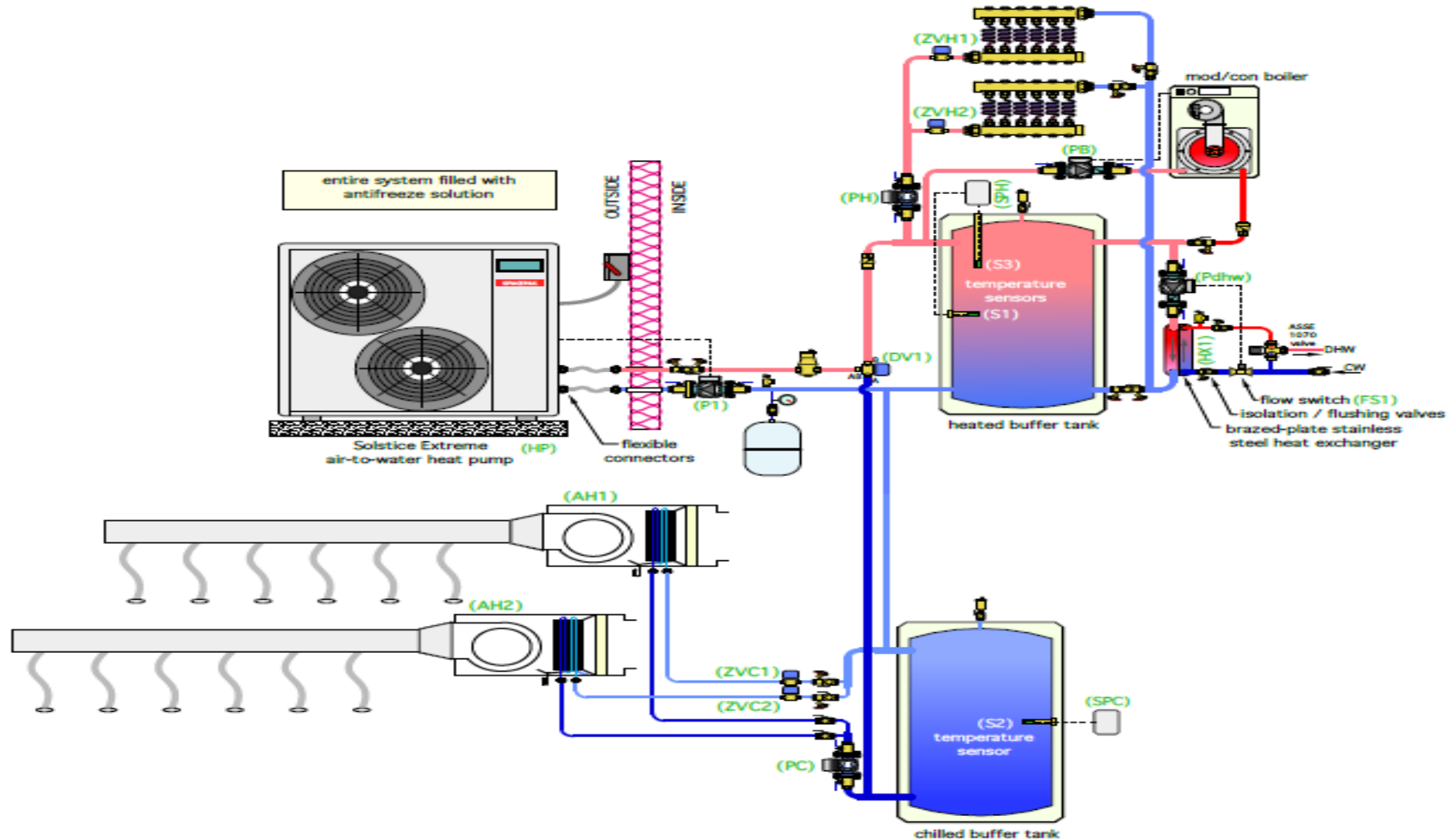
# Radiant Heating with HW Preheat



# Heating and Cooling with HW Preheat with 2 Buffer Tanks

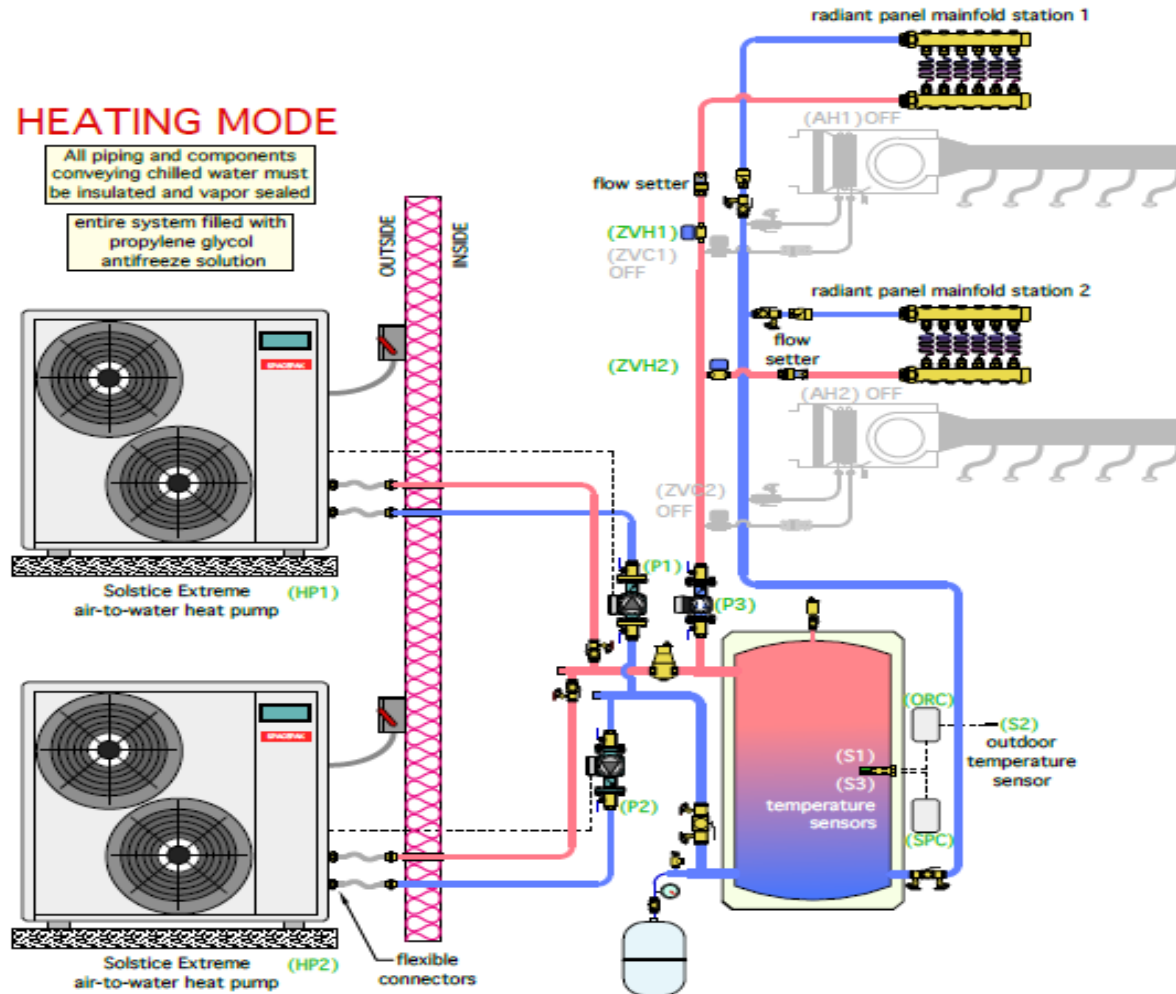


# Heating-Cooling-Boiler and HW Preheat

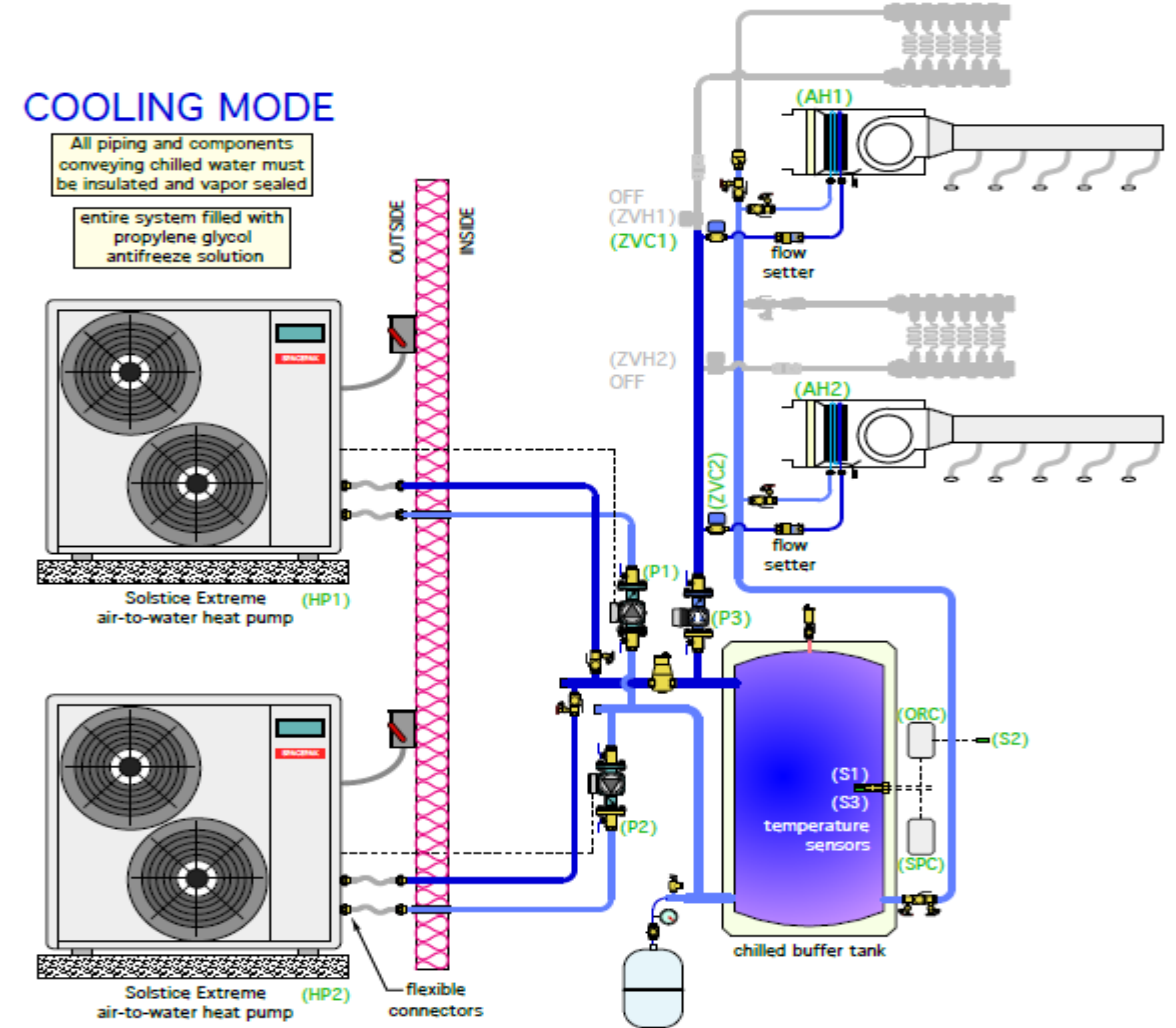


# Multiple Heat Pumps Heating and Cooling

## HEATING MODE



## COOLING MODE



# PLEASE DON'T.....

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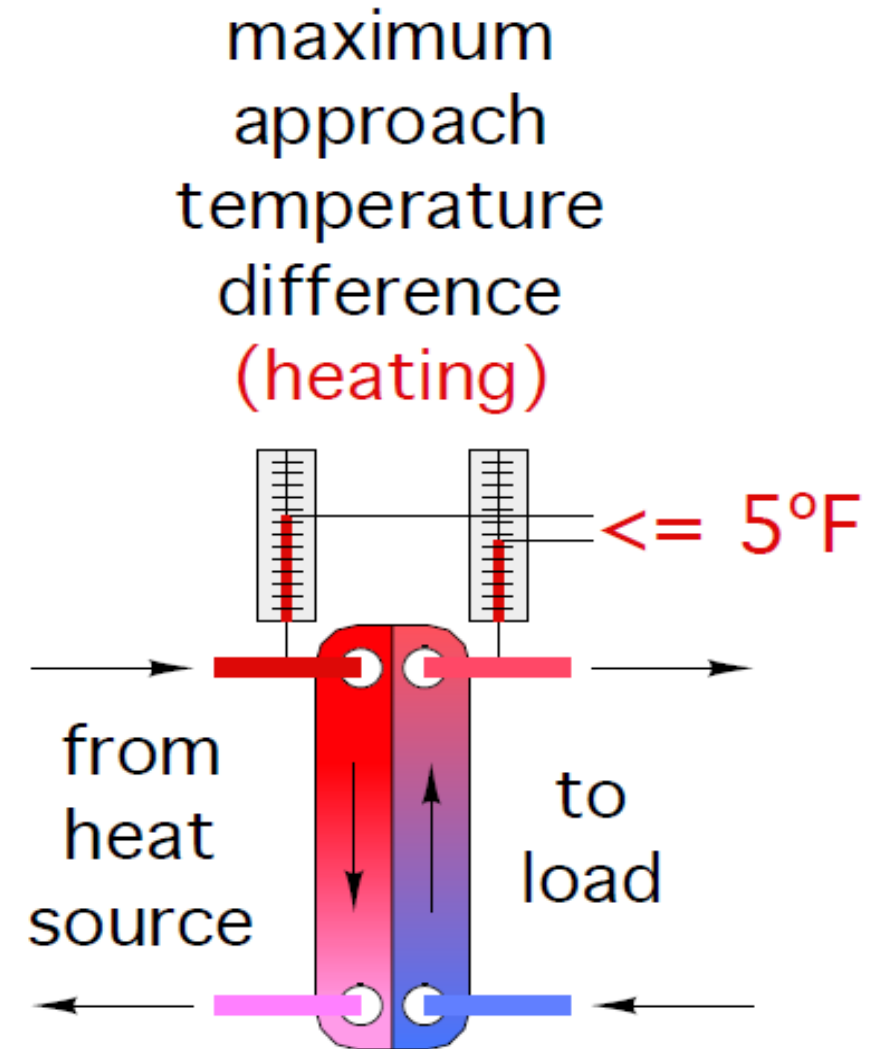


# Are there any Questions?



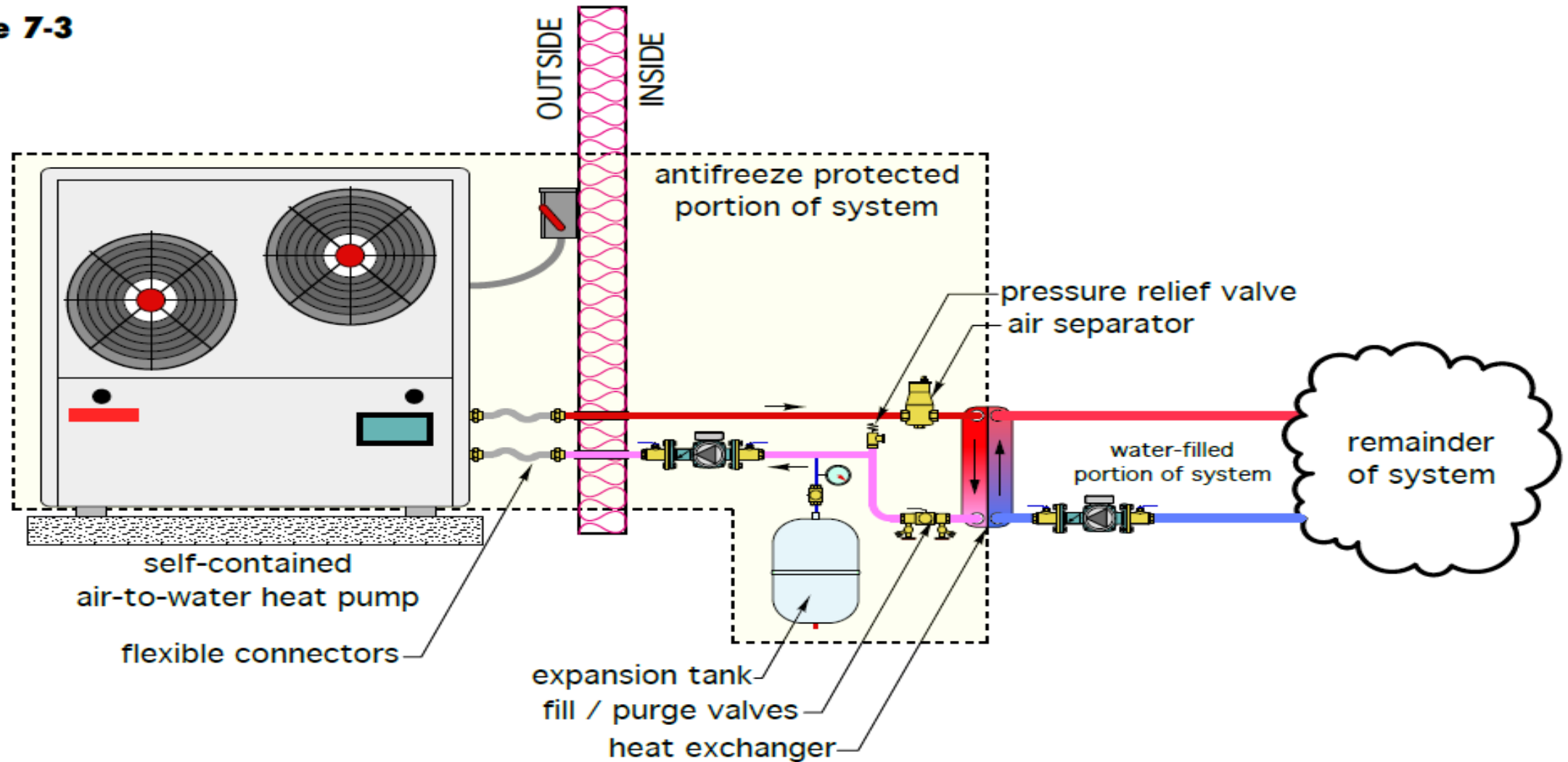
# Plate Exchanger Considerations

- Be sure to size heat exchanger properly
- Cold water applications react differently than hot
- If not sized properly short cycling **WILL** occur
- Buffer tank target temperatures are subject to and limited by the exchanger and its capacity
- Cold water temperature differentials can be effected more than in heating applications

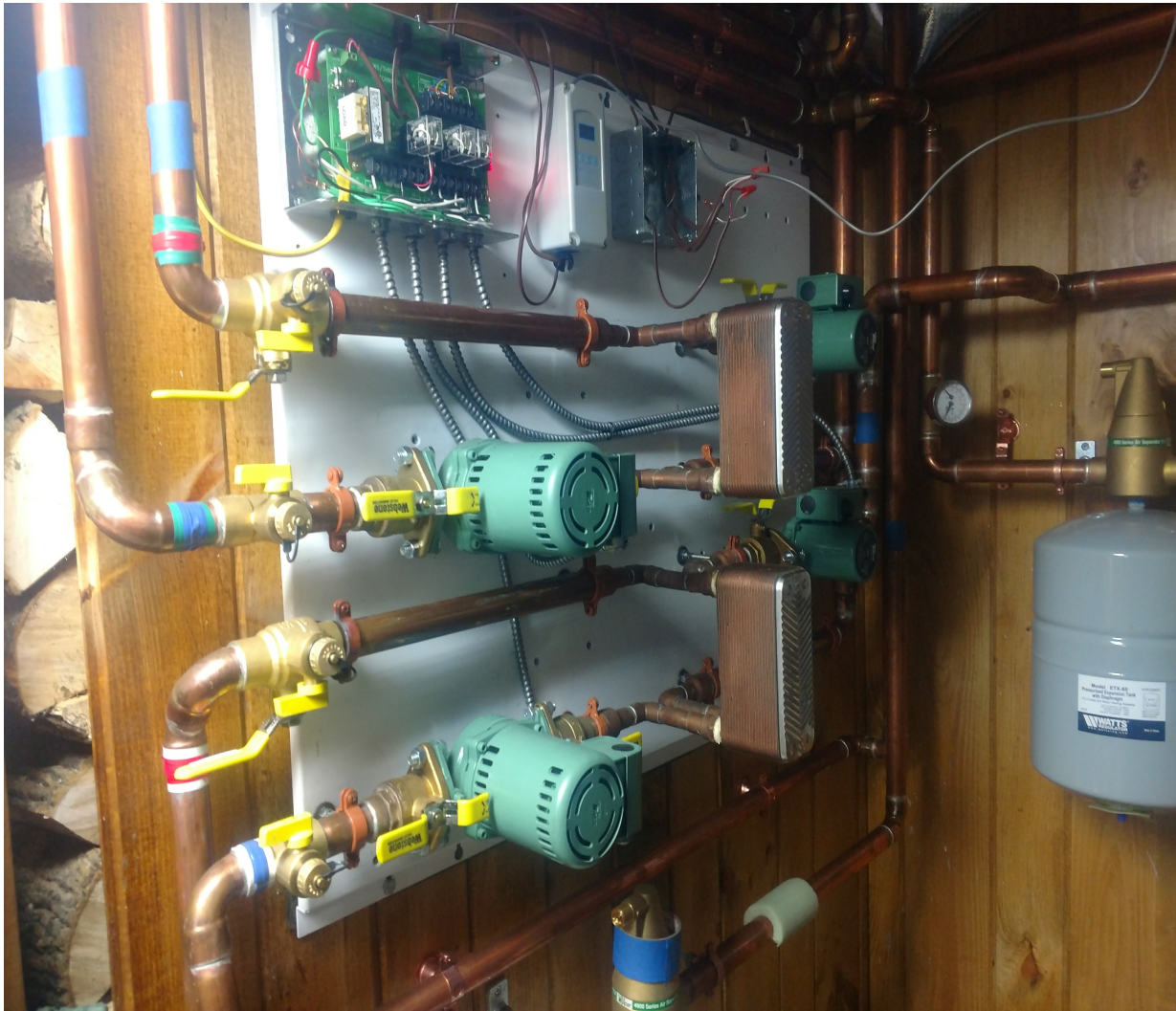


# Heat Pump with Plate Heat Exchanger

**Figure 7-3**



# Plate Exchanger Application (900 gallons of storage)



# Insulate-Insulate-Insulate (Chilled water WILL result in condensation)



# SSIC (SpacePak System Interface Control)

The SpacePak SSIC System Interface Control takes inputs from up to five air handlers and outputs the system signals to the chiller, boiler and heat pump. Air Handlers receive their calls from their respective thermostats and outputs a heating or cooling call to the SSIC. Based on these demands, the SSIC determines how to operate the system.

## Standard Features

- Outdoor Air Temperature Sensor
- Water Temperature Sensor
- Buffer Tank Sensor

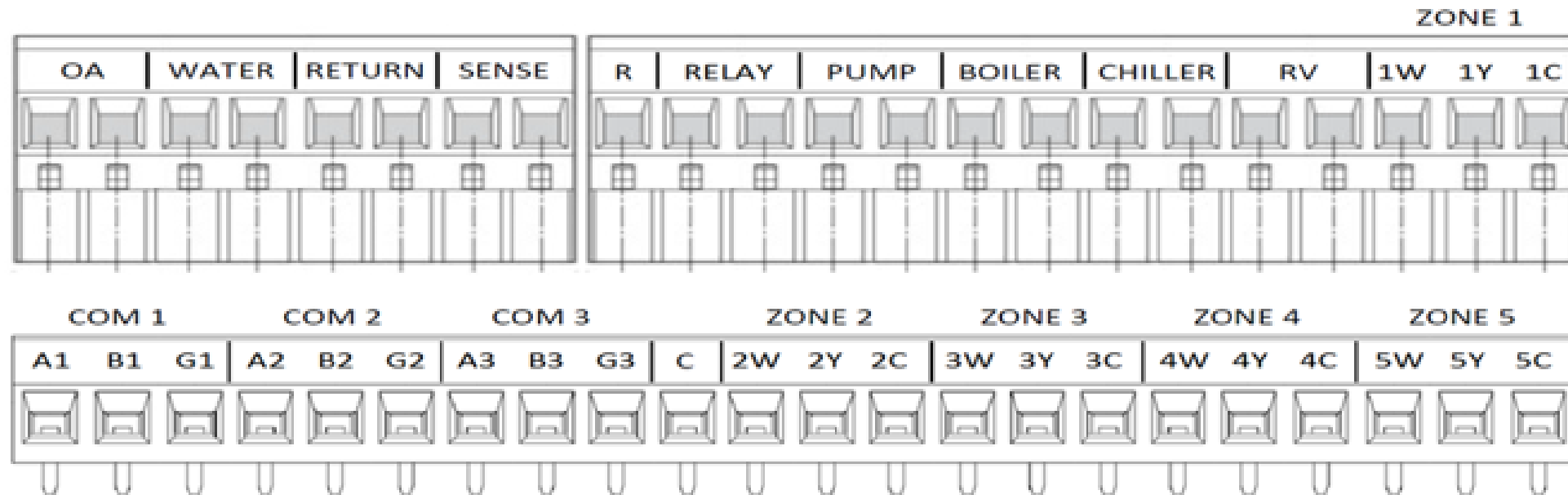


# SSIC Standard Features Continued.....

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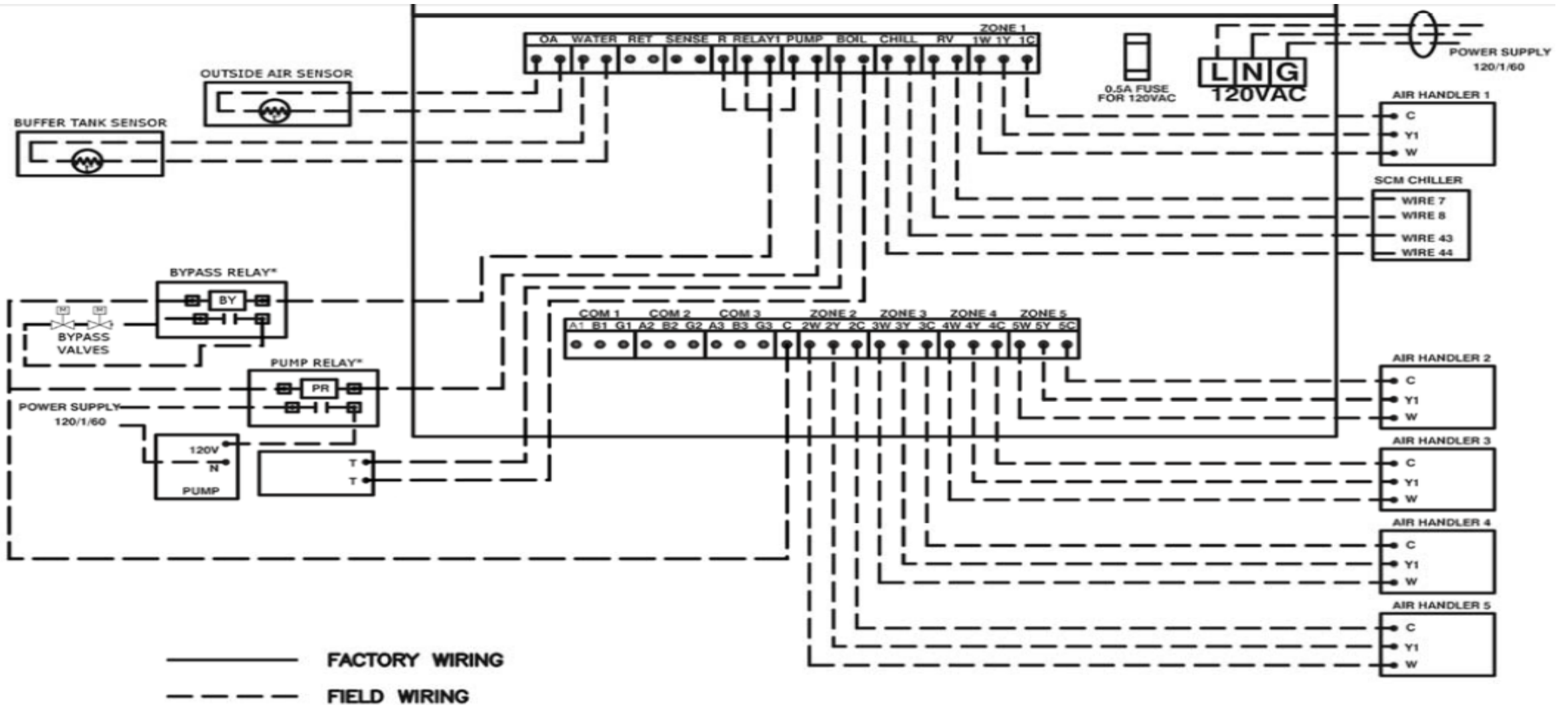
- Basic Modes Include- Boiler Only, Chiller Only, Outdoor Temp Switch over and Boiler Help
- Normal Zone Controlled Mode- Used when there is not a need to maintain a buffer tank temperature
- Buffer Tank Priority- Maintain a constant heating or cooling setpoint within the buffer based on outside temperature
- Buffer Tank Setpoint Curve- Maintain a varied buffer setpoint based on outside air temperature
- Boiler Help Mode- Based on the buffer tank set point, OAT and differentials the boiler can be called on during a heating cycle to assist the Heat Pump in reaching buffer setpoint under above average loads.
- Accepts individual (24V) calls from Air handlers (or terminal units when properly equipped) for proper operation during times where outside temperatures do not require the buffer to maintain a specific temperature
- Auxiliary Pump relay – For use when a Primary system pump is needed ex. zone valve system
- Buffer tank Bypass function- for use when the oppositely maintained tank temperature is needed for a short amount of time

# SSIC Wiring Callouts

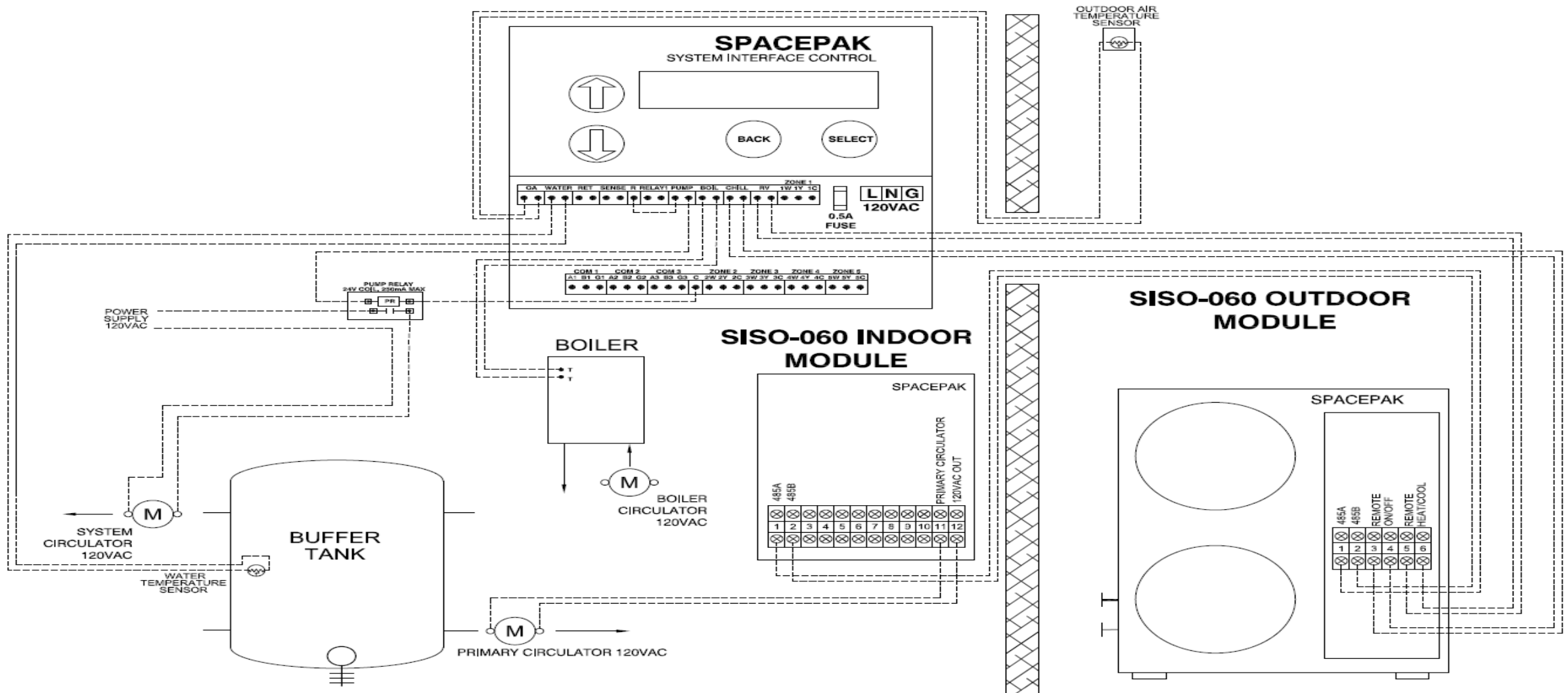


OA	Outdoor Air Temperature Sensor	ZONE X	Connection from Zone X (1-5) Air Handler
WATER	Water Temperature Sensor	XW	24VAC Heating Signal from Air Handler
RETURN	Return Temperature Sensor	XY	24VAC Cooling Signal from Air Handler
SENSE	Misc. Temperature Sensor (N/A*)	XC	Ground from Air Handler
R	24VAC	COM X	Connections for Future Models (N/A*)
RELAY	Misc. Relay for Future Models (N/A*)	C	24VAC Return
PUMP	Dry Contact Relay to activate the Pump		
BOILER	Dry Contact Relay to activate the Boiler		
CHILLER	Dry Contact Relay to activate the Chiller's enable		
RV	Dry Contact Relay to activate Chiller's Reversing Valve		

# SSIC Wiring



# SSIC System Layout with SIS and Boiler in “boiler help mode”



# SpacePak Team Provides **Pre-Sale Support**

[PreSaleSupport@SpacePak.com](mailto:PreSaleSupport@SpacePak.com)

**Pre-Sale Support is a team of application engineers who provide optimal turnaround in answering your questions regarding system design and layout as well as assistance in equipment selection and job quoting.**

- Available to Representatives, Wholesalers and Contractors
- Any questions regarding equipment already shipped should be directed to: (413) 564-5530
- [TechnicalService@SpacePak.com](mailto:TechnicalService@SpacePak.com)



# Lead Registration Form

- One Form Per Company
- Installing Companies Only


Once form is completed, email to [maharrington@mestek.com](mailto:maharrington@mestek.com)

Email to send leads to



**\*IMPORTANT\***

Email that receives leads MUST add [info@spacepak.com](mailto:info@spacepak.com) to their safe senders list to ensure delivery!

**SPACE PAK** 

Class Date: \_\_\_\_\_

Installer Company Name: \_\_\_\_\_

Primary Contact Person: \_\_\_\_\_

Zip Code: \_\_\_\_\_

Street Address 1: \_\_\_\_\_

Street Address 2: \_\_\_\_\_

City: \_\_\_\_\_

State/Country: \_\_\_\_\_

Phone: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Fax: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Email: \_\_\_\_\_

There is only one email address per company where leads will be sent, please enter here. Make sure the chosen email is one where the leads will continue to be accounted for by current employees overtime and after individuals leave or change emails. A general or group email over a personal email is preferable.  
Example: sales@yourcompany.com

Web Site URL: \_\_\_\_\_

Adding our logo and website link on your company's website will increase your search rankings, site traffic, and leads.

Training Location?  
☐ In-Person  
☐ Online

Which Certification Training Courses did you attend?  
☐ SpacePak Small Duct High Velocity Certification  
☐ SpacePak Hydronics/Air-to-Water Heat Pumps Certification  
☐ Master Certification (Both of the Above)

☐ I agree to follow up on the homeowner leads that SpacePak sends to me.  
☐ I agree to add [info@spacepak.com](mailto:info@spacepak.com) to my safe senders contact list and acknowledge that failing to do so may prevent me from receiving and following up with SpacePak leads.

Above must be legible as this is needed for entering into the website lead lists.

# Follow Us on Social Media!





**Thank You!**