DEFINITIONS

ASTM
American Society for Testing and Materials. Publishes standard specifications for terminology, labeling, testing and production.

British Thermal Unit (Btu)
The British thermal unit is a unit of measure equal to the amount of heat necessary to raise the temperature of one pound of water one degree Fahrenheit.

Conduction
A process of heat transfer whereby heat moves through a material or between two materials that are in direct contact with each other.

Convection
The transfer of heat by movement of a liquid or a gas. Natural Convection is a result of movement caused by changes in density as temperature changes within a fluid medium such as a liquid or a gas. Forced Convection is the result of mechanical force moving a fluid or gas.

Crimp
An insert fitting for Central PEX tubing. A crimp requires a crimp ring or clamp of comparable quality.

Cross-Linking
A chemical process that changes the molecular structure of a plastic material by linking otherwise independent hydrocarbon chains. Cross-Linking creates a three-dimensional network of hydrocarbons.

Differential Temperature (ΔT)
The difference in temperature between two opposing masses used to describe the potential that exists for heat transfer.

FIP
Female iron pipe thread.

FPT
Female American National Taper Pipe Thread.

HDPE
Abbreviation for high-density polyethylene.

Head Pressure
The pressure available at the outlet side of a pump, or inlet side of a flow-conducting system. It is expressed in feet of head, which is the height of a column of water that can be supported by a pump against standard atmospheric pressure.

Heating Load
The amount of energy (in Btu/hr) required for space heating.

Heat Loss
The transfer of heat from a contained space to the atmosphere surrounding it. Heat loss is the result of thermal conductivity through walls, windows, roofs and other building envelope components, as well as infiltration losses due to the exchange of inside air with outside air.

Infiltration Losses
The loss of heat energy due to infiltration which is expressed in Btu/hr. Infiltration losses are calculated from the air changes per hour, differential indoor/outdoor temperature and the heat carrying capability of the lost air.

Mean Radiant Temperature
The average temperature of all the surfaces in a room.

MPT
Male American National Taper Pipe Thread.

NPT
American National Taper Pipe Thread is a standard thread used in the US.

PE
Abbreviation for polyethylene.

Perimeter Area
Describes the first four feet around the exposed perimeter of the slab.

PEX
Abbreviated for cross-linked polyethylene.

Pressure Loss
The loss of fluid pressure between any two points in a flow-conducting system, expressed in pounds per square inch (psi). The loss of pressure is caused by friction against the tubing walls and is further influenced by the tubing size, length and texture of the inside wall of the tube, fittings, valves and other components. Pressure loss is also influenced by the temperature and viscosity of the fluid.

R-Value
A measure of a material's ability to resist the flow of heat. R-Value is expressed in Btu/hr/ft^2 and calculated by the formula 1/U=R.

Radiation
The process in which energy in the form of rays of light or heat is transferred from body to body without heating the intermediate air acting as the transfer medium.

Sweat Fitting
Soldered copper pipe fitting.

Upward Load
The amount of Btu•hr required to overcome the envelope losses of the room.

Under-Slab Insulation
The amount of insulation (expressed in R-Value) under the interior area of the slab.

Thermal Conductivity (K)
A property of materials that indicates the amount of heat (in Btu) that penetrates one square foot of a uniform material one inch thick in one hour for each degree Fahrenheit difference in temperature between the surfaces. It is expressed in Btu/(hr/ft^2/°F). The thermal conductivity of PEX is 0.22 Btu/(hr/ft^2/°F).

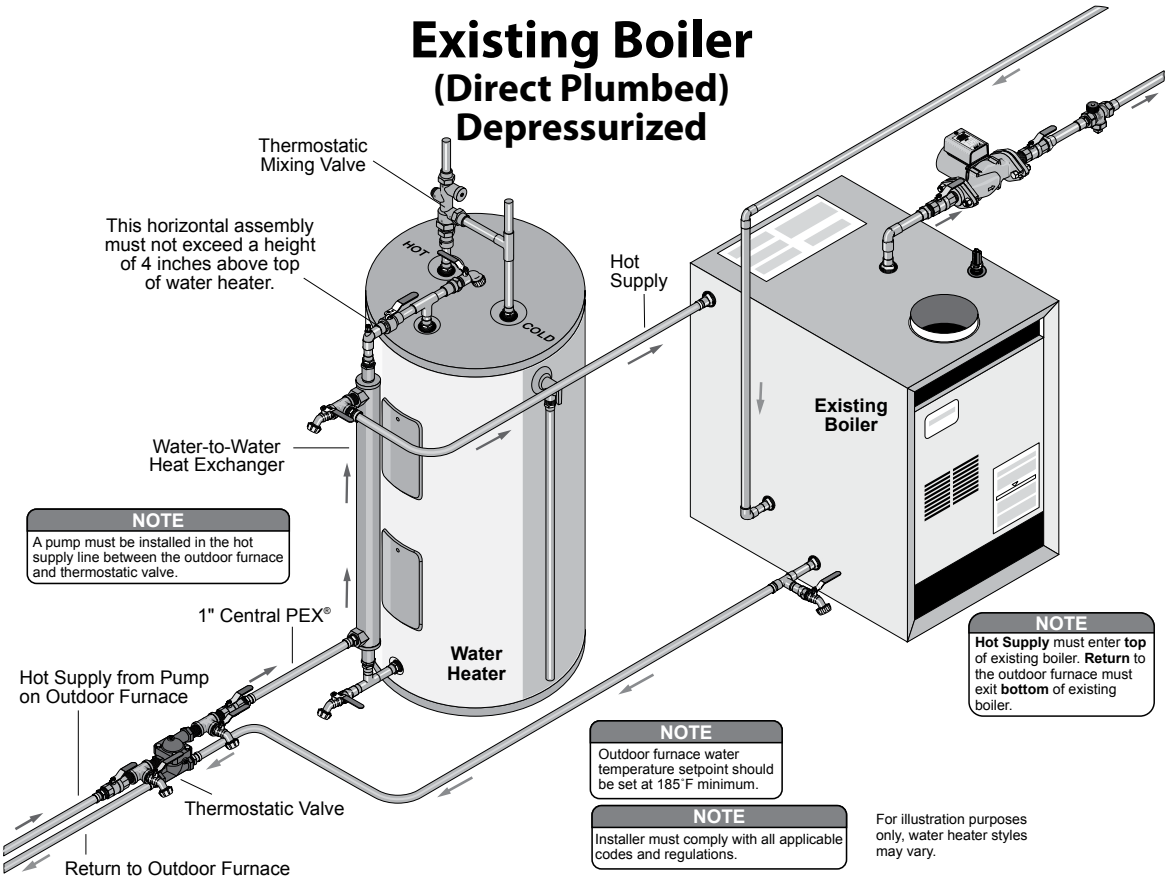
Thermal Mass
Any material used to store heat energy or the affinity for heat energy.

U-Value
The capability of a material to transfer heat. Used to describe the conductance of a material or composite of materials in construction. U-Value is expressed in Btu/hr/ft^2 and is the inverse function of R-Value.

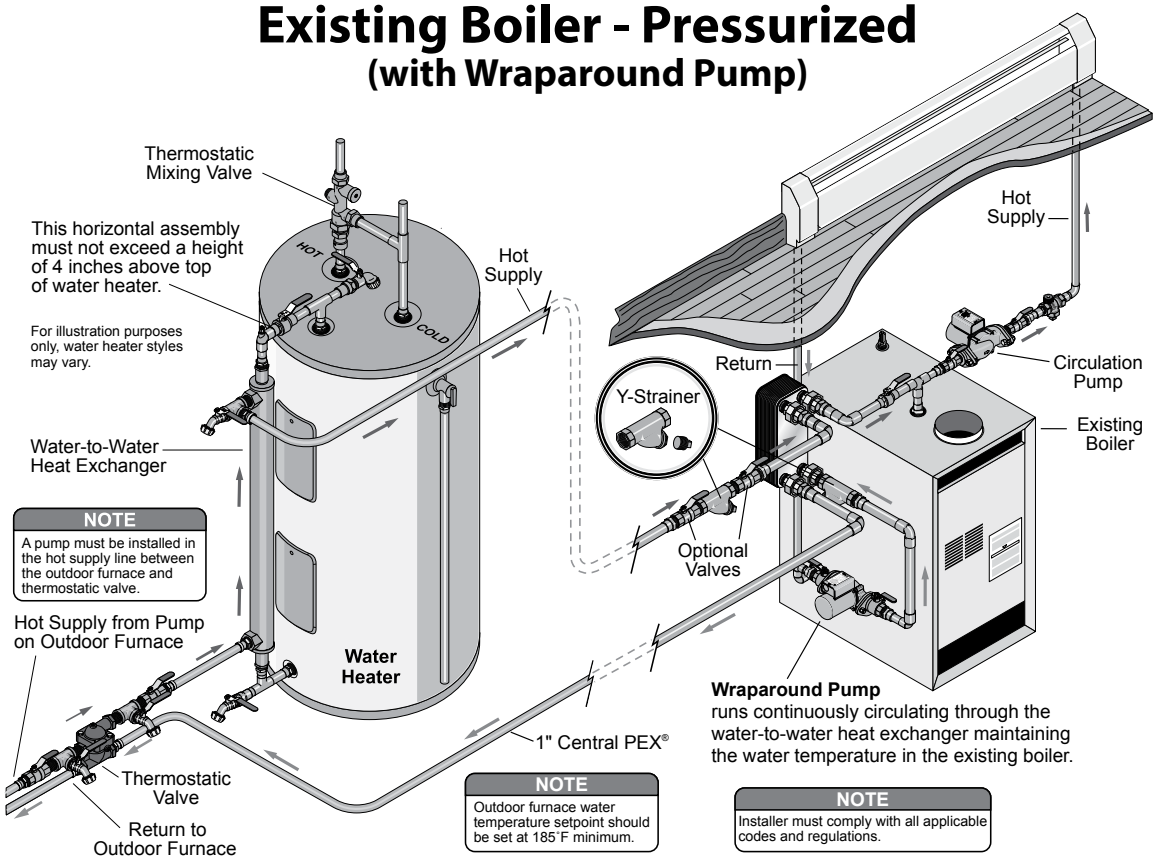
Velocity
The speed of fluid at a specific flow, expressed in feet per second (fps or ft/sec).

Zone
An area of a radiant panel served by one or more loops, and individually controlled (either manually or automatically).

Existing Boiler
(Direct Plumbed) Depressurized

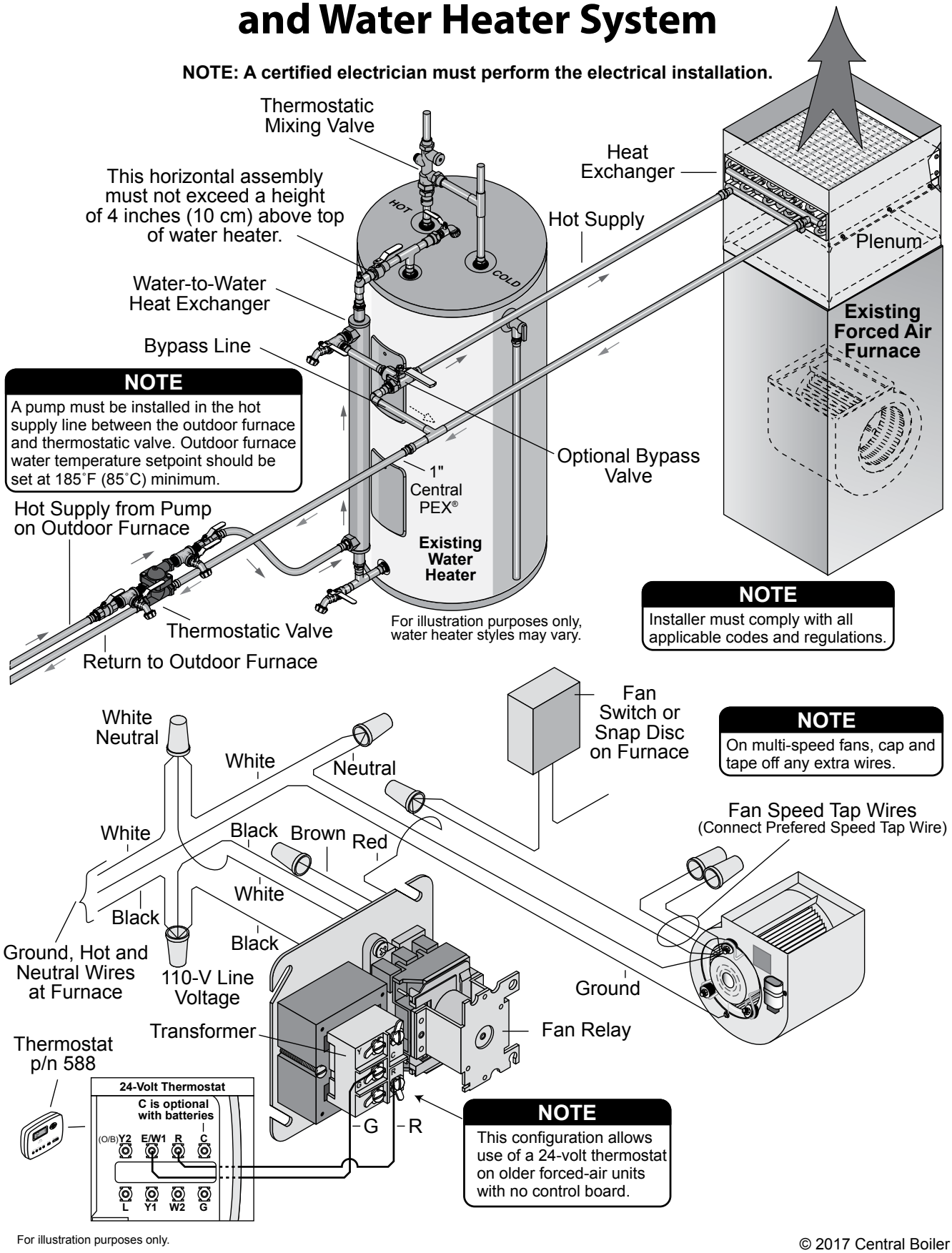


Existing Boiler - Pressurized
(with Wraparound Pump)



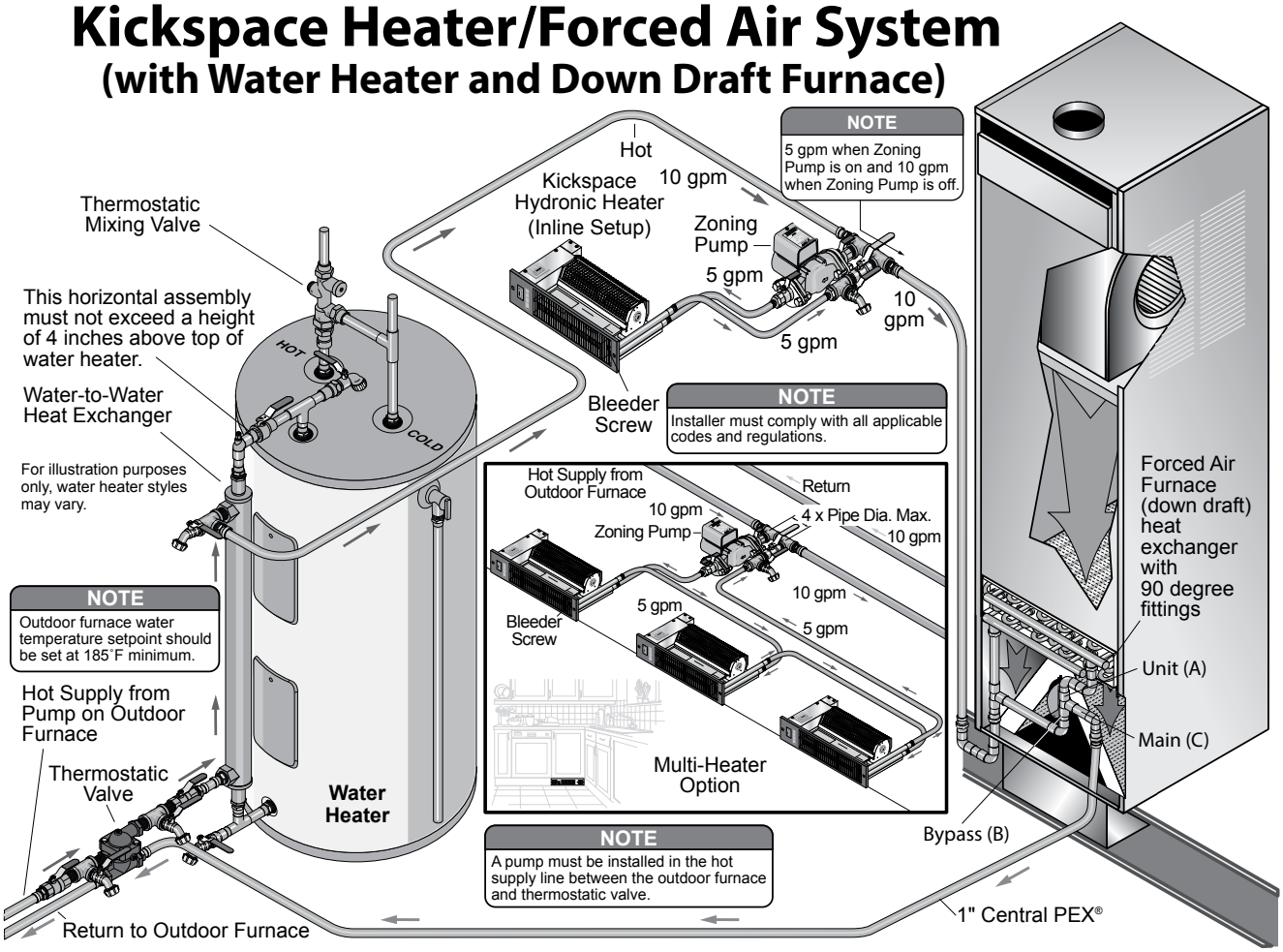
Water-to-Air Heat Exchanger and Water Heater System

NOTE: A certified electrician must perform the electrical installation.

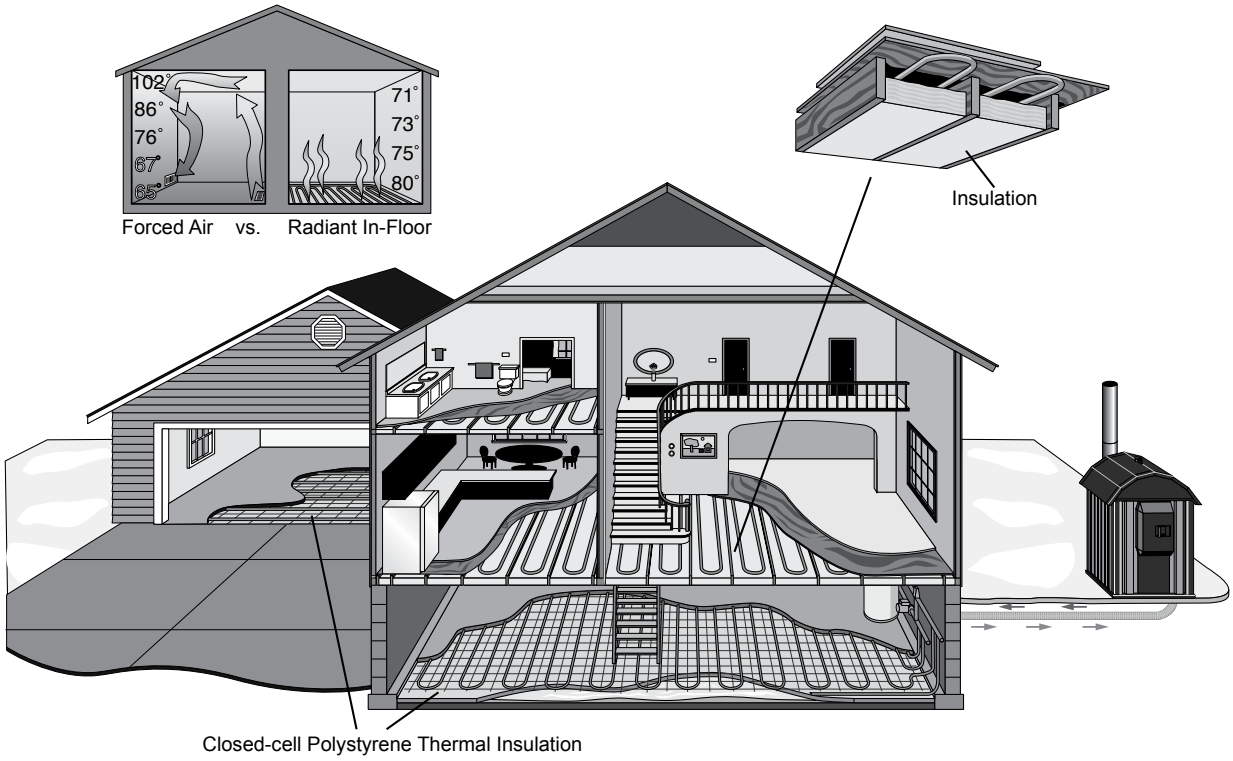


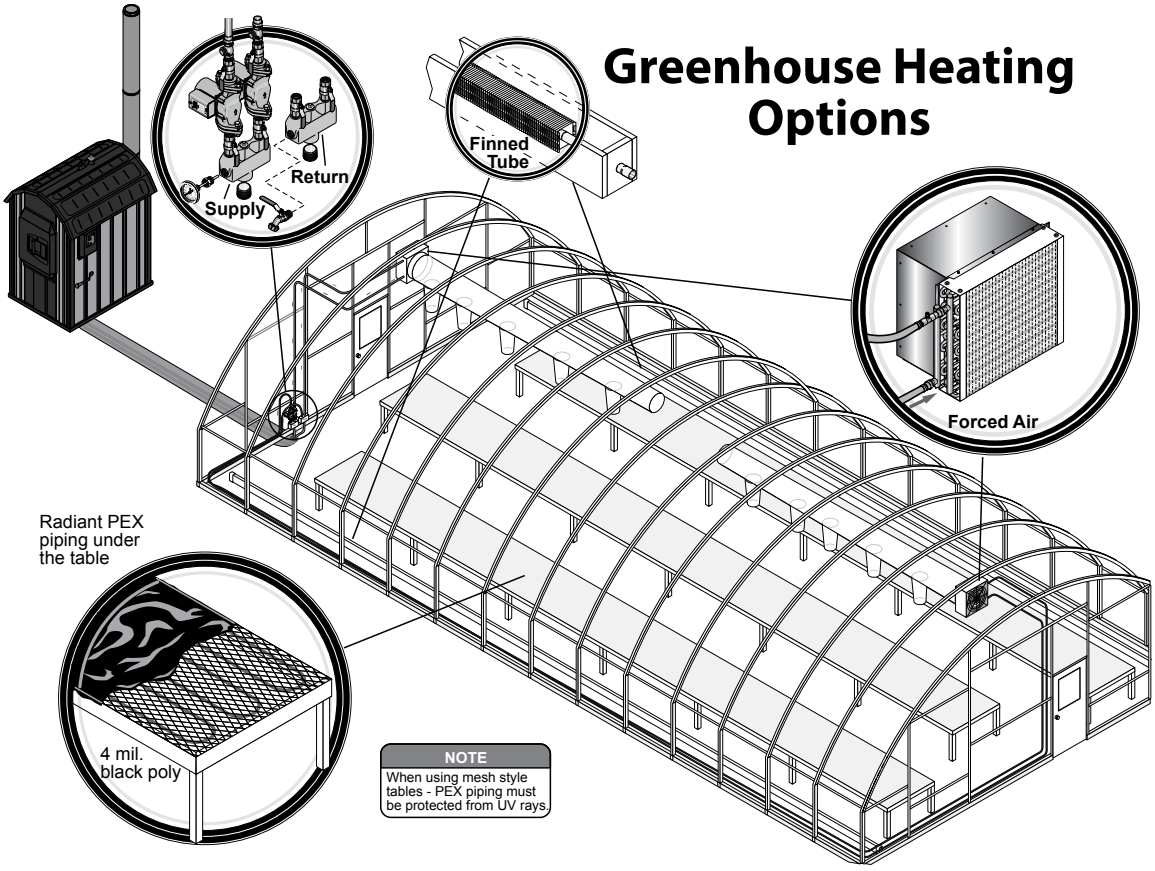
For illustration purposes only.

Kickspace Heater/Forced Air System
(with Water Heater and Down Draft Furnace)

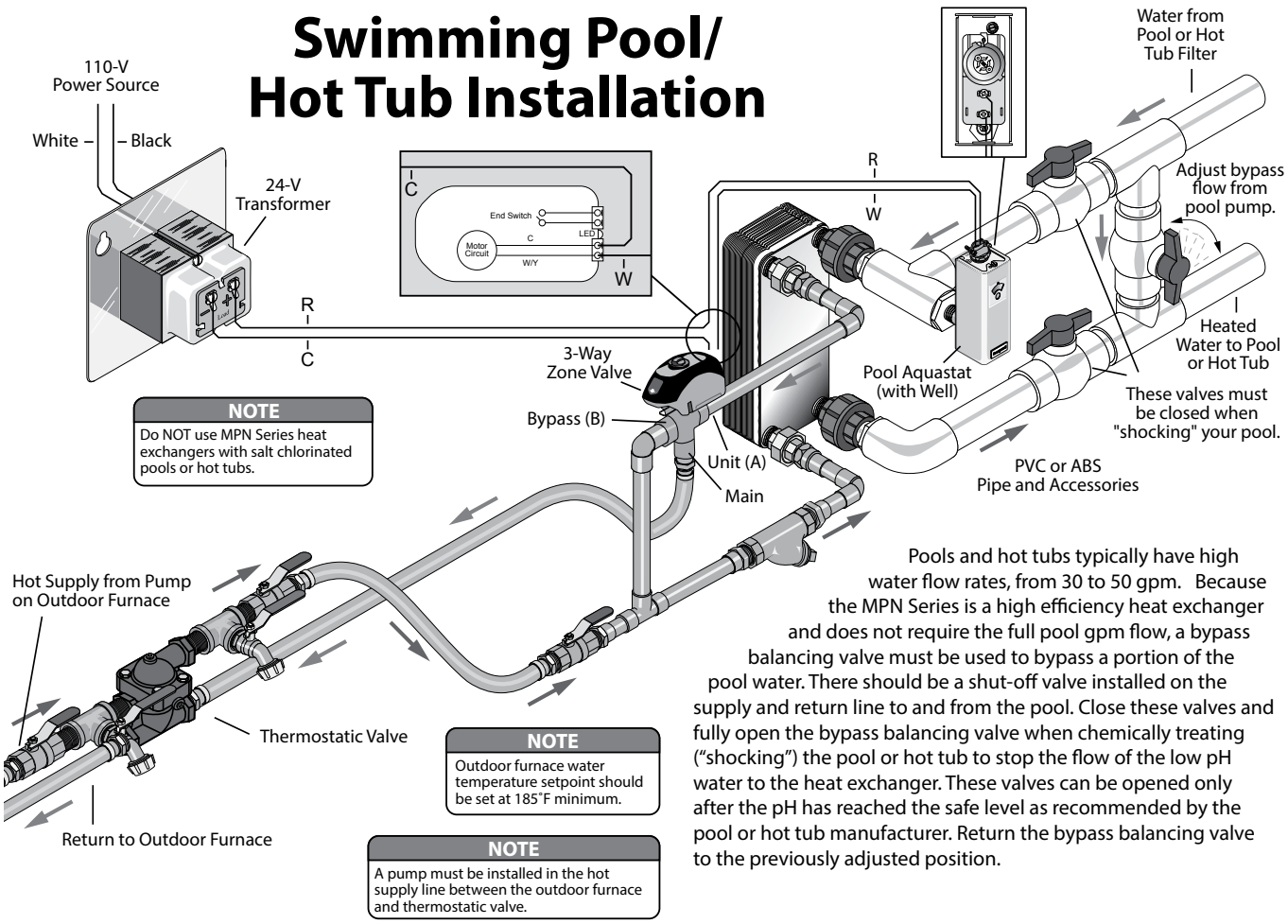


Radiant Heat
Multi Zone In-Floor





Swimming Pool/ Hot Tub Installation



NOTE
Do NOT use MPN Series heat exchangers with salt chlorinated pools or hot tubs.

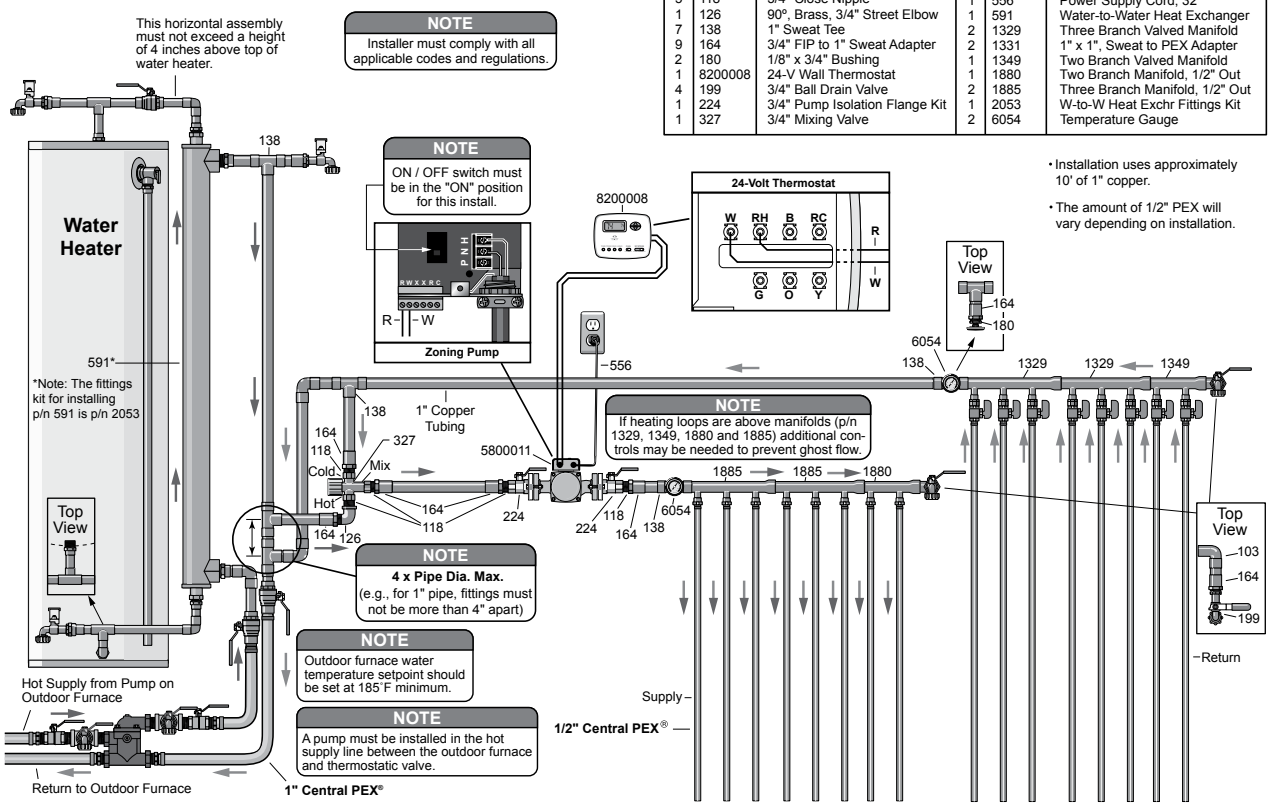
NOTE
Outdoor furnace water temperature setpoint should be set at 185˚F minimum.

NOTE
A pump must be installed in the hot supply line between the outdoor furnace and thermostatic valve.

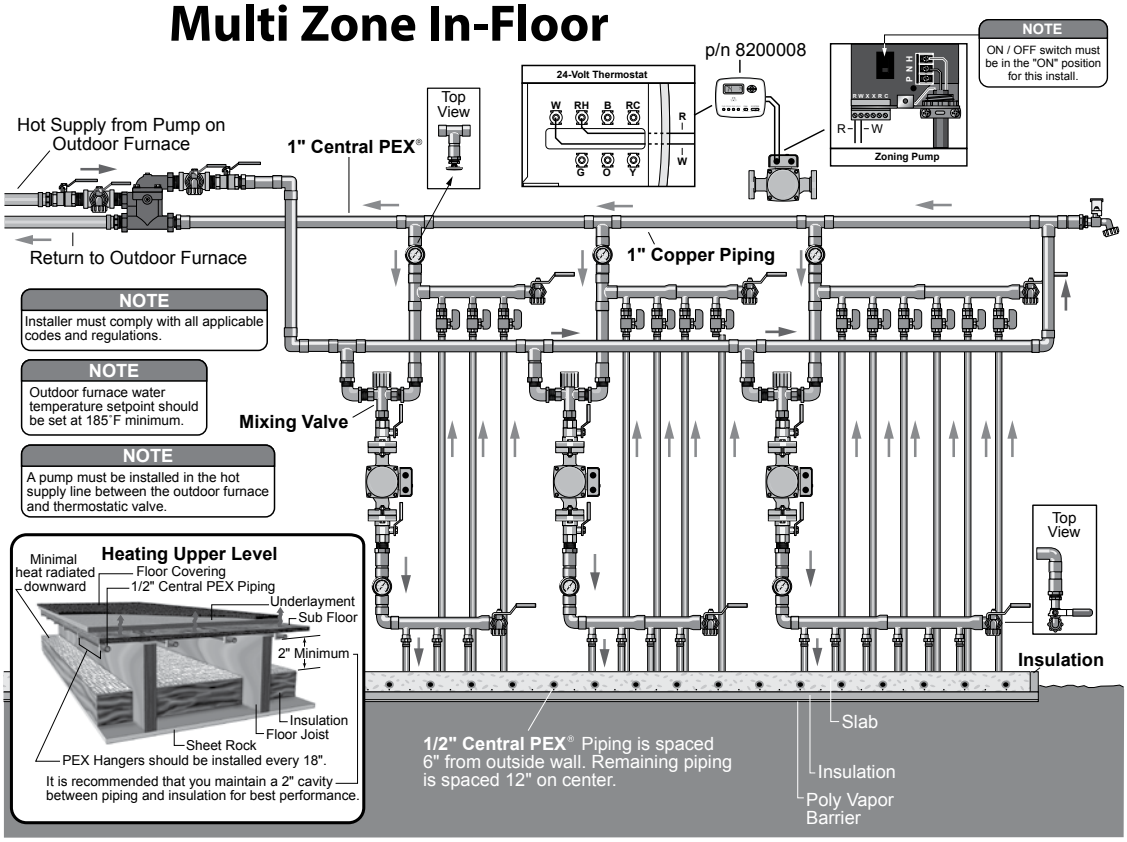
Pools and hot tubs typically have high water flow rates, from 30 to 50 gpm. Because the MPN Series is a high efficiency heat exchanger and does not require the full pool gpm flow, a bypass balancing valve must be used to bypass a portion of the pool water. There should be a shut-off valve installed on the supply and return line to and from the pool. Close these valves and fully open the bypass balancing valve when chemically treating ("shocking") the pool or hot tub to stop the flow of the low pH water to the heat exchanger. These valves can be opened only after the pH has reached the safe level as recommended by the pool or hot tub manufacturer. Return the bypass balancing valve to the previously adjusted position.

Radiant Heat Single Zone

Qty	p/n	Description	Qty	p/n	Description
3	103	90º, 1" Street Elbow	1	5800011	007 Zoning Pump
5	118	3/4" Close Nipple	1	556	Power Supply Cord, 32"
1	126	90º, Brass, 3/4" Street Elbow	1	591	Water-to-Water Heat Exchanger
7	138	1" Sweat Tee	2	1329	Three Branch Valved Manifold
9	164	3/4" FIP to 1" Sweat Adapter	2	1331	1" x 1", Sweat to PEX Adapter
2	180	1/8" x 3/4" Bushing	1	1349	Two Branch Valved Manifold
1	8200008	24-V Wall Thermostat	1	1880	Two Branch Manifold, 1/2" Out
4	199	3/4" Ball Drain Valve	2	1885	Three Branch Manifold, 1/2" Out
1	224	3/4" Pump Isolation Flange Kit	1	2053	W-to-W Heat Exchr Fittings Kit
1	327	3/4" Mixing Valve	2	6054	Temperature Gauge



Multi Zone In-Floor



Baseboard System

(Three Way Zone Valve Controlled)

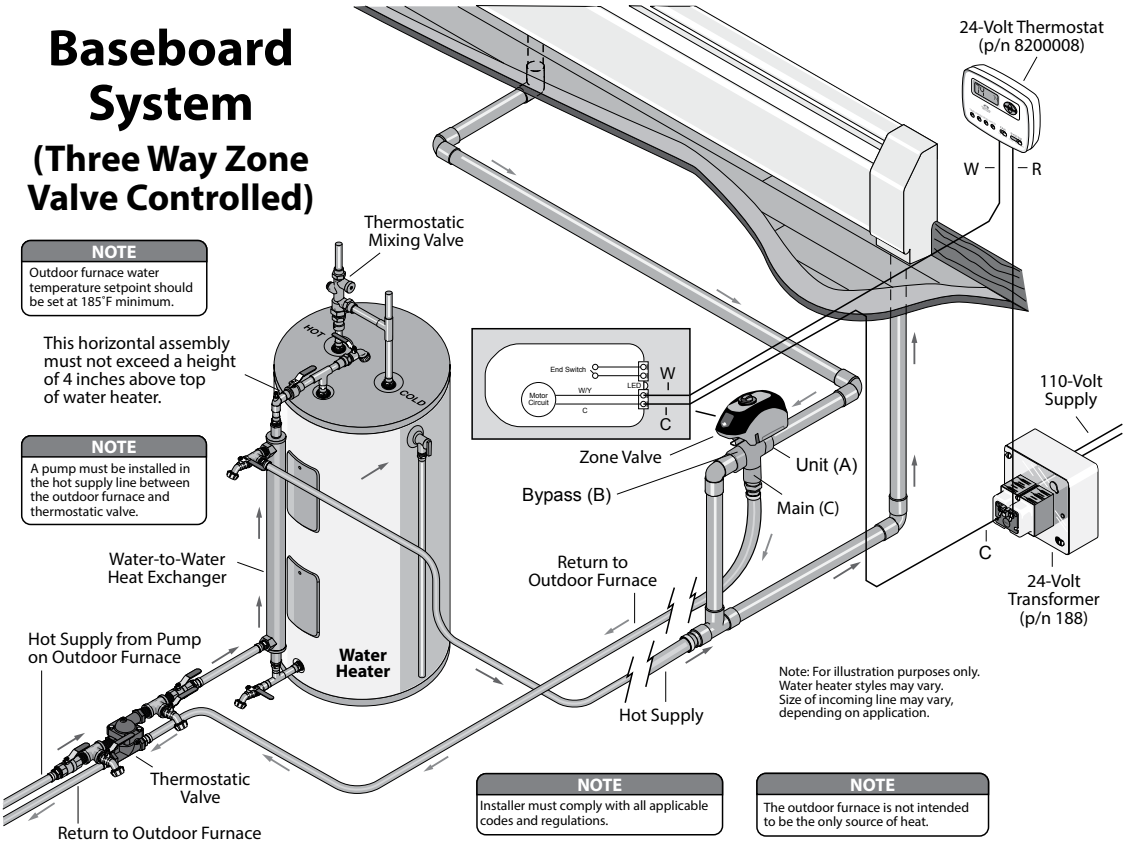
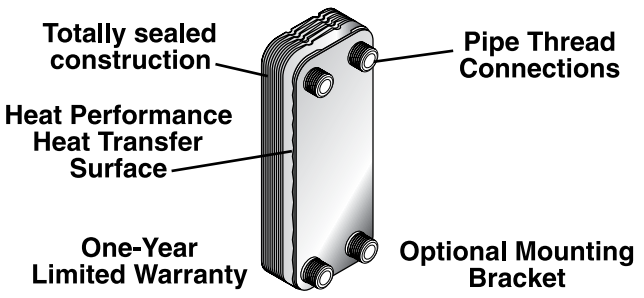
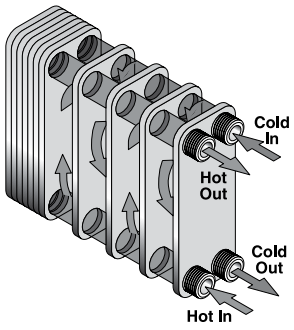
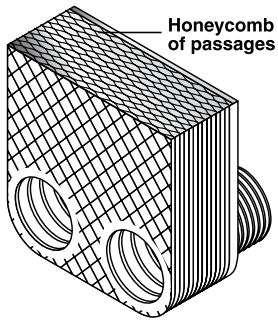


Plate Information







The popularity of brazed plate heat exchangers lies in their small size and highly efficient heat transfer surface. Brazed plate heat exchangers begin as stainless steel plates specially embossed to critical tolerances. The embossed surface increases fluid turbulence, thereby increasing the heat transfer coefficient and lowering potential fouling.

The plates are stacked for maximum use of the surface area and to form two independent circuits running in alternating layers. The two fluid circuits are configured to flow in opposite directions (counterflow) to further enhance the dissipation of heat. This honeycomb of passages provides high heat transfer, low fluid pressure drop and complete separation of the two fluids.

The assembled units are then brazed in a vacuum furnace for consistent quality. As a final step, a helium pressure test is used to ensure leak-free performance. The result is a very rugged, highly efficient and reliable heat exchanger, built to last.

Brazed plate heat exchangers are available in a variety of sizes and plate configurations (see page 7).

Smaller Size

Up to 60-percent smaller than traditional devices.

High Performance

Higher heat transfer coefficients and lower fouling rates.

Lower Installation Cost

Costs less than traditional devices.

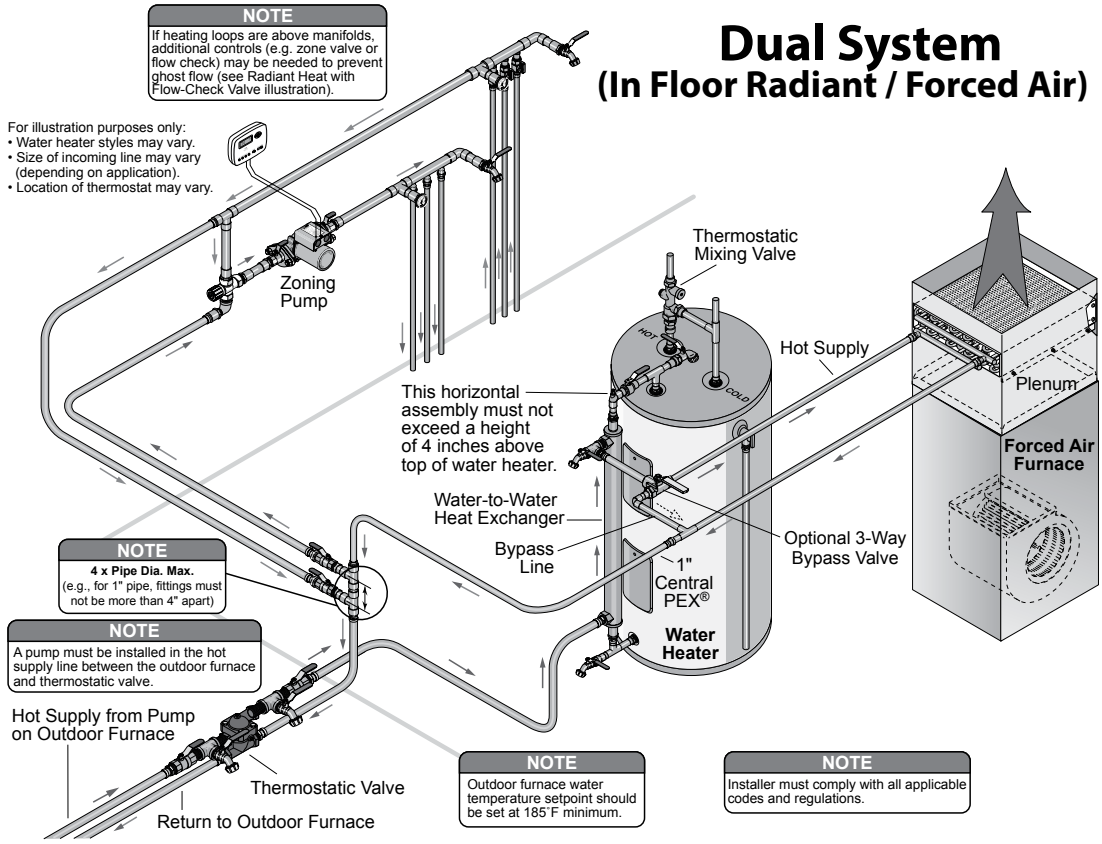
Easy Installation

Easier to install and connect.

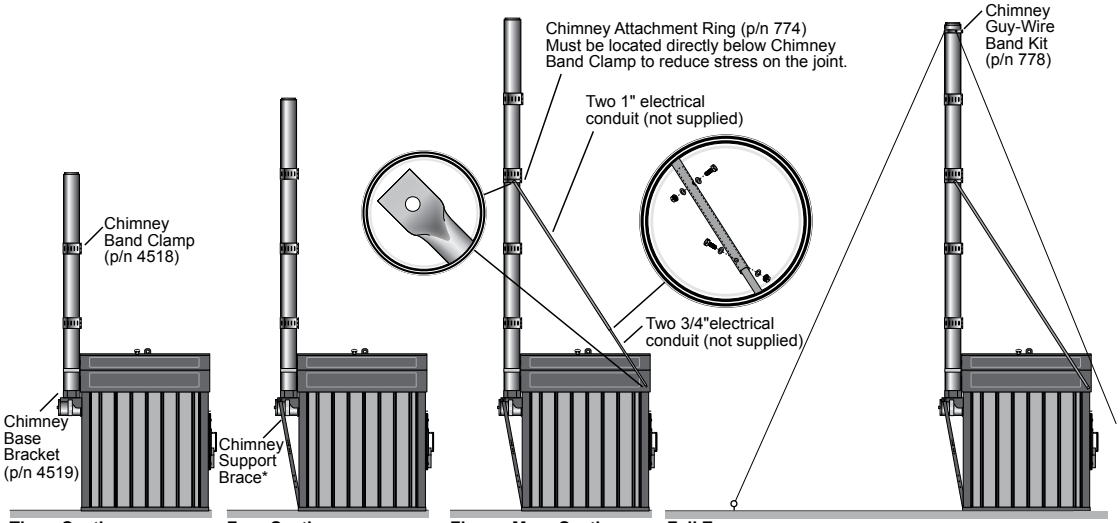
Lower Shipping Cost

Smaller size and less weight makes it easier and more inexpensive to transport.

Dual System
(In Floor Radiant / Forced Air)



Chimney Reinforcement Recommendations
for CL 4030, CL 5036, CL 6048, CL 7260 and Pallet Burner



Three Sections
When three sections of chimney are being used a Chimney Band Clamp Kit (p/n 4518) for each joint and a Chimney Base Bracket Kit (p/n 4519) are recommended.

Four Sections
When four sections of chimney are being used a Chimney Band Clamp Kit for each joint, a Chimney Base Bracket Kit and a Chimney Support Brace Kit* are recommended.

Five or More Sections
When five or more sections of chimney are being used a Chimney Band Clamp Kit for each joint, a Chimney Base Bracket Kit, a Chimney Support Brace Kit and a Chimney Attachment Ring (p/n 774) are recommended.

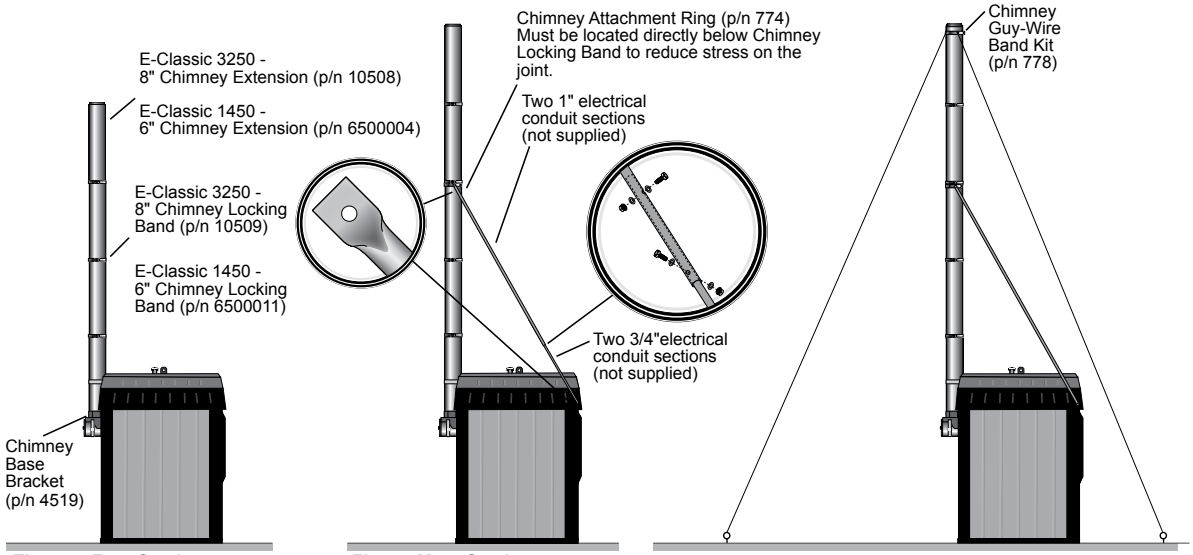
Fall Zone
If objects are placed in the fall zone of the chimney, a Chimney Guy-Wire Band Kit (p/n 778) or additional bracing is recommended.

*Chimney Support Brace Chart	
p/n	Models
4554	CL 4030, CL 5036 & CL 6048
8402	CL 7260 & Pallet Burner

NOTE
- Additional bracing may be necessary in certain areas such as those subject to severe weather, winds, freezing rain, etc.
- Inspect all bracing bi-annually for integrity.

Chimney Reinforcement Recommendations

for E-Classic 1450 and E-Classic 3250



Three or Four Sections
When three or four sections of chimney are being used, a Chimney Base Bracket Kit (p/n 4519) is recommended.

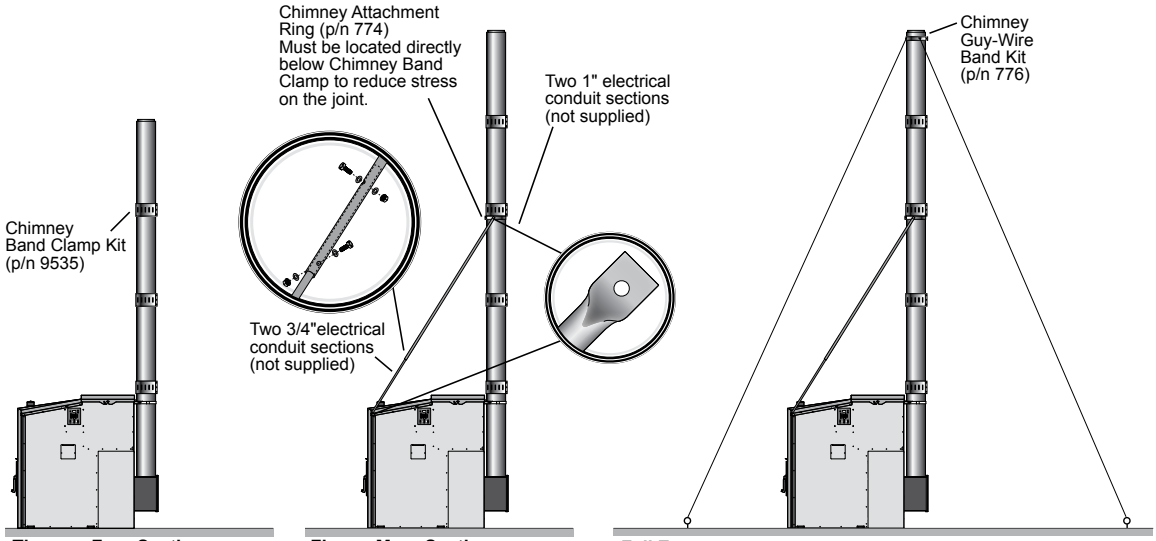
Five or More Sections
When five or more sections of chimney are being used, a Chimney Base Bracket Kit (p/n 4519) and a Chimney Attachment Ring (p/n 774) are recommended.

Fall Zone
If objects are placed in the fall zone of the chimney, a Chimney Guy-Wire Band Kit (p/n 778) or additional bracing is recommended.

NOTE
- Additional bracing may be necessary in certain areas such as those subject to severe weather, winds, freezing rain, etc.
- Inspect all bracing bi-annually for integrity.

Chimney Reinforcement Recommendations

for Maxim M255



Three or Four Sections
When three or four sections of chimney are being used, a Chimney Band Clamp Kit (p/n 9535) for each joint is recommended.

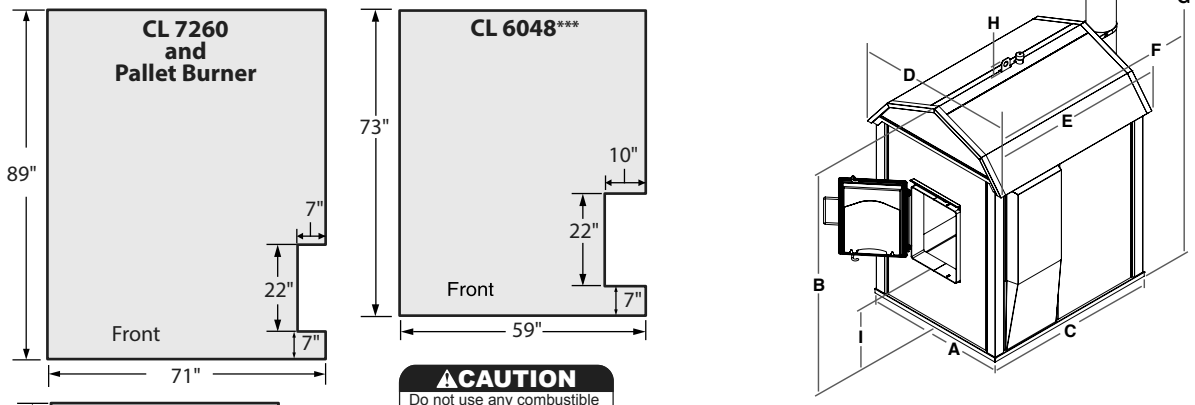
Five or More Sections
When five or more sections of chimney are being used, a Chimney Band Clamp Kit for each joint and a Chimney Attachment Ring (p/n 774) are recommended.

Fall Zone
If objects are placed in the fall zone of the chimney, a Chimney Guy-Wire Band Kit (p/n 776) or additional bracing is recommended.

NOTE
- Additional bracing may be necessary in certain areas such as those subject to severe weather, winds, freezing rain, etc.
- Inspect all bracing bi-annually for integrity.

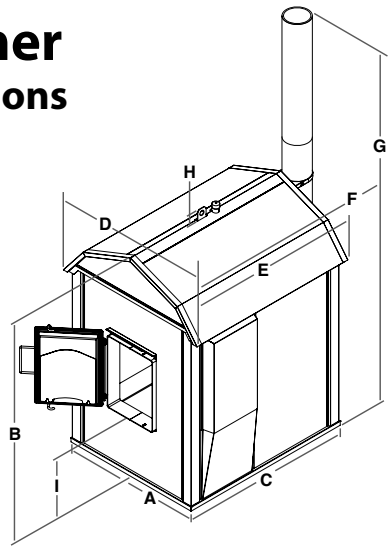
Classic & Pallet Burner

Furnace Base and Dimensions



***Foundation optional on these models.*

⚠CAUTION
Do not use any combustible materials for the foundation.



FURNACE MEASUREMENTS

	A	B	C	D	E	F	G	H	I
CL 4030	42.5"	70"	52.5"	49"	53"	66"	144"*	3"	24"
CL 5036	46.5"	79"	62.5"	51"	64"	76"	151"*	3"	24"
CL 6048	58.5"	93"	72.5"	65"	74"	86"	163"*	3"	24"
CL 7260	70.5"	93"	88.5"	78"	89"	104"	260"**	4"	10"
Pallet Burner	70.5"	93"	88.5"	78"	89"	104"	260"**	4"	8"

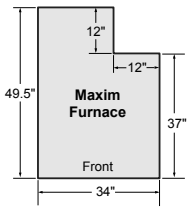
***Measurement includes two 4 ft. chimney sections.**
****Measurement includes three 4 ft. chimney sections.**

Outdoor furnace must be installed on a noncombustible surface or foundation that incorporates an enclosure that will prevent supply and return lines from possible exposure to sunlight, fire, or physical damage that may be caused by an occurrence outside the outdoor furnace enclosure. Foundation may consist of concrete, crushed rock, or patio blocks.

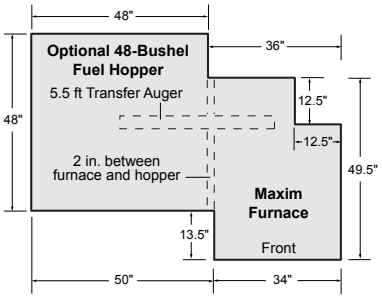
Maxim M255

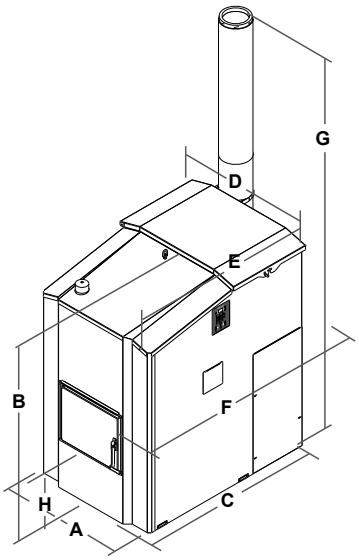
Furnace Base Dimensions

Furnace Base Dimensions
Shown without optional hopper.



Optional 2,440 lb
Hopper with Furnace Base Dimensions





⚠CAUTION
Do not use any combustible materials for the foundation.

NOTE

Furnace must be installed on a noncombustible surface or foundation that incorporates an enclosure that will prevent supply and return lines from possible exposure to sunlight, fire, or physical damage that may be caused by an occurrence outside the furnace enclosure.

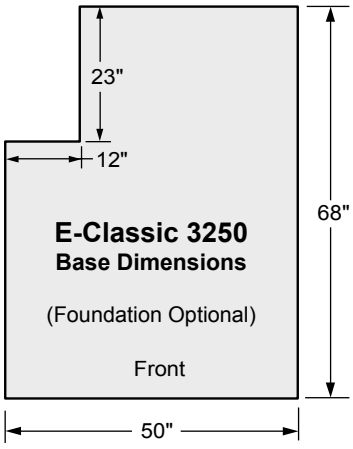
Maxim M255 Measurements

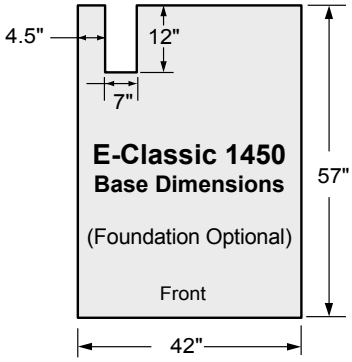
	A	B	C	D	E	F	G	H
in.	34	57	49.5	36	48	59.5*	117.5**	14.5
cm	86	145	126	91.5	122	151*	298.5**	37

*** Measurement (F) is from firebox door to chimney inspection cover.**
**** Measurement (G) includes two 4 ft. chimney sections.**

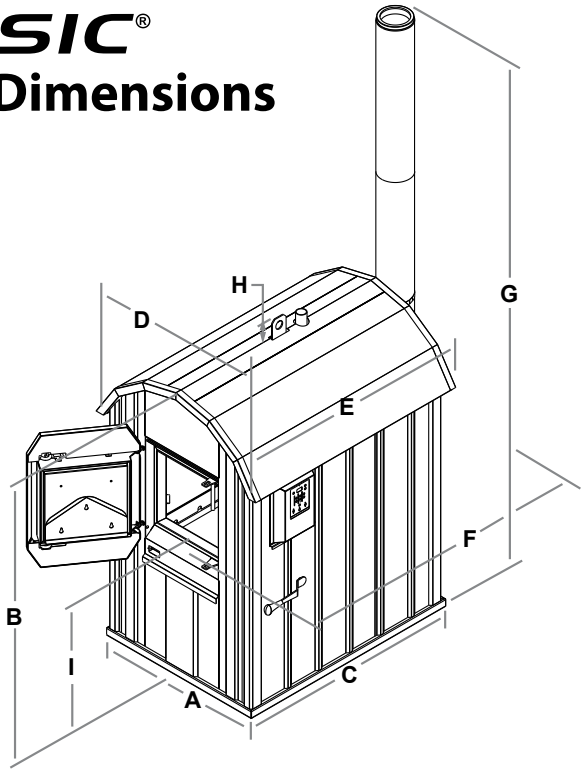
CENTRAL BOILER
E-CLASSIC®

Furnace Base and Dimensions





⚠CAUTION
Do not use any combustible materials for the foundation.



E-Classic Measurements

	A	B	C	D	E	F	G	H	I
E-Classic 1450	42"	73"	57"	47"	59"	71"	150"	5"	34"
E-Classic 3250	50"	87"	68"	54"	70"	86"	167"	5"	37"

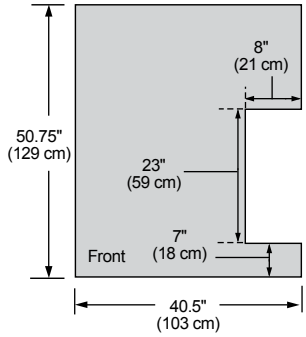
- Measurement (F) is from firebox door to chimney inspection cover.

- Measurement (G) includes two 4 ft. chimney sections.

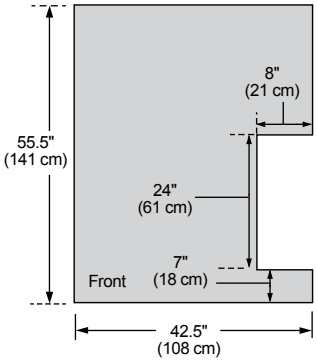
Outdoor furnace must be installed on a noncombustible surface or foundation that incorporates an enclosure that will prevent supply and return lines from possible exposure to sunlight, fire, or physical damage that may be caused by an occurrence outside the outdoor furnace enclosure. Foundation may consist of concrete, crushed rock, or patio blocks.

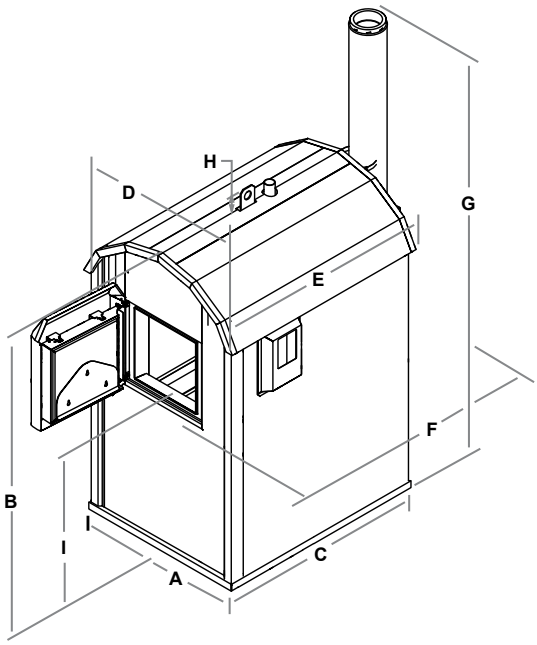
Classic Edge Furnace Base and Dimensions

Classic Edge 350
(Foundation Optional)

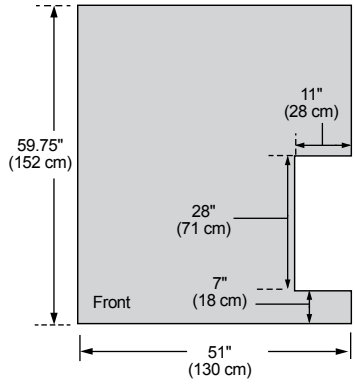


Classic Edge 550
(Foundation Optional)





Classic Edge 750
(Foundation Optional)



⚠CAUTION
Do not use any combustible materials for the foundation.

Classic Edge Measurements

	A	B	C	D	E	F	G	H	I
Classic Edge 350	40.5"	72"	50.75"	43"	51.5"	69"	150"	5"	38"
Classic Edge 550	42.5"	76"	55.5"	45"	56"	73.5"	151"	5"	37.5"
Classic Edge 750	51"	84.75"	59.75"	53.5"	60.5"	79"	164"	5"	39"

- Measurement (F) is from firebox door to chimney inspection cover.
- Measurement (G) includes two 4 ft. chimney sections.

Outdoor furnace must be installed on a noncombustible surface or foundation that incorporates an enclosure that will prevent supply and return lines from possible exposure to sunlight, fire, or physical damage that may be caused by an occurrence outside the outdoor furnace enclosure. Foundation may consist of concrete, crushed rock, or patio blocks.

NOTES

Sample Parts List for Forced-Air Heating System

NOTE: These lists are intended to be examples only. Actual installations will vary. See your dealer if you have questions concerning your application.

QTY.	P/N	DESCRIPTION
1		Central Boiler Outdoor Wood Furnace
1	107	Heat Exchanger Coil, 125k Btu
1	591	Side-Arm Heat Exchanger Kit
1	2053	Fittings Kit
1	5000392	Water Heater Mixing Valve, 3/4"
1	5800004	Taco 007 Pump
1	224	Isolation Flange Kit, 3/4"
1	588	24-Volt Thermostat
1	198	Ball Valve, 3/4"
1	118	Nipple, 3/4" x close
1	296	Brass Swing Check Valve, 3/4"
6	1330	PEX Adapter, 1" PEX x 3/4" MIP
6	1333	PEX Coupling, 1"
6	1334	PEX 90˚ Elbow, 1"
20	5978	Central Boiler Clamp, 1"
		30' ThermoPEX Pipe, 1" (NOTE: distance between outdoor furnace and installation to be heated will determine quantities)
1	1302	Central PEX 1" Pipe, five 10' straight sections
1	2443	ThermoPEX Cap, 1"
1	6593	Grounding Rod Kit (supplied standard with E-Classic and Maxim models)
1	556	Power Supply Cord, 32"
-	1650	1650XL Inhibitor Plus (amount varies per model; see Owner's Manual)
1	297	Ashtrol, 6.25 lb
1	299	Ash Shovel
1	300	Ash Rake
1	2900001	Hoe
1	1548	Thermostatic Valve Fittings Kit, 3/4"
2	6054	Temperature Gauge (optional)
2	3042	Brass Hex Bushing (optional)

Sample Parts List for Additional Buildings

QTY.	P/N	DESCRIPTION
1	323	Transition
1	322	Fan
1	106	Heat Exchanger Coil, 100k Btu
1	5800004	Taco 007 Pump
1	224	Isolation Flange Kit, 3/4"
1	1267	Line Voltage Thermostat
1	198	Ball Valve, 3/4"
4	1334	PEX 90˚ Elbow, 1"
8	1330	PEX Adapter, 1" PEX x 3/4" MIP
10	5978	Central Boiler Clamp, 1"
1	199	Brass Hose Bib, 3/4" MPT
1	133	Black Tee, 3/4" NPT
1	556	Power Supply Cord, 32"
1	296	Brass Swing Check Valve, 3/4"
1	118	Nipple, 3/4" x close
2	6764	Brass Offset Tee, 4"
1	2500024	Thermostatic Valve, 3/4"
1	1548	Thermostatic Valve Fittings Kit, 3/4"
1	6054	Temperature Gauge (optional)
1	3042	Brass Hex Bushing (optional)

Parts List

QTY.	P/N	DESCRIPTION