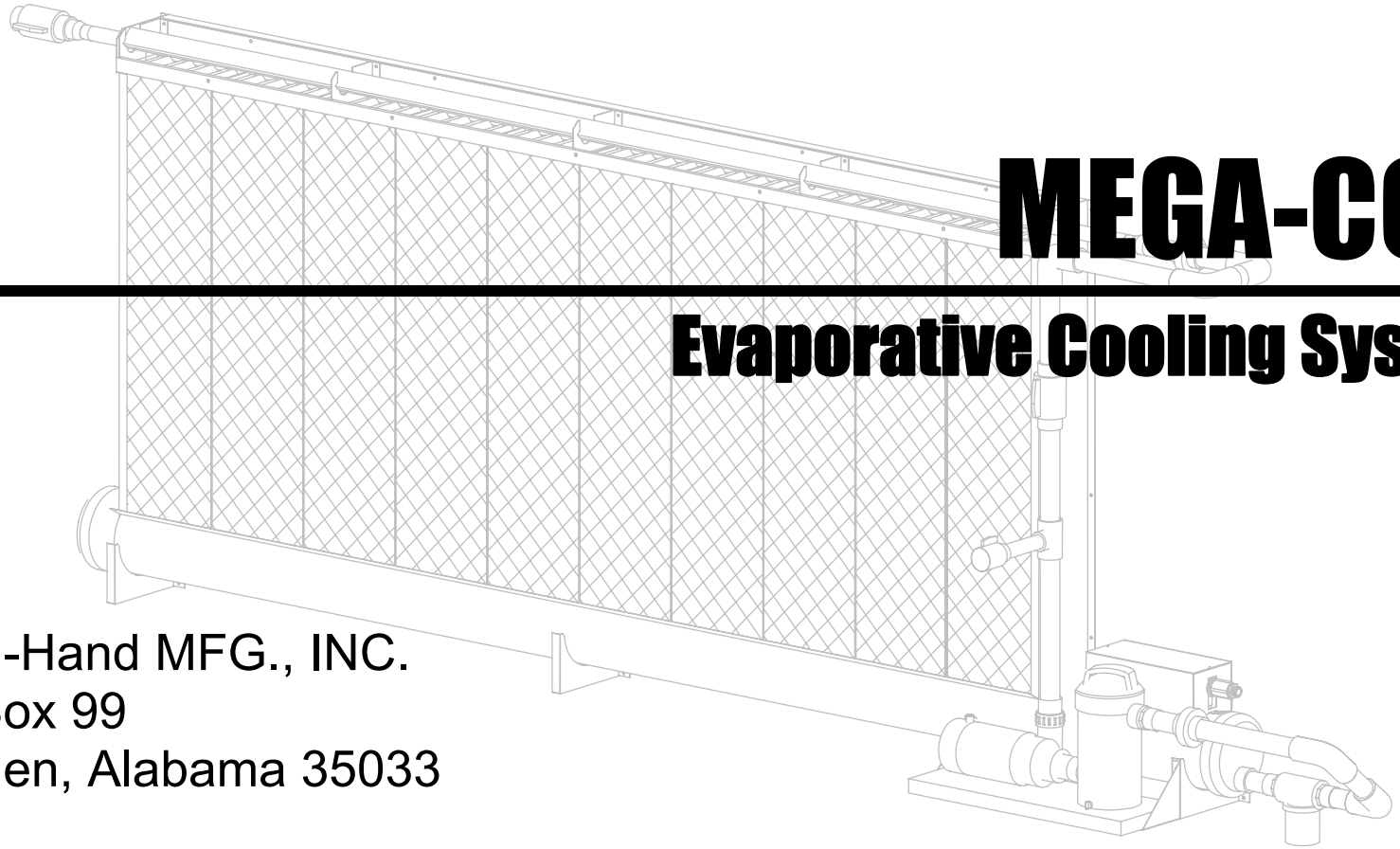
HIRED-HAND®



MEGA-COOL

Evaporative Cooling Systems

Hired-Hand MFG., INC.
PO Box 99
Bremen, Alabama 35033

Manual Part No. 4801-5120 Rev 1-08

Limited Warranty

All products are warranted to be free from defects in material and workmanship for a period of one year from the date of purchase if installed and used in strict accordance with the installation instructions. Liability is limited to the sale price of any products proved to be defective or, at manufacturer's option, to the replacement of such products upon their return. No products are to be returned to the manufacturer, until there is an inspection and/or a return-goods authorization (RGA) number is issued.

All complaints should be directed first to the authorized distributor who sold the product. If satisfaction is not obtained or the name of the distributor is not known, write the manufacturer that appears below, directed to the attention of Customer Service Manager.

This limited warranty is expressly in lieu of any and all representations and warranties expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose. The remedy set forth in this limited warranty shall be the exclusive remedy available to any person. No person has authority to bind the manufacturer to any representation or warranty other than this limited warranty. The manufacturer shall not be liable for any consequential damages resulting from the use of our products or caused by any defect, failure or malfunction of our products. (Some areas do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.)

This warranty gives you specific legal rights and you may also have other rights that vary from area to area.

Warrantor:

Hired-Hand Mfg., Inc.
PO Box 140
1751 County Road 68
Bremen, Alabama 35033
Phone 256-287-7000

Table of Contents

Tools Required

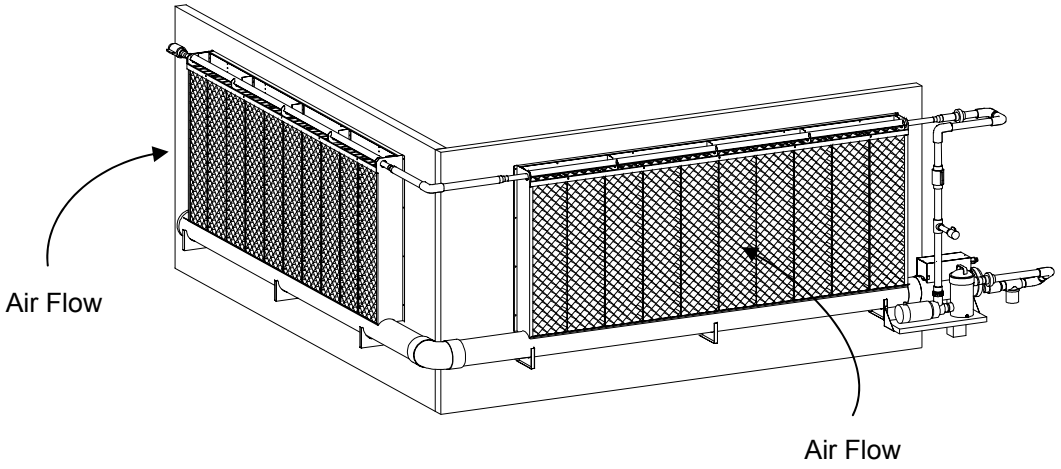
TOOLS REQUIRED		
PVC piping glue	PVC piping cutter	PVC Pipe Cleaner
Circular Saw	Ladder 8' Step	Tape Measure
Level	Chalk line	Wrench
Hammer	Hammer	Hammer
Phillip Head Screwdriver and/or bit for Drill		Nut Driver Set

Purpose of Evaporative Cooling

Evaporative cooling is a time tested efficient means of reducing air temperature by drawing incoming air across a wetted surface. Evaporative cooling is especially useful in situations where air inside the space is not re-circulated. The efficiency and the cooling ability evaporative cooling possesses makes it a wise choice for agricultural and horticultural buildings.

Theory

Evaporative cooling needs only two factors to work, water and moving air. When air is moved across a wet surface, some of the water on the surface evaporates. This action draws heat from the moving air, cooling and humidifying the incoming air.



Description of System

Mega-Cool is the brand name of evaporative cooling system from Hired-Hand. Each Mega-Cool system uses a continuous bank of evaporative cooling pads and water to cool incoming air.

Mega-Cool evaporative cooling systems may be broken down into individual groups. The basic groups are defined by their collective purposes. These groups are: reservoir, fill line, in-line pump kit, sump pump kit, supply line, spray line, and pads.

Reservoir The reservoir serves a dual purpose. It holds the water supply for the pump, and collects the water returning from the pads. It consists of eight inch (20.3 cm) PVC piping.

Fill line The fill line supplies make up water to the system.

In-Line Pump kit The pump kit includes the In-Line Pump, shutoff valves, bleed off line, and strainer. This section provides the force for moving water from the reservoir to the supply line.

Supply line The supply line carries water from the In-Line Pump kit to the spray line. This section is made of one and a half inch (3.8 cm) PVC piping and various fittings.

Spray line The spray line is constructed of 1-1/4" inch (3.2 cm) PVC pipe with holes drilled in the line along the top. These holes are drilled a certain distance apart depending on the size of pad you have. When water is pumped to the spray line, water shoots out the holes onto the distribution plate, then drops into the pads.

Pads Constructed of cellulose fibers formed into corrugated blocks. When water flows down the system, and air is drawn through the pads, the air evaporates some of the water, becoming much cooler. When the water reaches the bottom of the pads, it drips back into the reservoir.

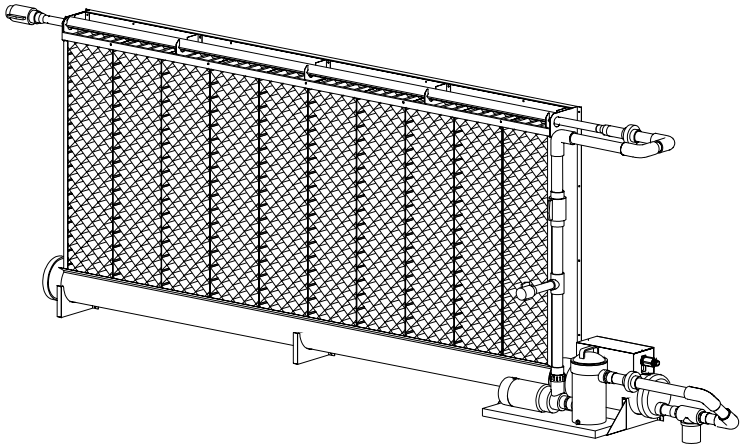
In-Line System Configuration Options

The Mega-Cool system can be mounted in various setup configurations depending on the application requirements. Know the application requirements before starting the Mega-Cool installation.

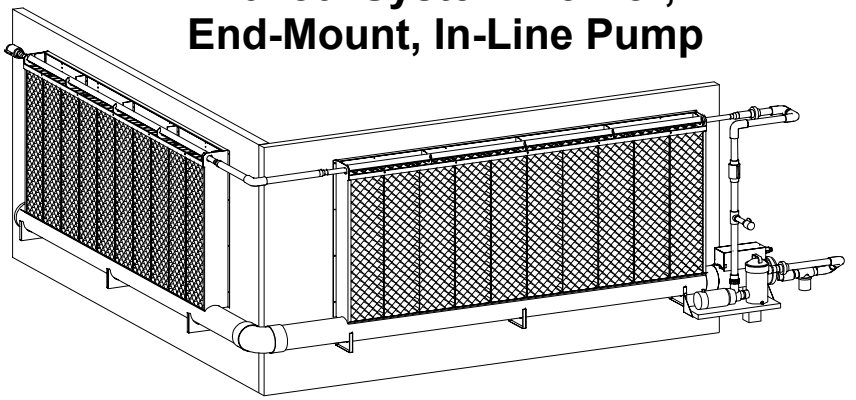
The step-by-step details will vary slightly with different setup options. The main portion of the step-by-step instructions refer to the most commonly used straight systems. Refer to the system specific figures for additional details. Some of the pads have been removed from the figures for clarity.

Examples of application configurations:

10’-80’ System Straight, End-Mount, In-Line Pump

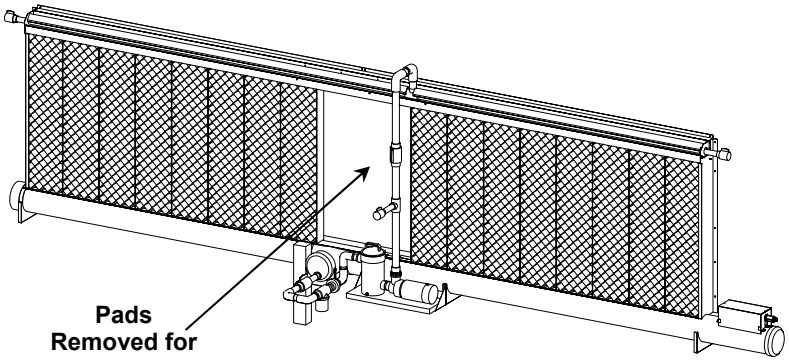


10’-80’ System Corner, End-Mount, In-Line Pump

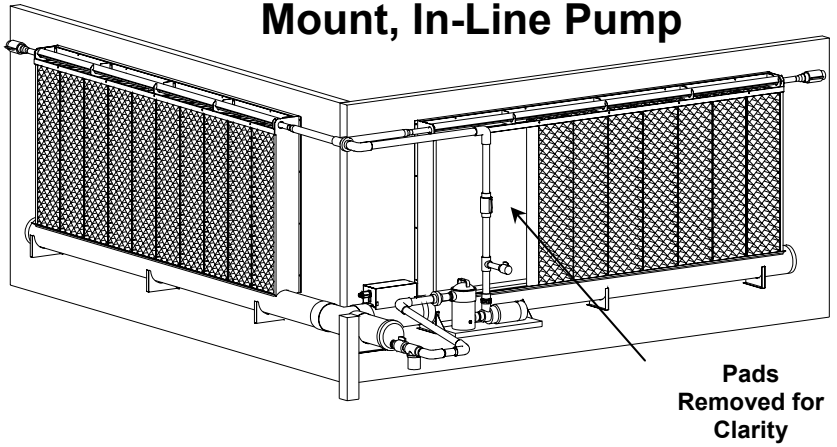


NOTE for CORNER APPLICATIONS:
If the two sections are not equal in length, the pump should mount on the long side.

10’-120’ System Straight, Center-Mount, In-Line Pump



10’-120’ System Corner, Center-Mount, In-Line Pump



Sump Pump System Configuration Options

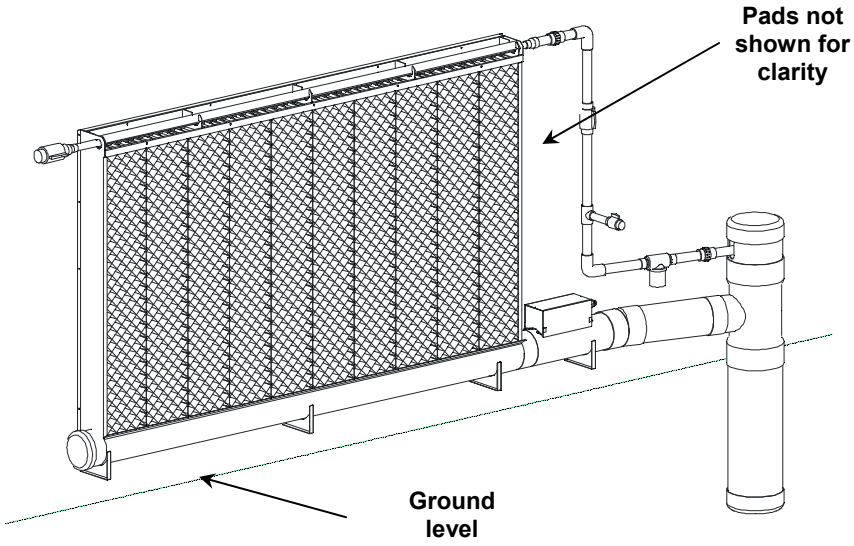
The Mega-Cool system can be mounted in two sump pump configurations depending on the application requirements. Know the application requirements before starting the Mega-Cool installation.

Some of the pads have been removed from the figures for clarity.

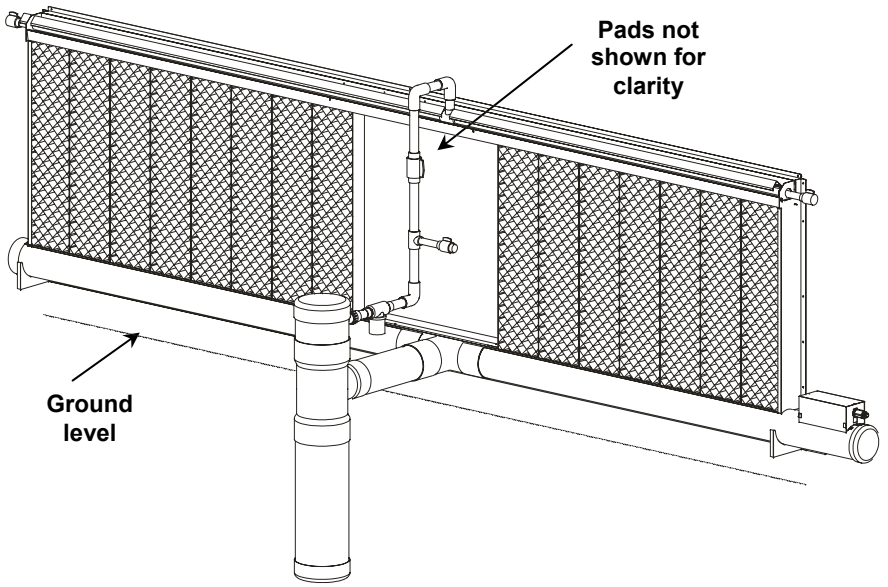
Refer to the system specific figures for additional details.

Examples of sump pump application configurations:

10’-80’ System Straight, End-Mount, Sump Pump



10’-120’ System Straight, Center-Mount, Sump Pump

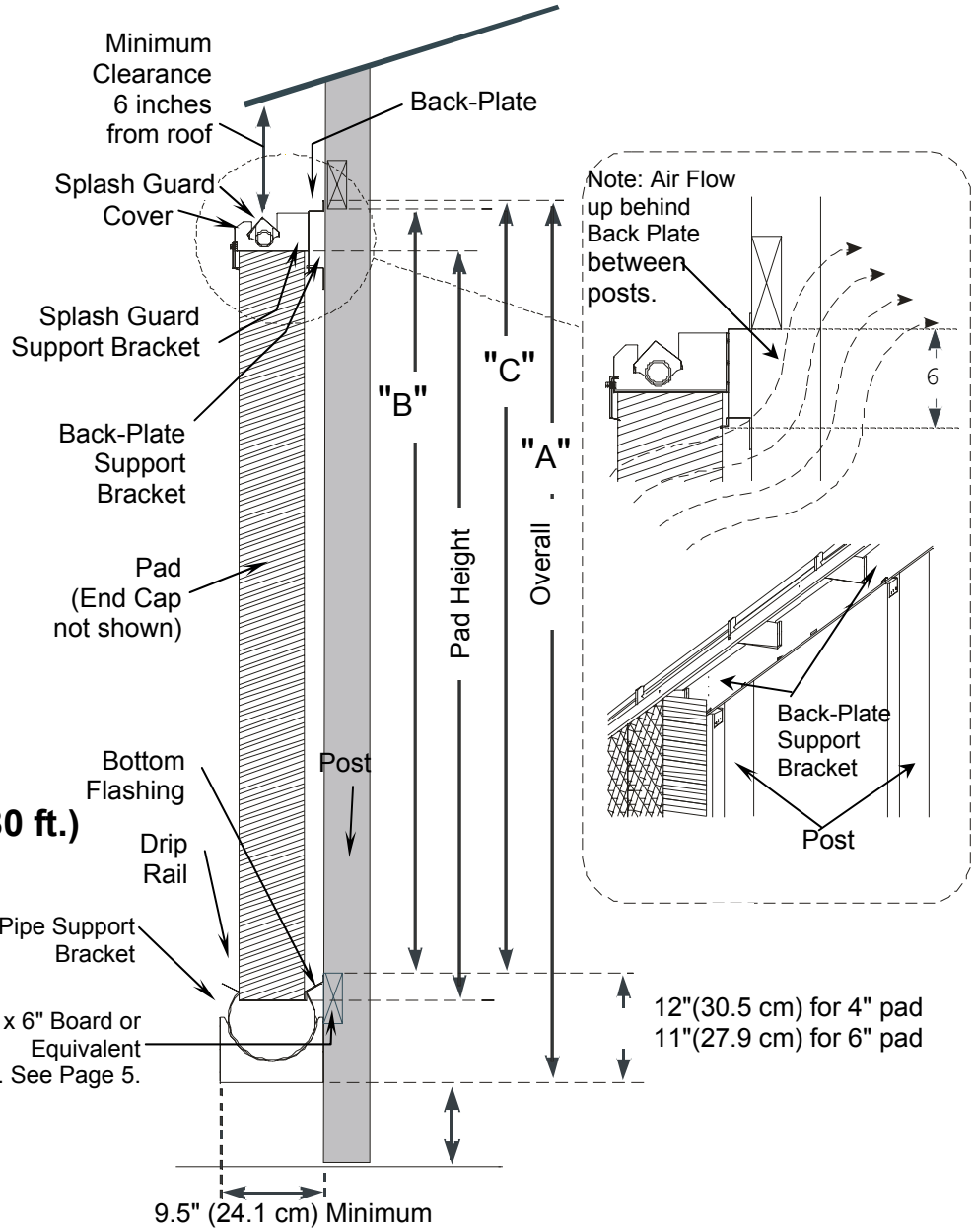


Framing Diagram For Systems Up To 80 Ft.

	Dimension ("A")			
	(6" PAD)		(4" PAD)	
4 ft Pad	61 1/8 in.	155.23 cm	62 1/8 in.	157.80 cm
5ft Pad	73 1/8 in.	185.74 cm	74 1/8 in.	188.23 cm
6ft Pad	85 1/8 in.	216.22 cm	86 1/8 in.	218.76 cm

	Rough Opening Dimension ("B")			
	(6" PAD)		(4" PAD)	
4 ft Pad	49 1/8 in.	124.78 cm	50 1/8 in.	127.32 cm
5ft Pad	61 1/8 in.	155.26 cm	62 1/8 in.	157.80 cm
6ft Pad	73 1/8 in.	185.74 cm	74 1/8 in.	188.23 cm

	Dimension ("C")			
	(6" PAD)		(4" PAD)	
4 ft Pad	50 1/8 in.	127.32 cm	51 1/8 in.	129.85 cm
5ft Pad	62 1/8 in.	157.80 cm	63 1/8 in.	160.34 cm
6ft Pad	74 1/8 in.	188.28 cm	75 1/8 in.	190.82 cm



Installation Cross-Section (Systems Up To 80 ft.)

1. Drawing shown to the right is an overview of a completed Mega Cool System without the left end cap.

2. The figure details the overall dimensions for each pad system and minimum clearance from roof.

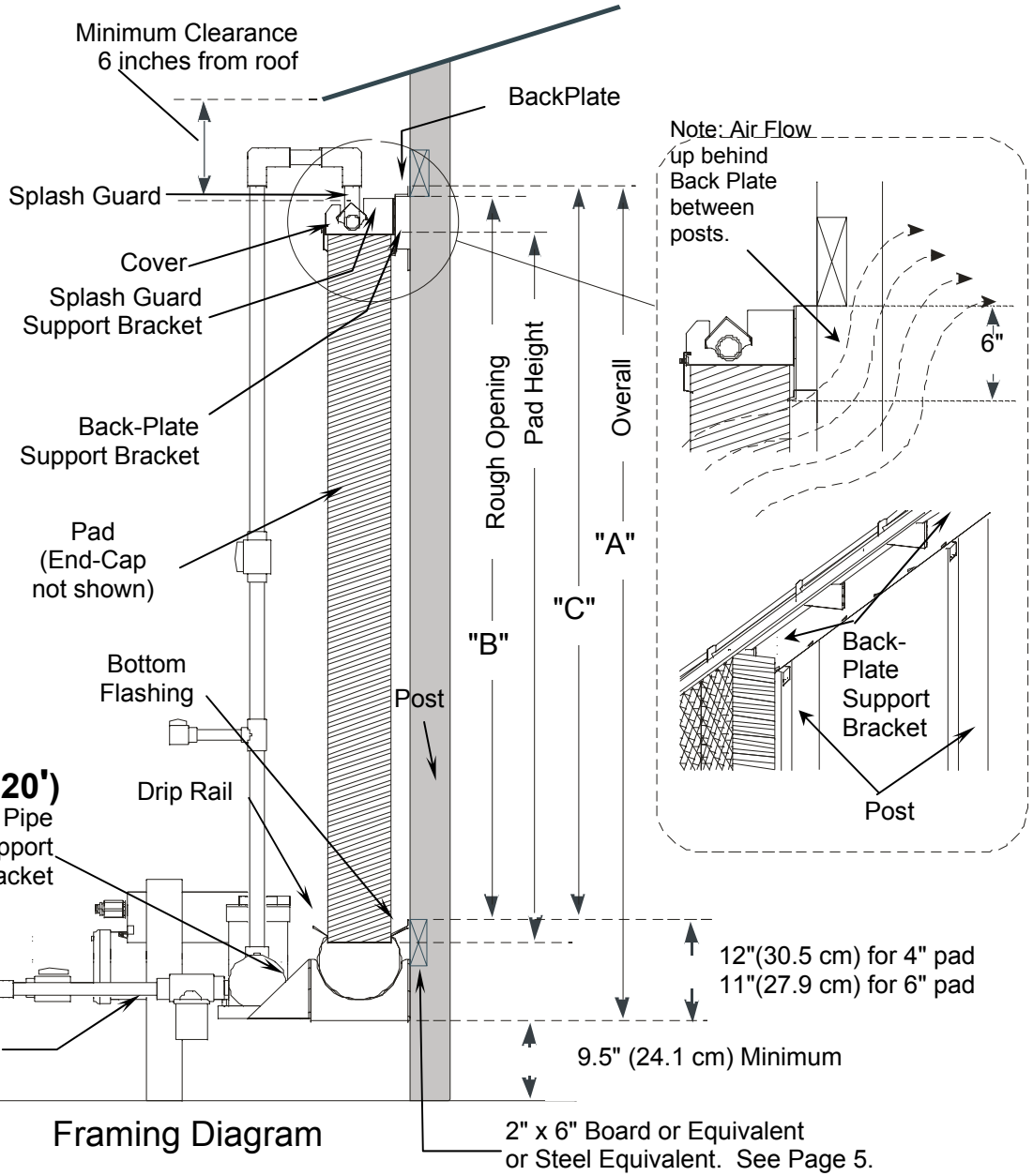
NOTE: 2x6 refers to U. S. finished lumber measurements.

Framing Diagram For 10' To 120 Ft. Center-Mount Systems

	Dimension ("A")			
	(6" PAD)		(4" PAD)	
4 ft Pad	61 1/8 in.	155.23 cm	62 1/8 in.	157.80 cm
5ft Pad	73 1/8 in.	185.74 cm	74 1/8 in.	188.23 cm
6ft Pad	85 1/8 in.	216.22 cm	86 1/8 in.	218.76 cm

	Rough Opening Dimension ("B")			
	(6" PAD)		(4" PAD)	
4 ft Pad	49 1/8 in.	124.78 cm	50 1/8 in.	127.32 cm
5ft Pad	61 1/8 in.	155.26 cm	62 1/8 in.	157.80 cm
6ft Pad	73 1/8 in.	185.74 cm	74 1/8 in.	188.23 cm

	Dimension ("C")			
	(6" PAD)		(4" PAD)	
4 ft Pad	50 1/8 in.	127.32 cm	51 1/8 in.	129.85 cm
5ft Pad	62 1/8 in.	157.80 cm	63 1/8 in.	160.34 cm
6ft Pad	74 1/8 in.	188.28 cm	75 1/8 in.	190.82 cm



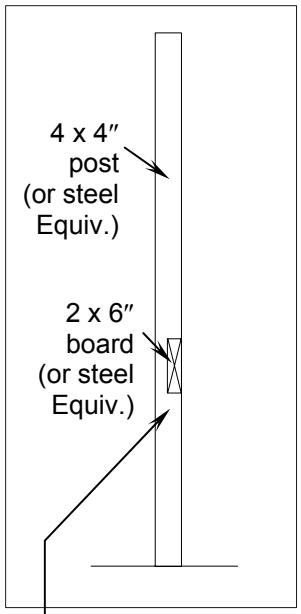
Framing Diagram

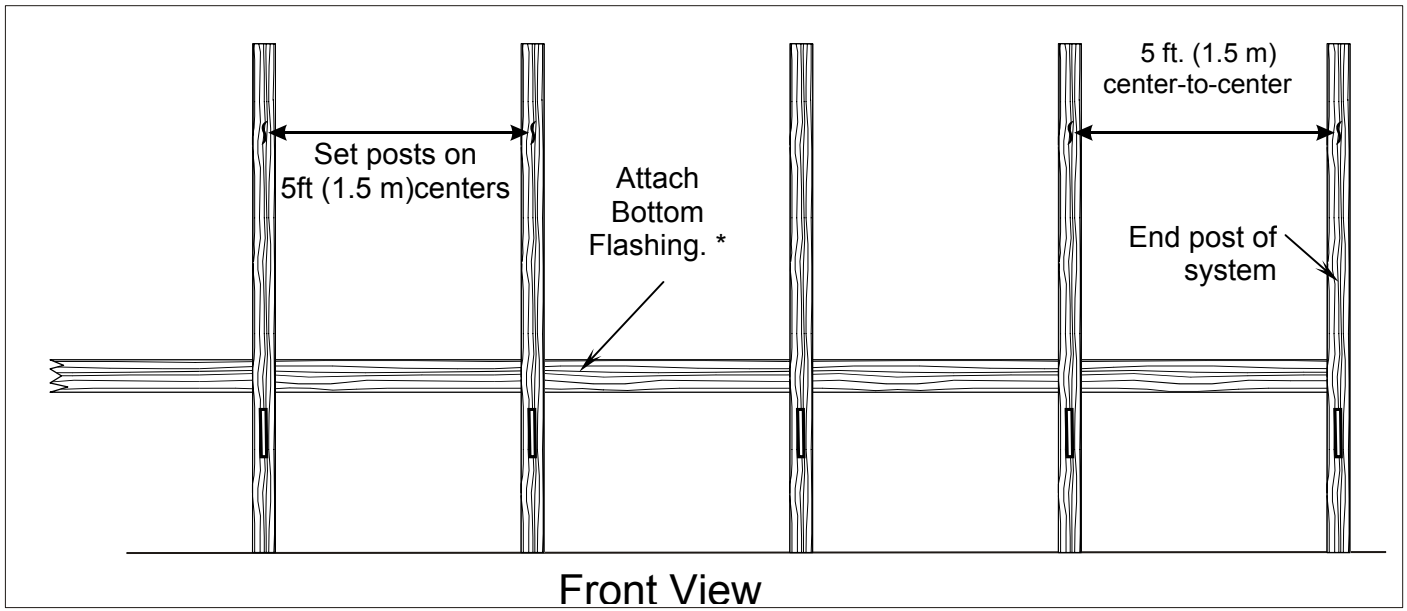
Installation Cross-Section (Systems 10' to 120')

1. Drawing shown to the right is an overview of a completed Mega Cool Center-Mounted Pump System without the left end cap.

2. The figure details the overall dimensions for each pad system and minimum clearance from roof.

NOTE: 2x6 refers to U. S. finished lumber measurements.





Front View

2x6" FILLER BOARDS
2x6" filler boards are necessary to secure the bottom flashing to the wall.

The bottom flashing serves as a splash-guard and fills the gap for improved air flow.

Fit 2x6" filler boards in between posts and flush with front of posts.

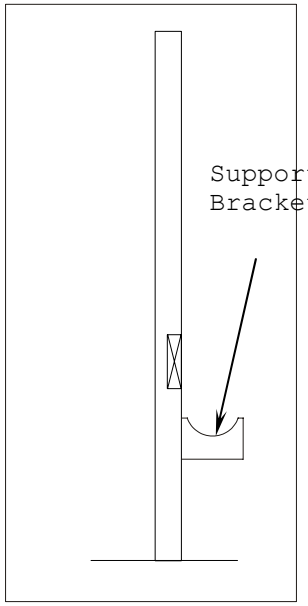
NOTES:

- In-Line Pump location will vary depending on setup option.
- Pads come in 4 ft, 5 ft, or 6 ft Heights; Pads come in 4 inch or 6 inch thickness.

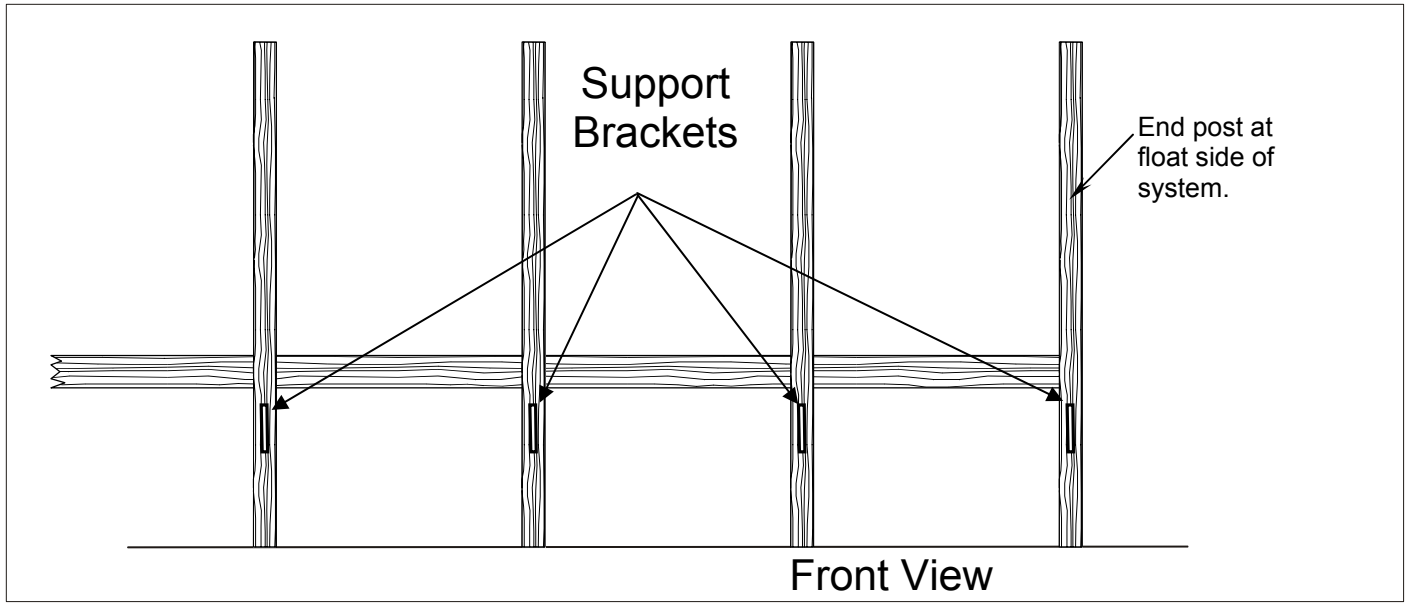
Framing

1. Refer to Page 3 and 4 Installation Cross-Section for the framing dimensions of the pads you are installing.
2. Make opening in wall equal to the length of pad and the height of pad.
3. Frame the opening with treated lumber as shown above. Make sure boards are level.

NOTE: Use steel equivalent to frame opening if installing Mega-Cool system to steel building.



Side View



Front View

8" Pipe Support Brackets

1. Install the 8" pipe support brackets so the system will have 1" of drop toward the In-Line Pump for proper water supply. Determine the height at which the bottom of the MegaCool system should be mounted above the ground. Make a mark on each end post to represent the height.

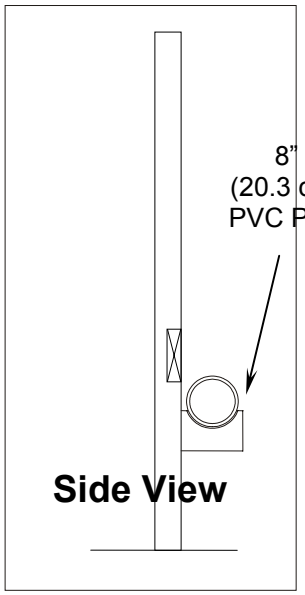
NOTE: If a Center-Mount In-Line Pump System is being installed, the support brackets should be MOUNTED LEVEL WITHOUT THE 1" DROP

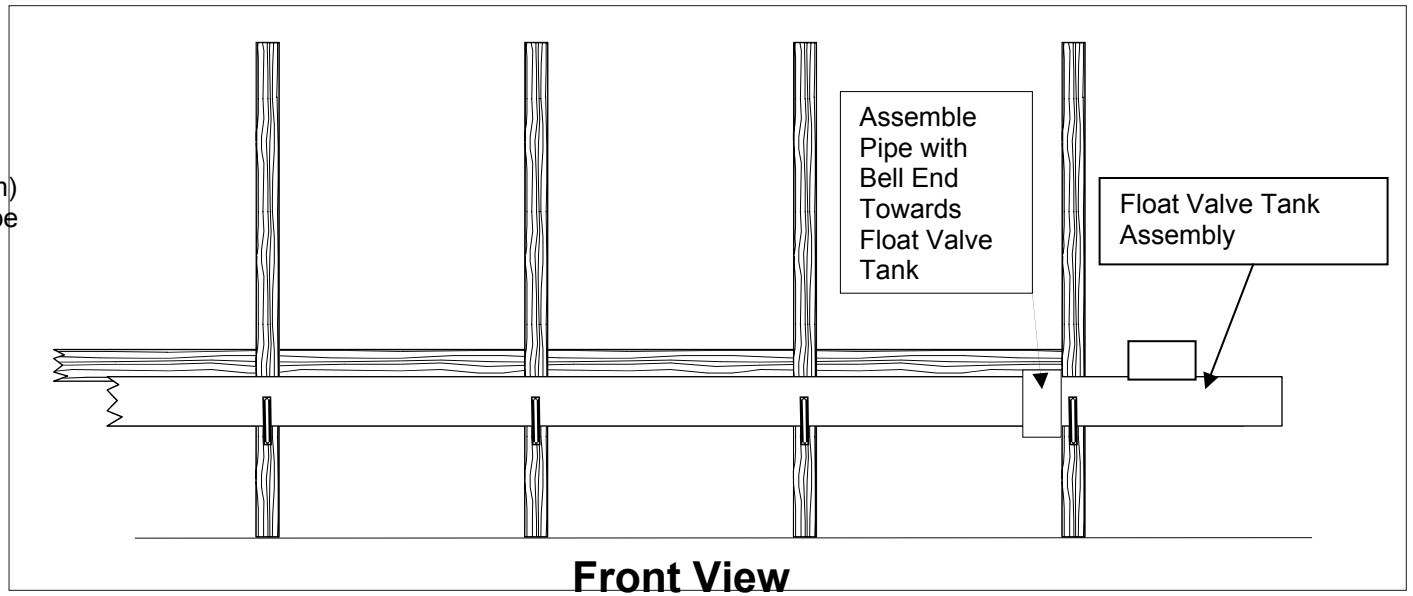
IMPORTANT: The height of the bottom of the System should be a minimum of 9 ½" inches above the ground in order to elevate the pump above ground. Failure to do so may void the motor warranty.

2. Stretch chalk line between marks of end posts and mark all posts of system.

3. For each post of system, align bottom edge of metal support bracket with mark on post. Securely mount metal support brackets on centers of 4x4" posts, not more than 5 ft. (1.52 m) O. C. (on center).

4. Secure metal support brackets to wooden posts with ¼ x 2" Lag screws, or secure metal support brackets to steel posts with #14 x 1" Hex Head TEK screws.



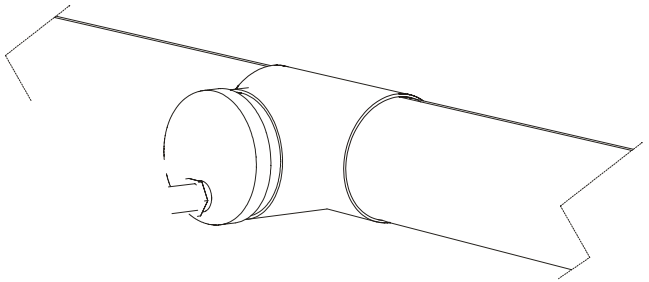


Install 8" (20.3 cm) PVC Pipe

1. Line up the 6.5” wide parallel dotted lines on the 8” (20.3 cm) PVC pipe and glue the sections together with bell end toward pump end to make length of system. Center the float valve tank between the dotted lines. Then glue float valve tank assembly to the pipe. For example, for a system with 50’ of pad, the 8" pipe will be 53’ (2 ½ ft. on the float tank end and 6 inches extending past the post on the opposite end.)

   NOTE: If a Center-Mount In-Line Pump System is being installed, the 8” Tee should be installed in the middle of the 8” pipe.

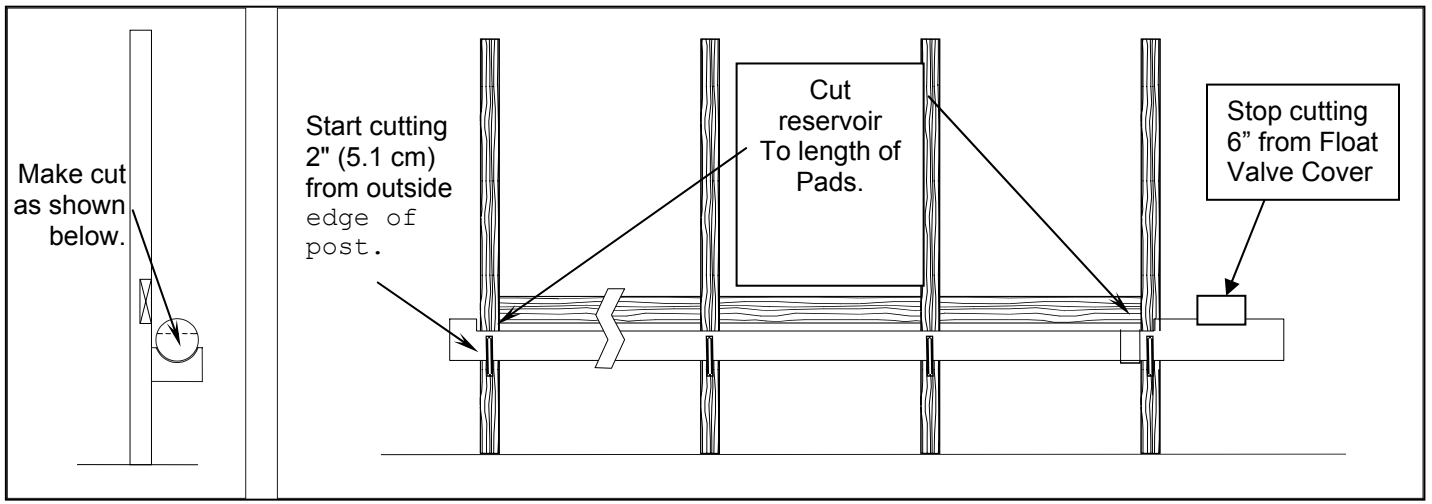
2. Place assembled pipe into brackets.
3. Adjust pipe assembly to extend end opposite pump 6” past the post.



8” Tee
(Center-Mount System ONLY)

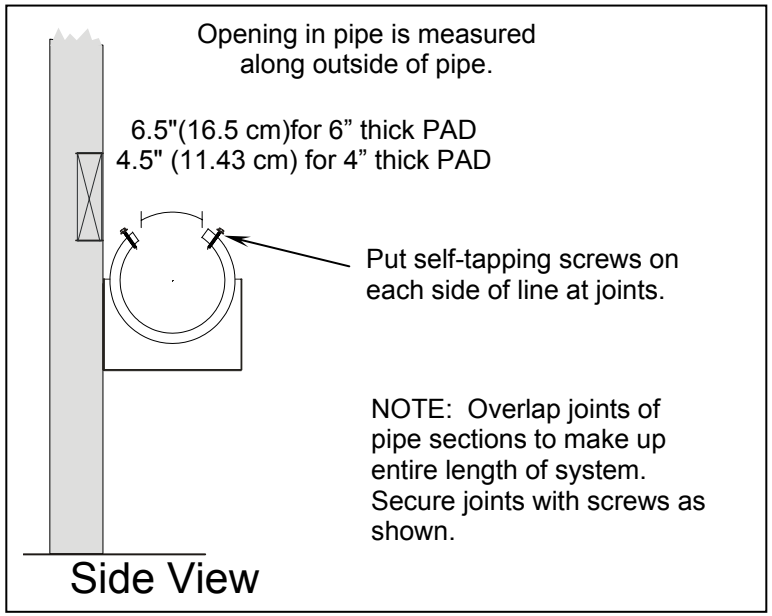
Procedures for Gluing PVC Pipe

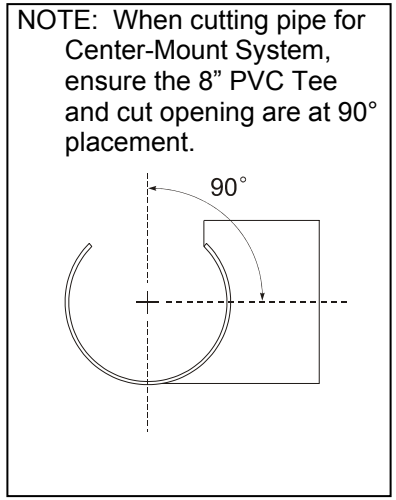
1. Square ends of pipe.
2. Clean pipe and fitting with PVC cleaner.
3. Check dry fit of pipe and fitting.
4. Apply thin coat of cement inside of fitting. (Use care when greater than 85°F).
5. Apply liberal coating to outside of pipe to depth of socket.
6. Assemble parts quickly. Cement must be fluid.
7. Insert pipe into socket using a 1/4 turning motion.
8. Hold pipe and fitting together for 30 seconds. Wipe off excess glue.
9. Wait 15 minutes before rough handling.
10. Do not apply fluid pressure until cement is fully cured (At least one hour).



Side View

Front View





8" PVC Tee (Center-Mount System ONLY)

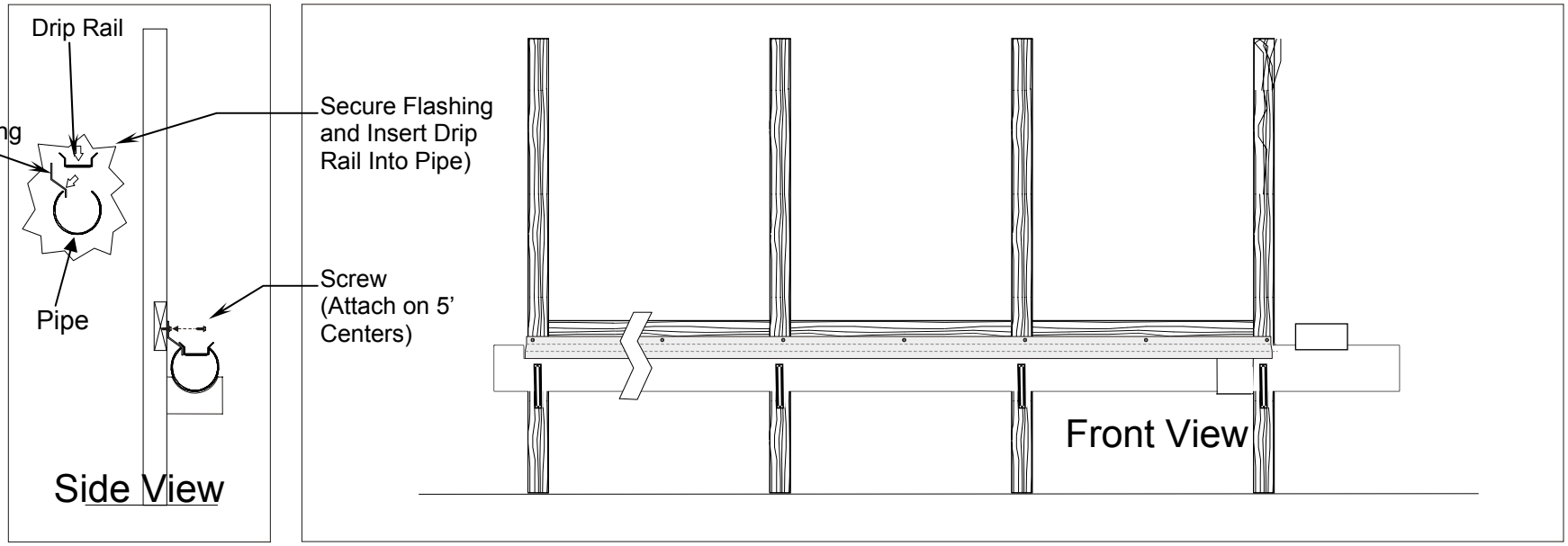
Cut Pipe to Allow for Pads

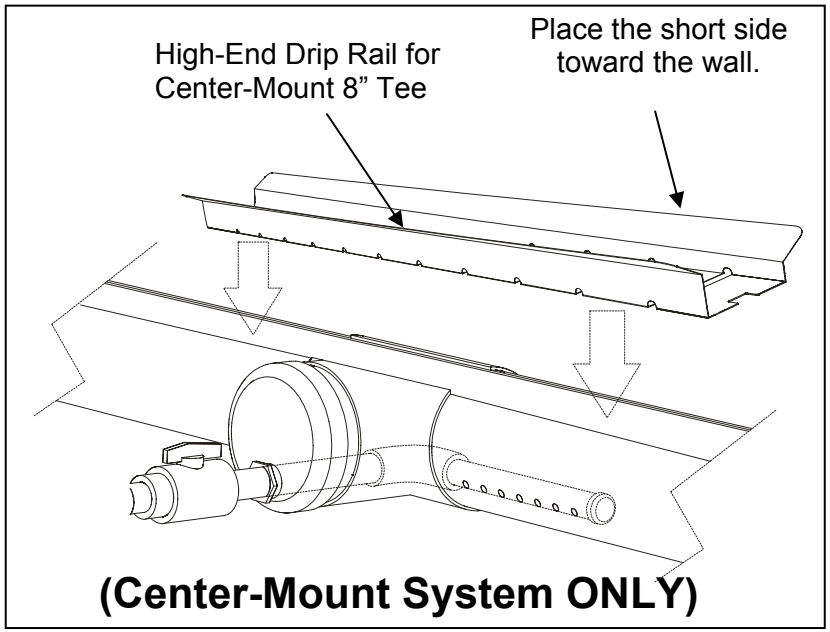
1. At each pipe joint, put self-tapping screws on each side of 6.5" wide parallel dotted lines printed on the pipe, as shown in diagram at left.

2. Start cutting at least 2" (5 cm) from end of pipe as shown above. Cut along the parallel dotted lines. Finish cuts at point where pads will stop. NOTE: Do not cut pipe into Float Valve Tank slot. Stop 6" from Cover. Do not cut pipe all the way to the end, as it will be impossible to assemble the end cap!

3. Remove and discard cut-out section of PVC pipe.

4. If using 4" thick Pad, mark with chalk line, two parallel lines running along the length of pipe. These lines should be at a distance apart of 4.5" (11.43 cm) cm as measured along the outside of pipe. Then cut out section of PVC pipe and follow note 2 and 3.



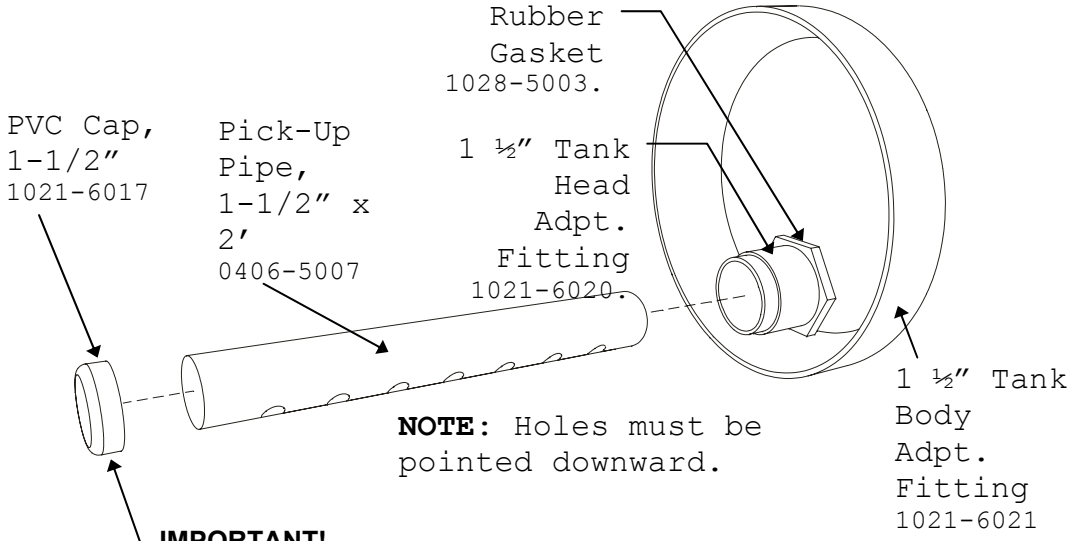


Install Bottom Flashing and Drip Rails

1. Place bottom flashing and drip rails along the cut in the pipe as shown.

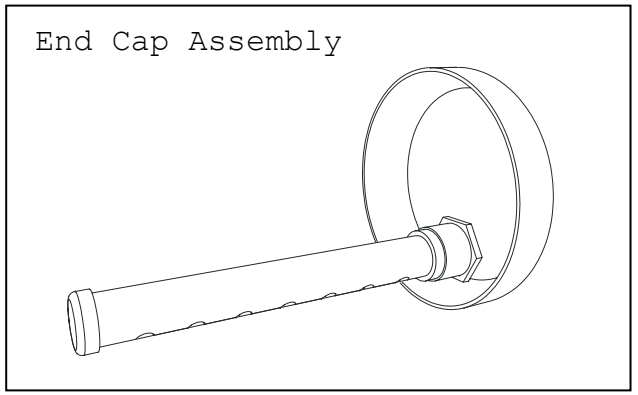
NOTE: If a Center-Mount In-Line Pump System is being installed, the high-end drip rail should be installed as shown at left. The high-end drip rail will ship with the center-mount In-Line Pump supply kit. Refer to Supply Kit Numbers shown on Page 39.

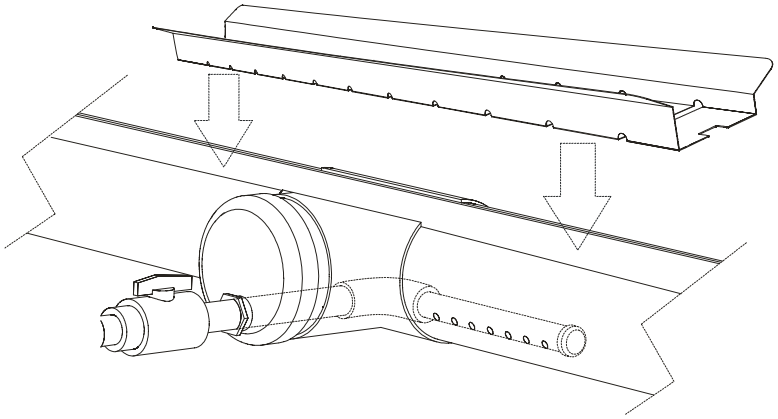
2. Secure the bottom flashing to the columns and stringers as shown.

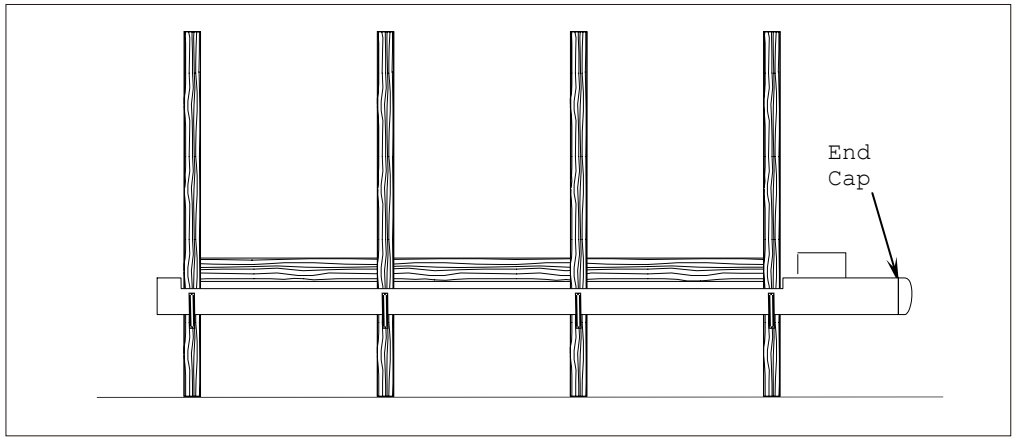


IMPORTANT!
Be sure to glue end cap onto end of suction pipe! This will affect the way pump will prime!

End cap for connecting reservoir to pump supply line.







NOTE: End cap assembly shown above-right glues onto the pump side of the reservoir.

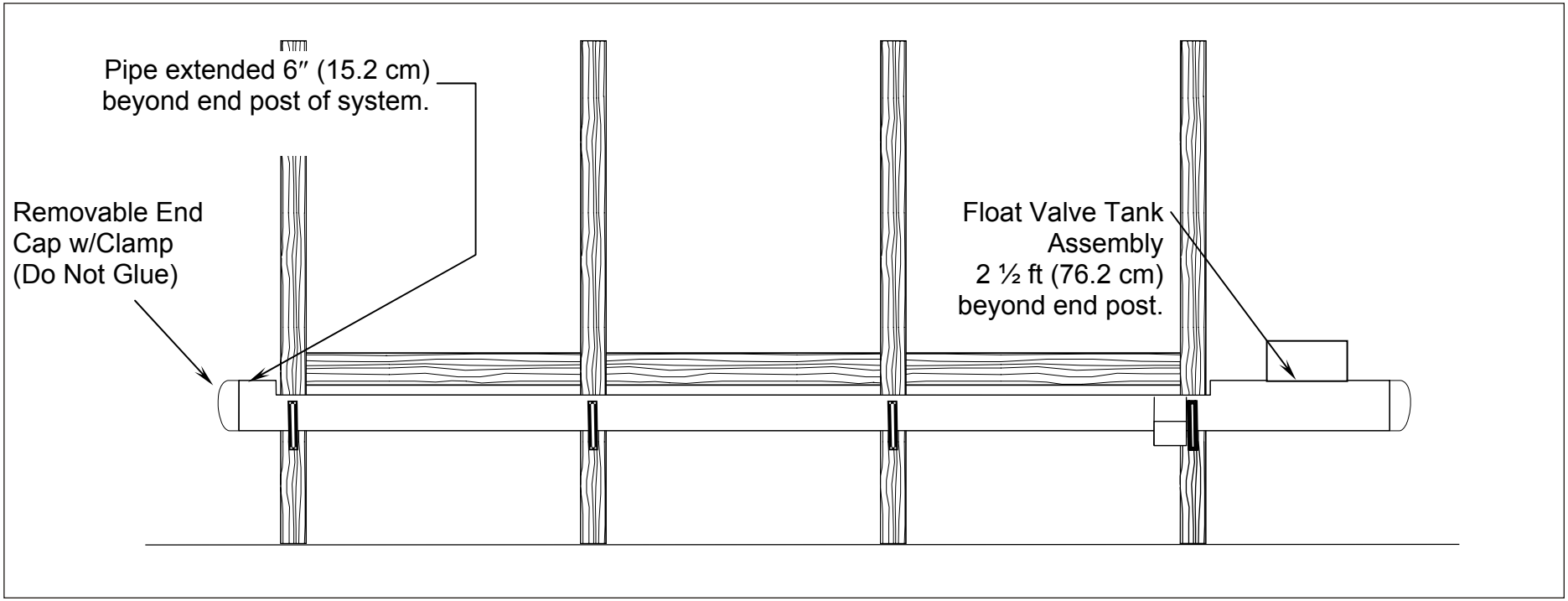
Install PVC End Caps

1. Glue 1 ½" end cap of Pick-Up Pipe onto end of pipe as shown in diagram above left. Rotate Pick-Up Pipe to orient holes facing downward. Glue Pick-Up Pipe into pipe adapter fitting on inside of end cap as shown above.

NOTE: If a Center-Mount In-Line Pump System is being installed, the Pick-Up Pipe should be installed as shown above.

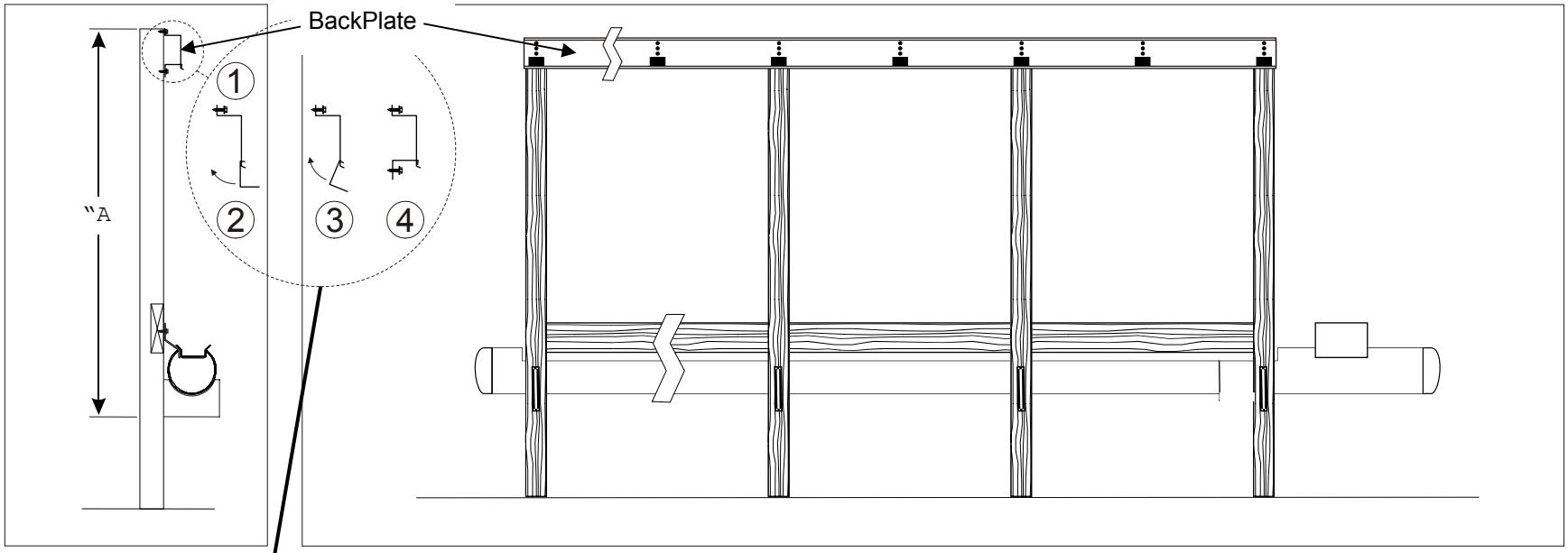
2. Glue PVC end cap assembly into 'In-Line Pump side' of reservoir.

IMPORTANT! Before gluing, rotate PVC end cap assembly to place Pick-Up Pipe at bottom of reservoir.



Install Removable End Cap

1. Removable end cap should be installed on end opposite the pump side of the reservoir unless a Center-Mount System is installed. Removable End-Caps should be installed on both ends if a Center-Mount system is used. **DO NOT GLUE ON REMOVABLE END-CAPS**. Tighten worm gear clamp provided with Removable End-caps to pipe.



End View

Front View

Assembly of BackPlate

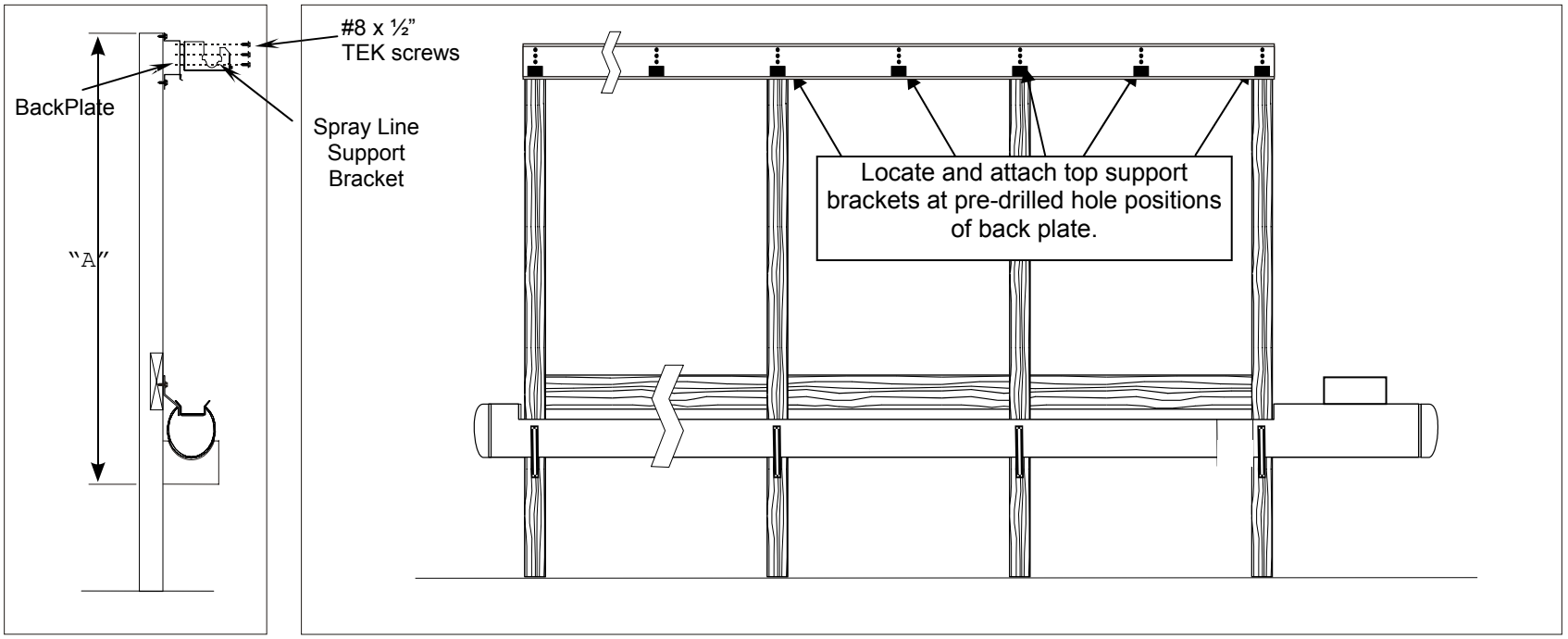
(1) Install top of BackPlate.
(2) Hook BackPlate Supports in bottom holes of BackPlate. There are 3 Supports per BackPlate. One on each end and one in the middle.
(3) Rotate BackPlate Support Brackets up into position.
(4) Attach with screws.

Install BackPlate

1. Refer to diagram at left. At end post of system on opposite end from float valve, measure dimension "A" as shown and mark post. See the Framing Diagram on Page 5 and 6 for dimension "A".
2. At the other end post of system (end post at float valve side of system) ***measure dimension "A" minus one inch (2.5 cm)*** and mark post. This provides a 1" drop for proper water flow.

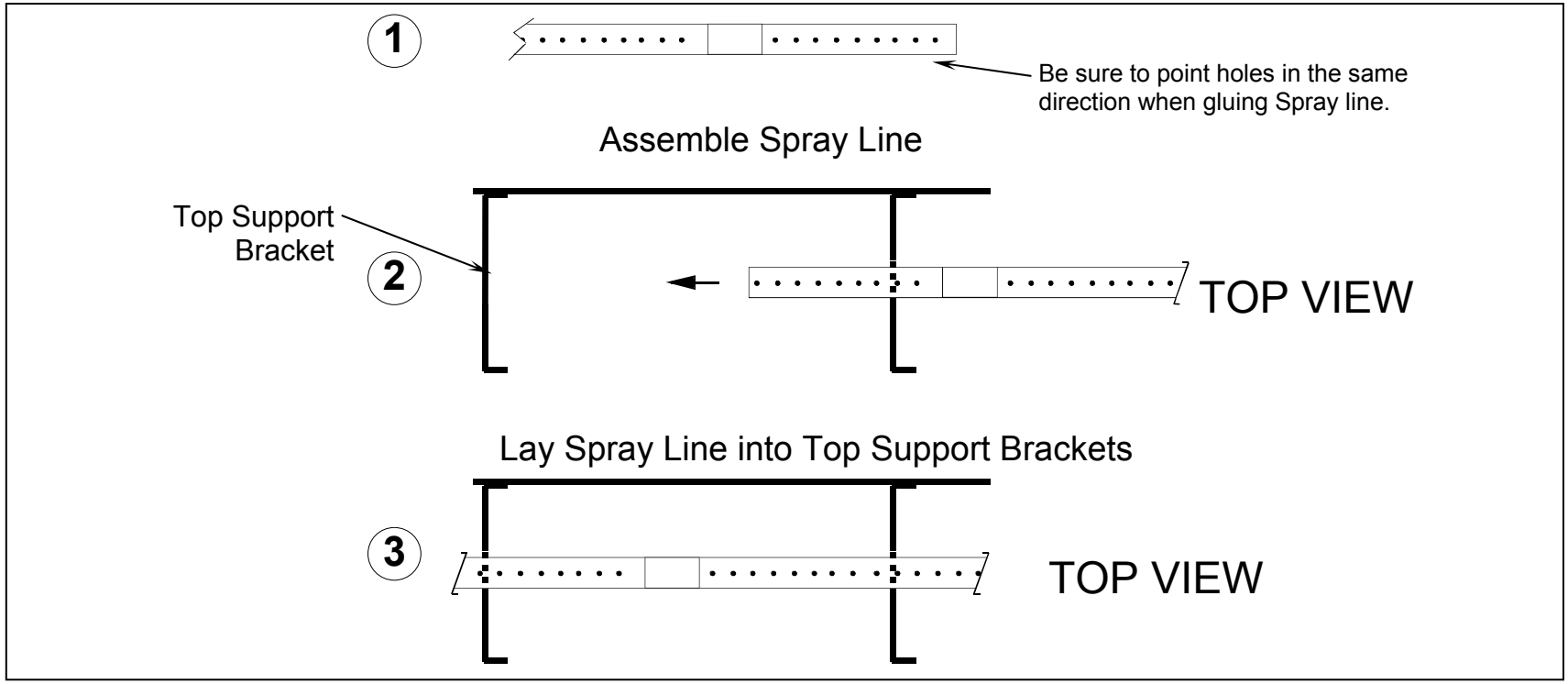
NOTE: If a Center-Mount In-Line Pump System is being installed, the BackPlate should be MOUNTED LEVEL WITHOUT THE 1" DROP.

3. Stretch chalk line between marks of end posts and mark all posts of system.
4. For each post of system, align top edge of BackPlate with mark on post. Assemble BackPlate as shown in diagram at left. Securely mount BackPlate on centers of 4x4" posts, not more than 5 ft. (1.52 m) O. C. (on center).
5. Secure BackPlate to wooden framing with #10 x 1" Hex Head screws, or secure BackPlate to steel framing with #12 x 1" Hex Head TEK screws.

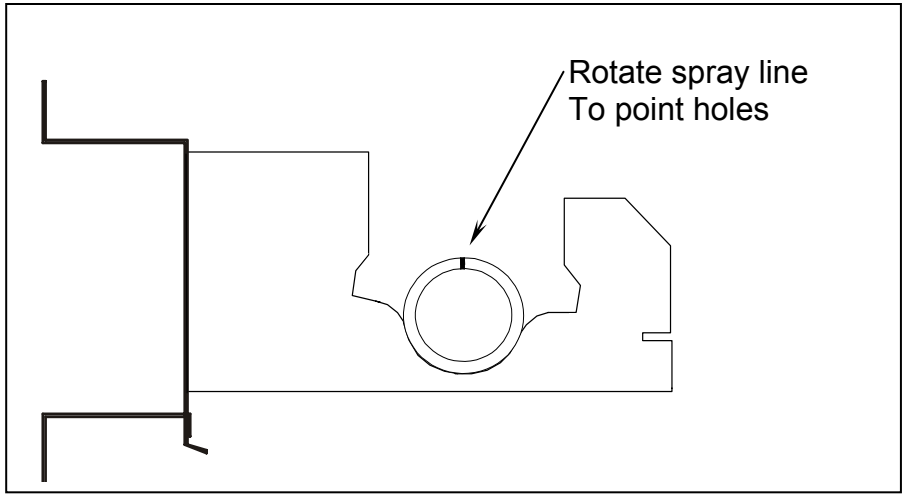


Install Spray Line Support Brackets

1. Make sure BackPlate is at proper framing height.
2. Attach spray line support brackets with #8 x ½" TEK screws at the pre-drilled hole positions as shown in diagram above.



Spray Line Installed With Holes Upward

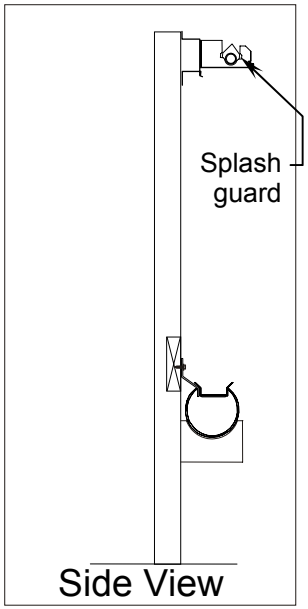


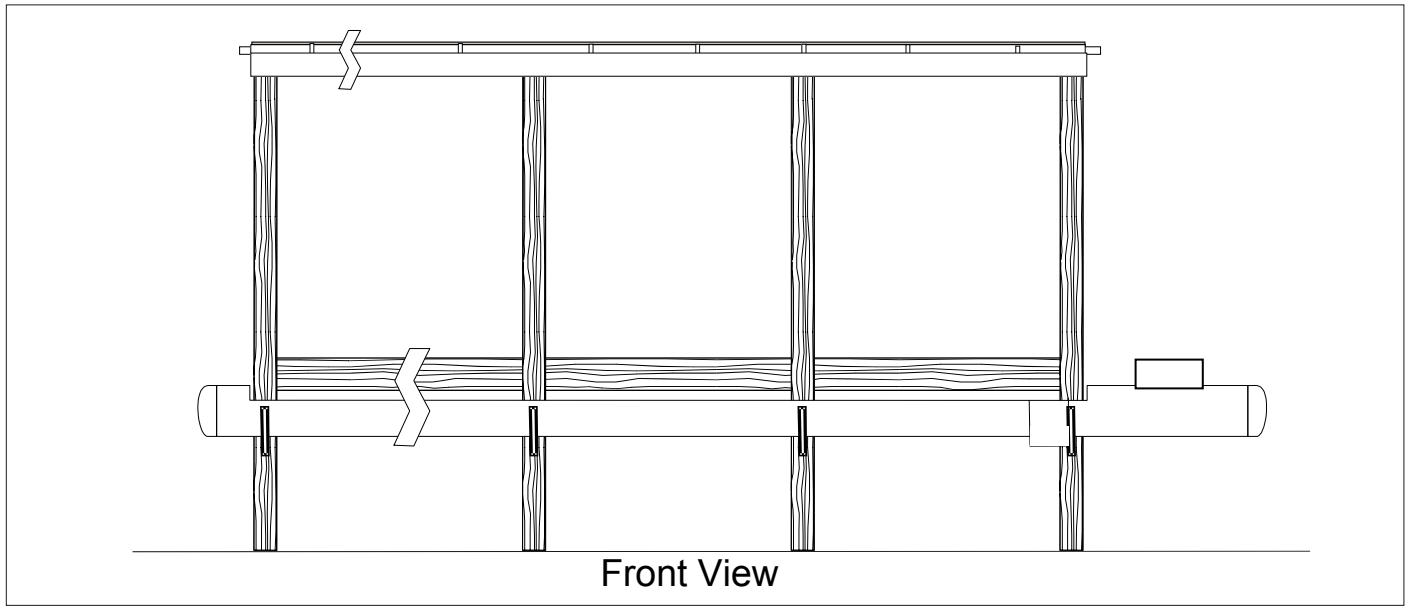
Install Spray Line

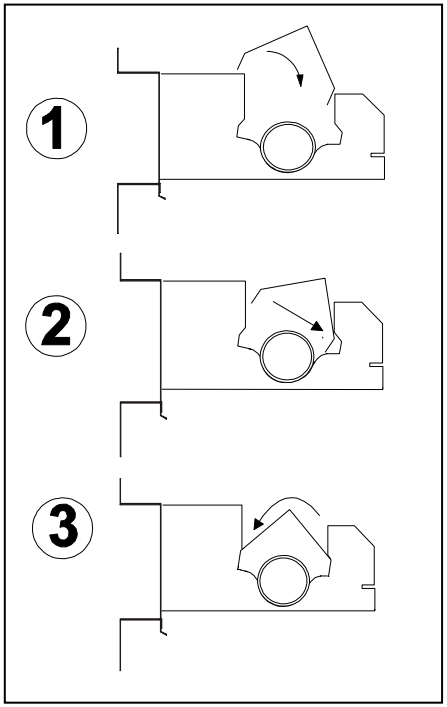
1. Glue spray line sections together. Important! Glue joints with spray line holes pointed in the same direction. Allow glue to dry.

NOTE: If a Center-Mount In-Line Pump System is being installed, the spray line must have a tee joint in the middle. Refer to the Center-Mount System Diagram on Page 25. Spray line tee installation will be simplified if the spray line is cut after the In-Line Pump & supply line is plumbed and the correct tee placement verified.

2. Insert spray line assembly into one end of top bracket. Slide assembly until spray line spans entire length of top bracket.
3. Rotate spray line to place holes facing upward. (NOTE: Side View shown at left).







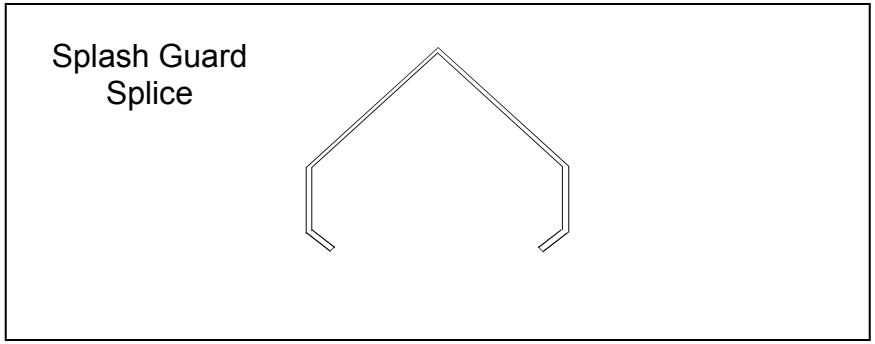
Insert splash guard into support bracket

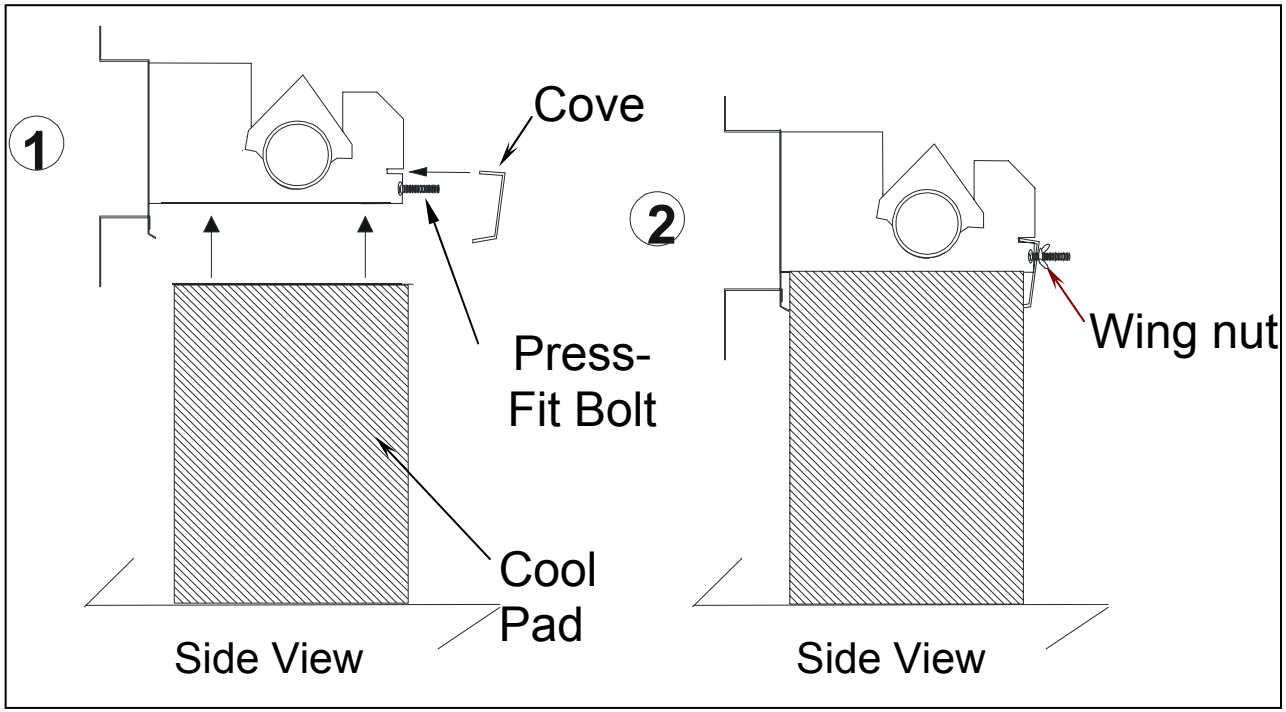
Press front of splash guard into bracket as shown.

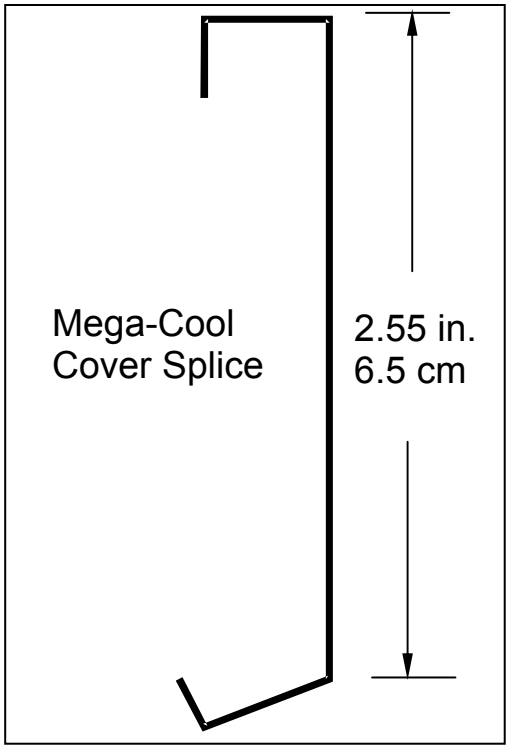
Squeeze and twist splash guard downward to snap splash guard into place.

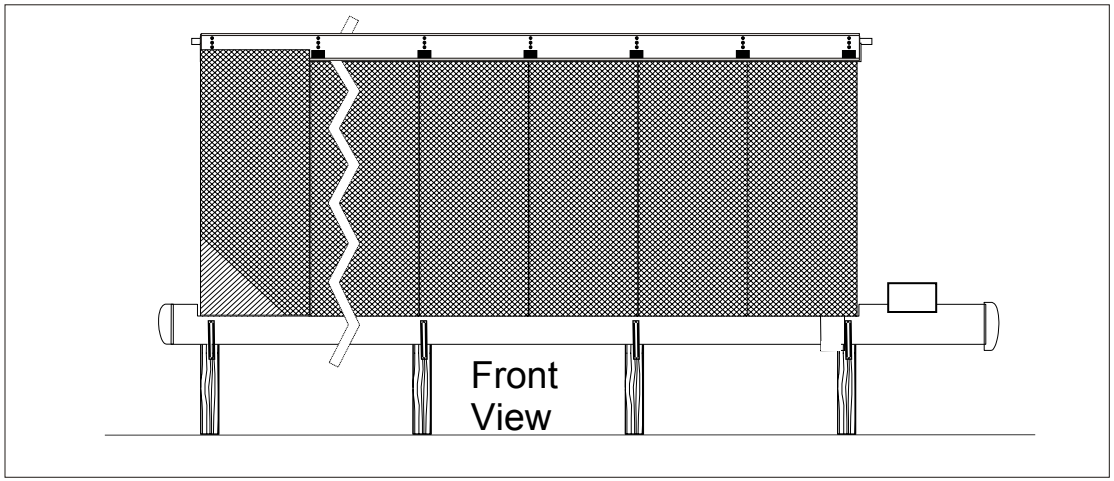
Install Splash Guards

1. Insert splash guard into support bracket as shown in diagram at left.
2. Press front edge of splash guard against support bracket as shown.
3. Use both hands to grip splash guard near midpoint. Squeeze and rotate splash guard downward until splash guard locks into position in the support bracket.
4. Add a splash guard splice to each joint where two splash guards abut. Splash guard splice clips over joint. See diagram below.





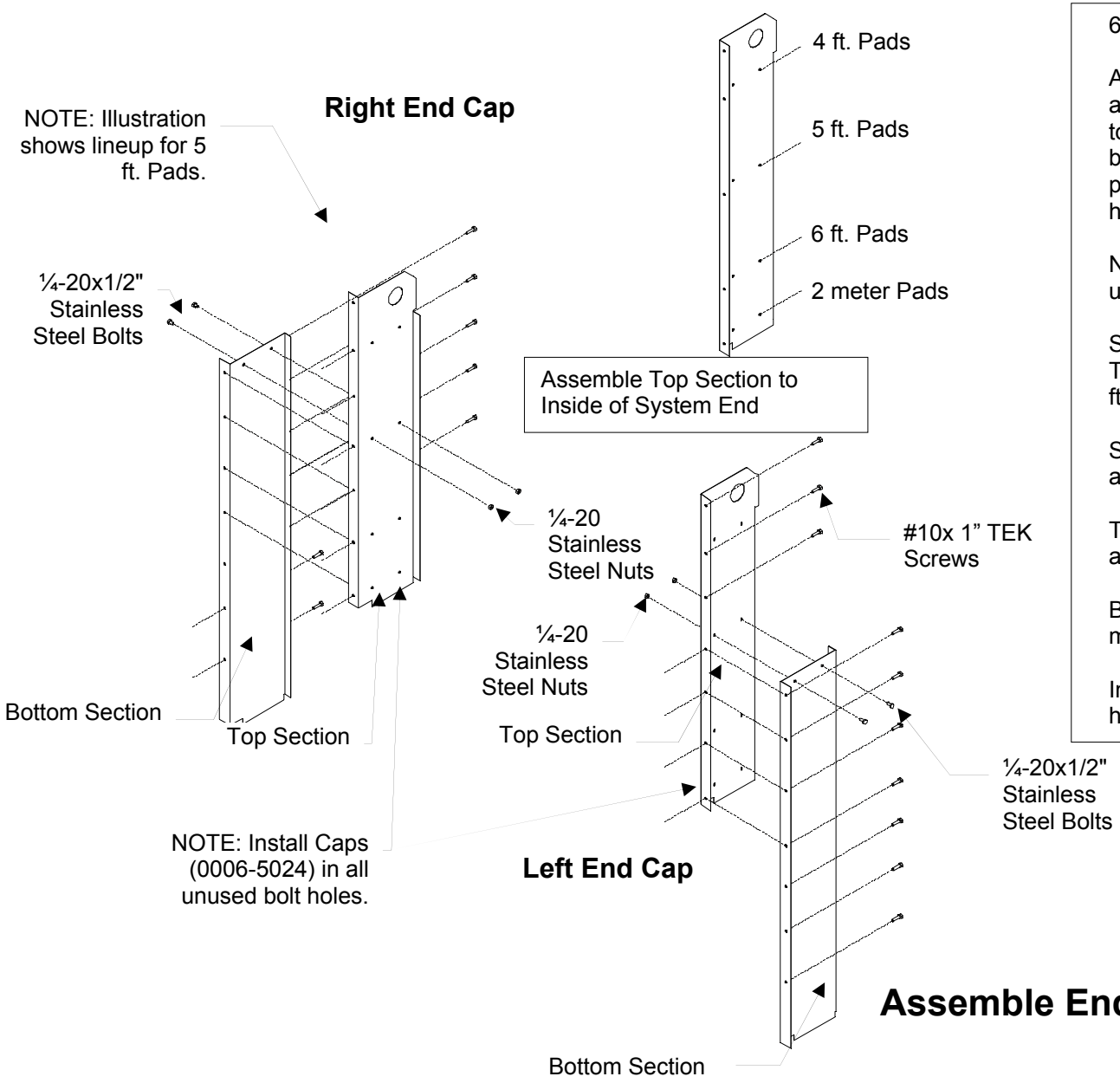




Install Cool Pads & Front Covers

1. Insert pads into drip rail at bottom.
2. Fit bolts through holes in back of support brackets as shown above.
3. Fit top of cool pad underneath spray line support bracket and against back plate. Repeat for all pads.
4. Fit covers into the front slots of the spray line support brackets. Insert top flange of cover into slots of brackets as shown above.
5. Tighten wing nuts to secure cover in place.
6. Add cover splice to each joint where two covers abut. See diagram above for cover splice.

Assemble End Caps



6" PAD ONLY:

Assemble Left Hand and Right Hand Top and Bottom System End Cap Sections together using ¼-20x1/2" stainless steel bolts and ¼-20 stainless steel nuts provided as shown above to the desired height.

NOTE: Top Section without bottom section used for 3 ft. high pads.

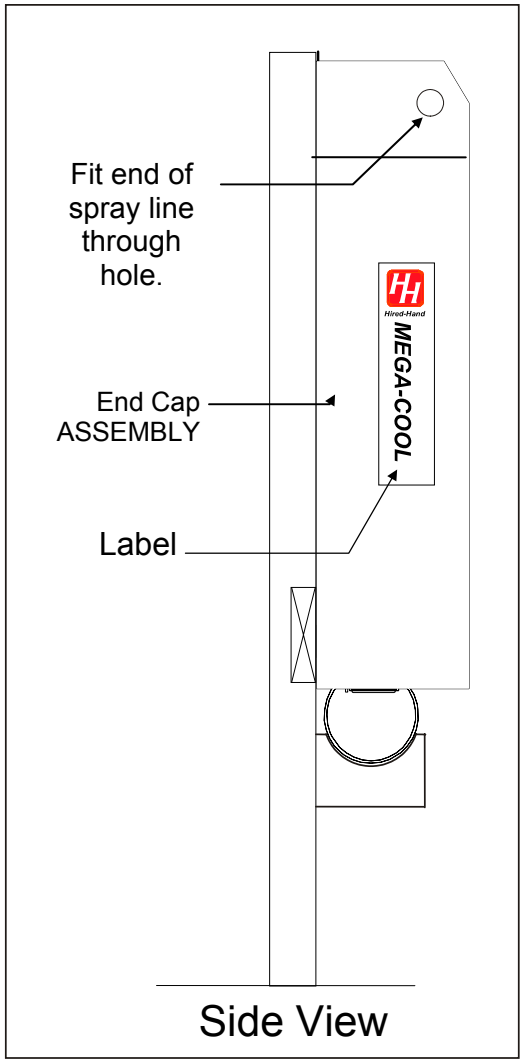
System End Cap assembly:
Top holes in top section adjust height for 4 ft. pads.

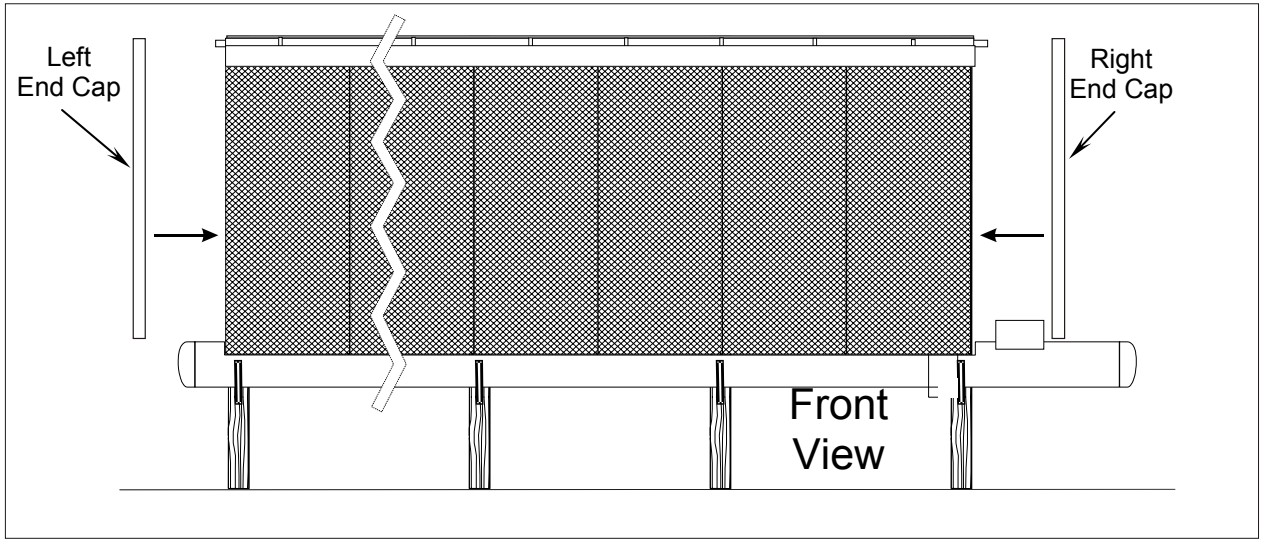
Second set of holes from the 4 ft. holes adjust height for 5 ft. pads.

Third set of holes from the 4 ft. holes adjust height for 6 ft. pads.

Bottom set of holes adjust height for 2 meter pads.

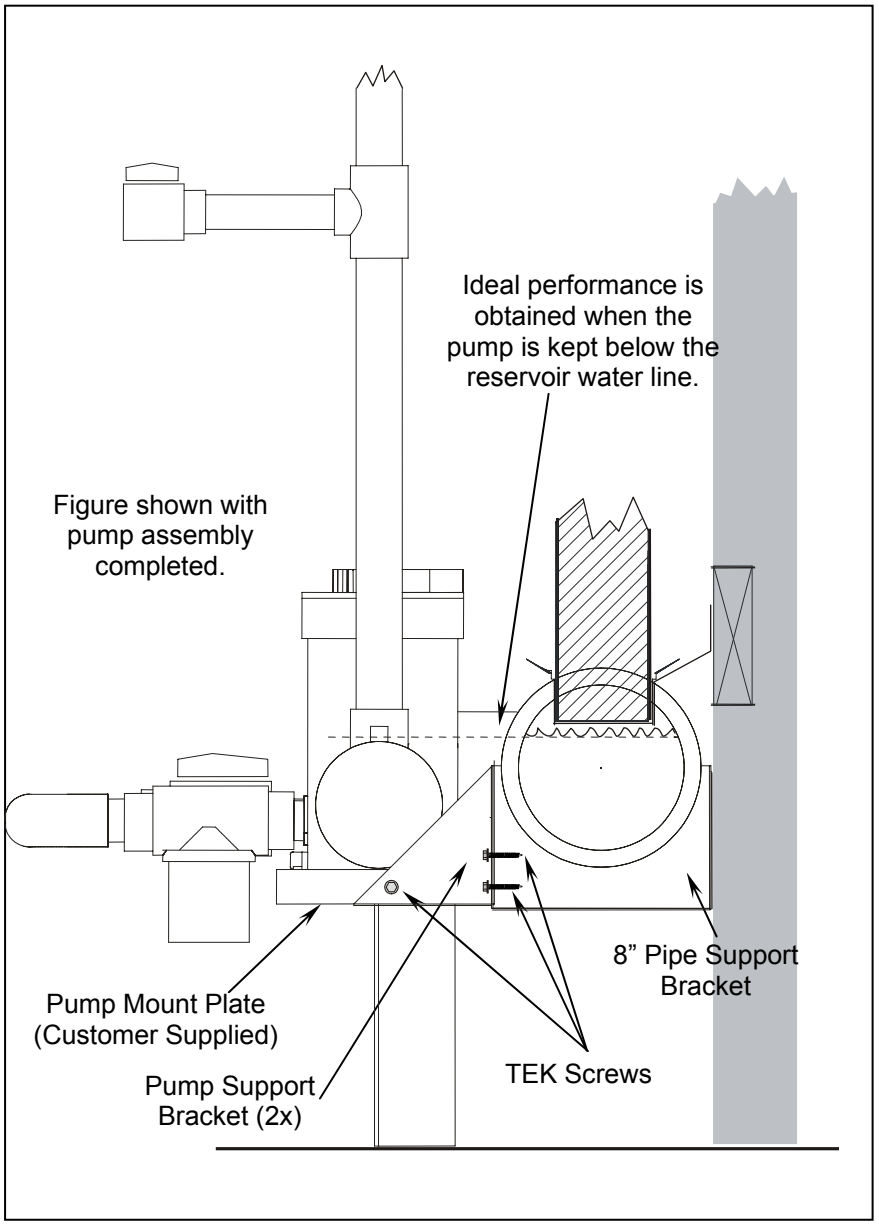
Install Caps (0006-5024) in unused bolt holes.





Install System End Caps

1. Install metal end cap assembly at each end of system. (See Page 19)
2. Fit spray line through hole at top of end cap.
3. Securely fasten end caps to framing with #10 x 1" TEK screws.
4. Press 1/4" plastic plugs into exposed holes to prevent spray from coming through these holes.
5. Paste label onto end cap as shown.



Install In-Line Pump Platform

The In-Line Pump Platform should be attached near the Float Valve Assembly as close to the end of the system as possible, or for a Center-Mount In-Line Pump setup, in the middle of the system. Refer to the figure shown.

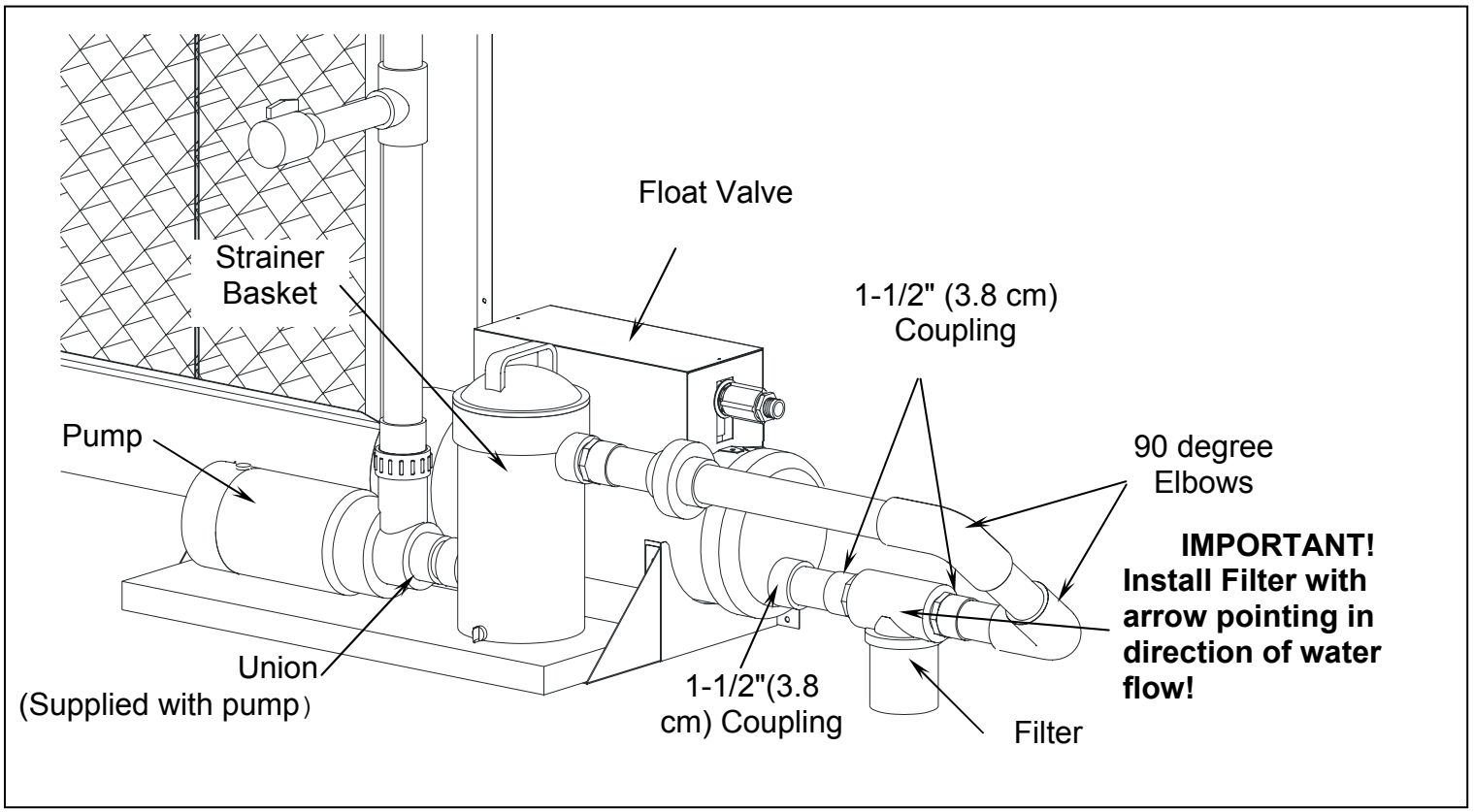
1. Leaving room for two attachment screws as shown, stretch a chalk line between the two Pipe Support Brackets and mark the LEVEL position on the Pipe Support Brackets for the top edge of the In-Line Pump Support Brackets.

NOTE: The In-Line Pump Support Brackets should be mounted lower than the Pipe Support Brackets as shown for ideal In-Line Pump location.

2. Align the In-Line Pump Support Brackets with the marks on the Pipe Support Brackets and securely mount with #14 x 1" Hex Head TEK Screws.

3. Cut a treated 2" x 6" wood board to the appropriate length to rest securely in the In-Line Pump Support Brackets. Attach the wood to the brackets on both ends with TEK screws.

NOTE: Ideal performance and priming will be maintained when the In-Line Pump is placed closer to the reservoir outlet and when the In-Line Pump is mounted lower in relation to the water level of the reservoir.

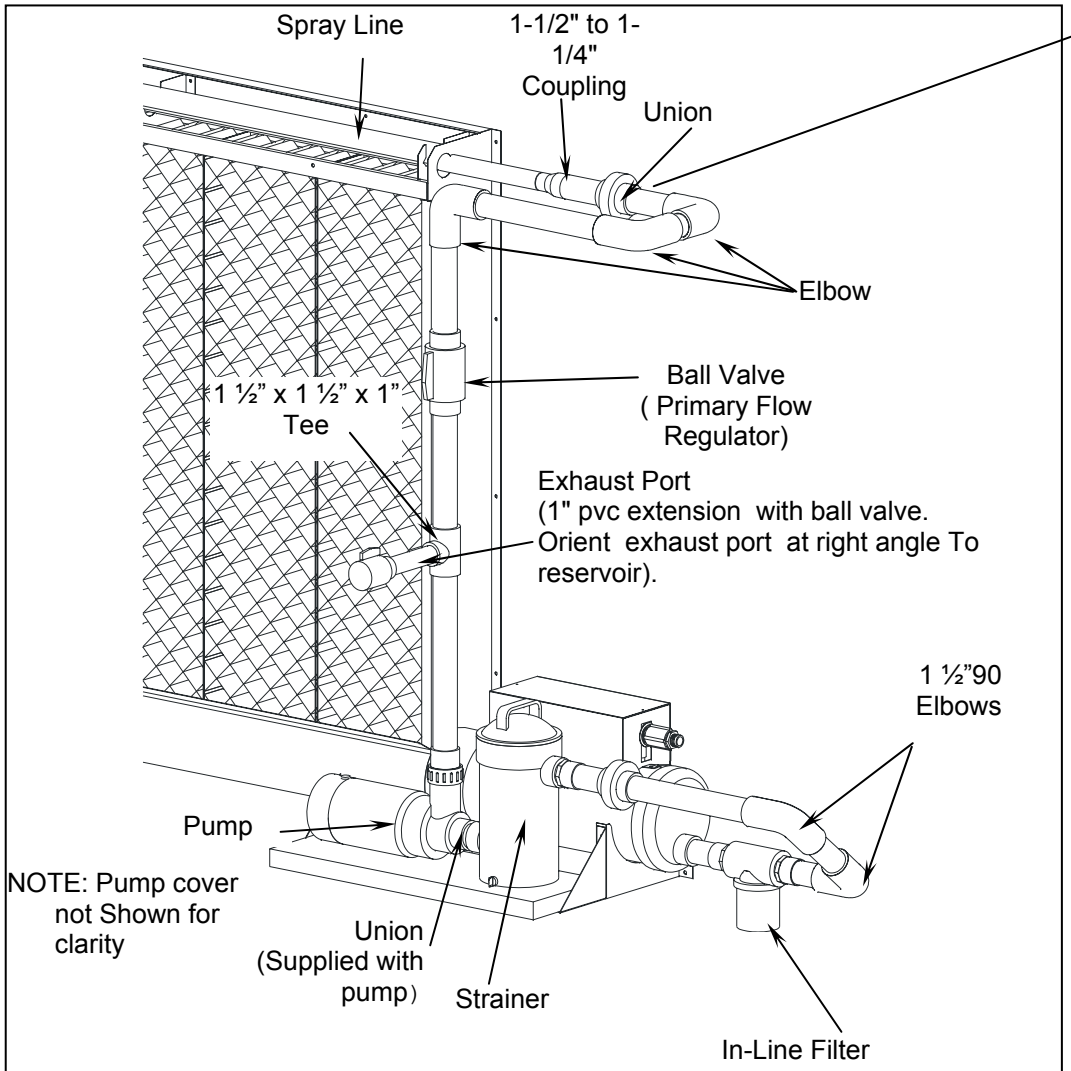


Install In-Line Pump and Assemble Supply Line

1. Place In-Line Pump on the platform as shown above. Install the Strainer Basket O-rings. Connect the lower port of the strainer basket to the In-Line Pump inlet using the liquid-tight fitting attached to the strainer basket. Hand-tighten ONLY.
2. Connect the upper port of the strainer basket to the union. Hand-tighten ONLY.
3. Connect two 1-1/2" (3.8 cm) couplings; One to the outlet side and another to the inlet side of the filter. Cut two 4" (10.16 cm) lengths of 1-1/2" (3.8 cm) dia. PVC pipe. Install one end of pipe to strainer basket union and the other end to the 1-1/2" (3.8cm) coupling on the outlet-side of the filter.

NOTE: Install filter with the arrow pointed in the direction of water flow (toward the In-Line Pump).

4. Connect the other 4"(10.16cm) length piece of pipe to the inlet-side of the filter and to the ball valve.
5. Measurements will need to be verified before installation of the remaining section of pipe from the ball valve to the 1-1/2" (3.8 cm) coupling at the 8" end-cap.
6. Use two 1-1/2" (3.8 cm) elbows to install remaining sections of PVC pipe from the ball valve to the end-cap coupling. Cut PVC pipe as required. See the In-Line Pump supply line diagram.



IMPORTANT WATER FLOW INFORMATION!

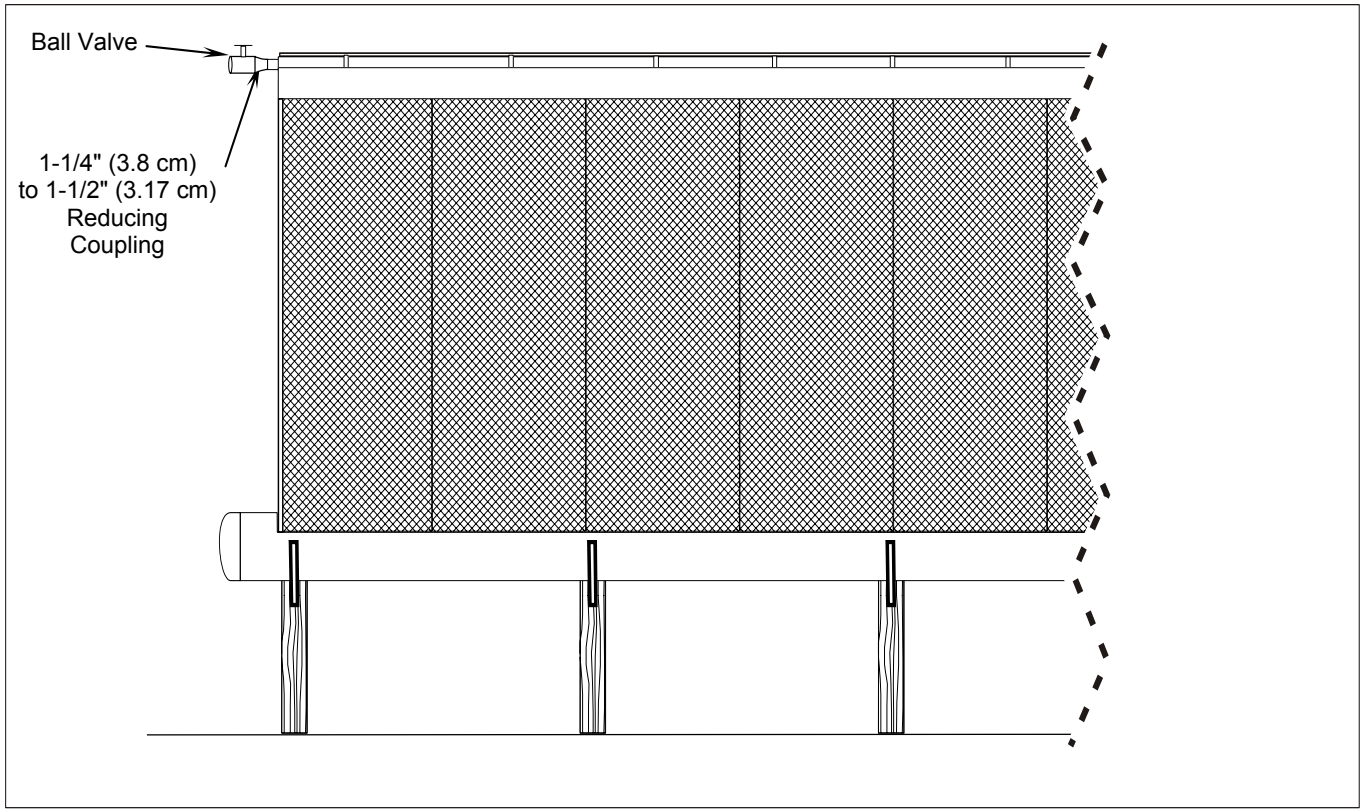
The water flow can be adjusted using ball valves (flow regulators) to ensure adequate water flow through system. The pump can supply adequate pressure to systems up to 80 feet in length. Lengths up to 120 feet can be accomplished when the Center-Mount System is installed.

IMPORTANT! Refer to Diagram on page 27 for additional spray line connections for systems greater than 80 ft. (24.4m) length.

Connect In-Line Pump to Spray Line

NOTE: The total vertical height of pipe sections in the following instructions must reach from In-Line Pump to level of spray line. Adjust lengths of pipe sections as required for proper height.

1. Attach PVC pipe section to outlet of In-Line Pump with union.
2. Attach 1" (2.5 cm) dia. PVC extension with ball valve to open end of pipe. This is used as an exhaust port to drain system.
3. Extend PVC pipe section with ball valve to height of spray line. Attach 90° elbow at top of pipe section.
4. Add PVC pipe section with union to connect elbow to spray line as shown in diagram.
5. Slide In-Line Pump cover over the In-Line Pump and fasten with screws to the wood platform.



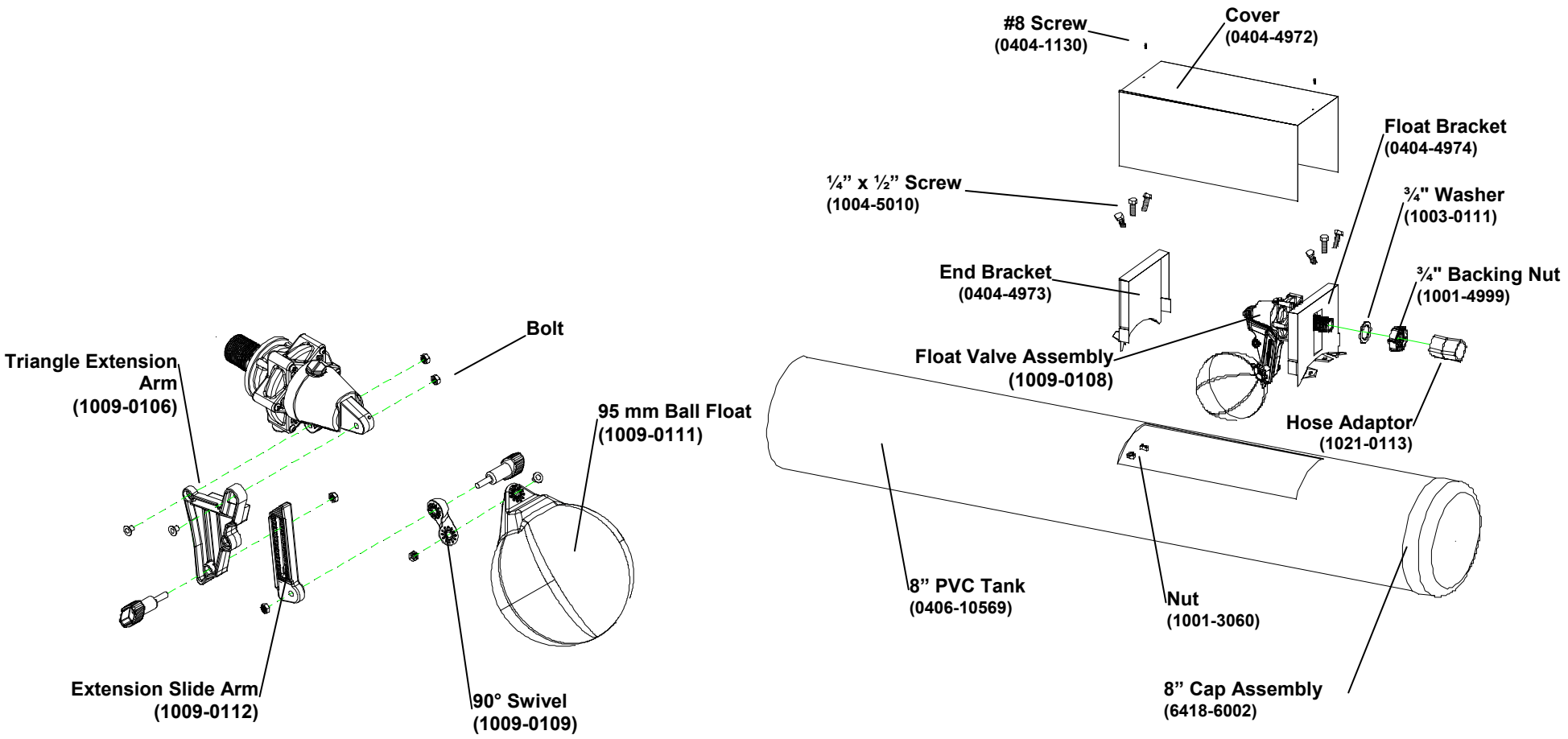
Add Ball Valve to End

1. Install 1-1/2" (3.8 cm) x 1-1/4" (3.17 cm) reducing coupling to opposite end of spray line.
2. Glue ball valve to end of system.

NOTE: If a Center-Mount In-Line Pump System is being installed, a ball valve and coupling must be placed on both ends of the system. Refer to the Center-Mount System Diagram on Pages 25 and 29.

Float Valve Assembly

1. Screw water supply hose onto fitting.
2. Use slot in bracket to adjust water level. If slot is not enough adjustment, remove cover and move float arm to another position.



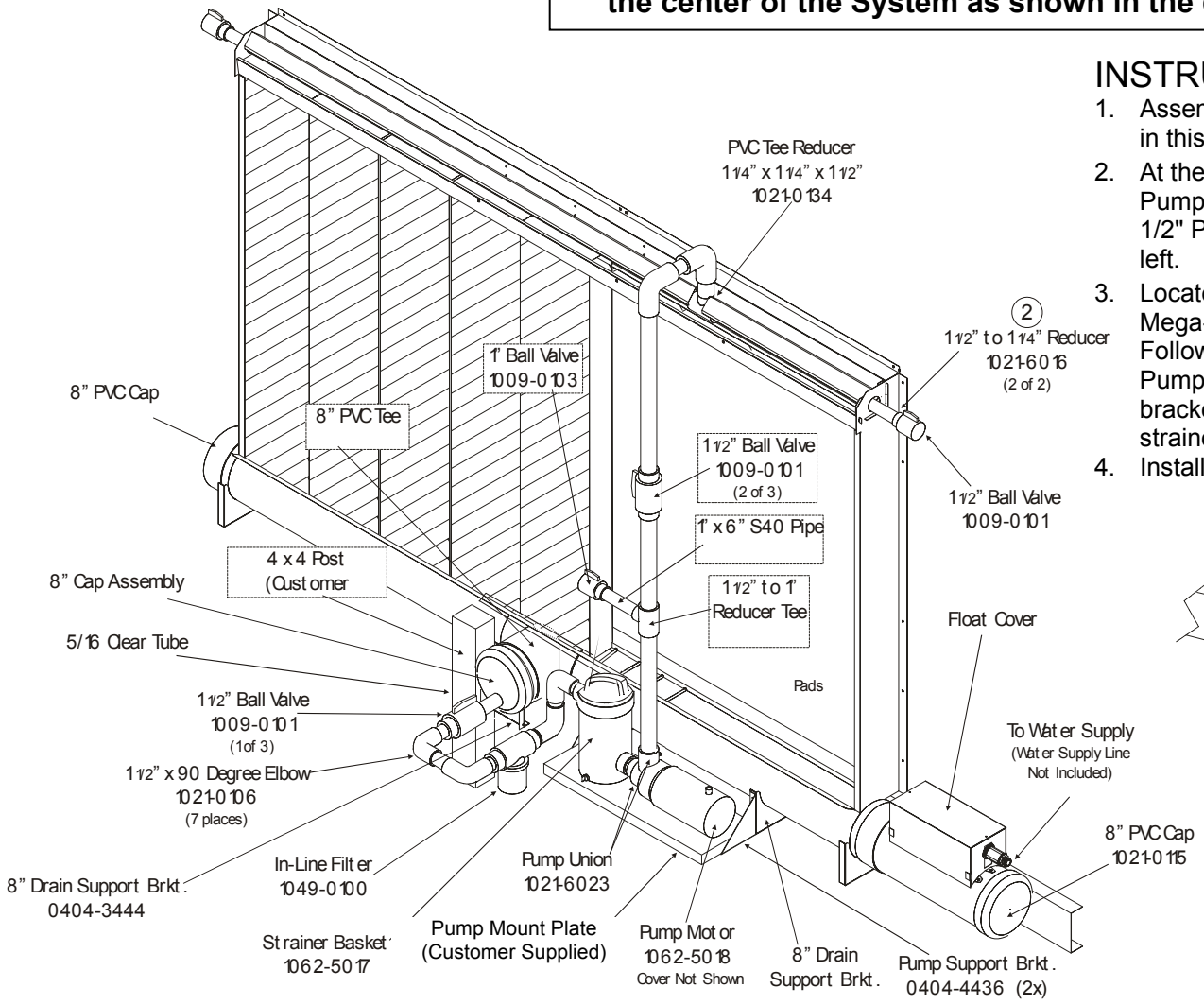
Float Valve Tank Assembly

Mega-Cool 10'-120' Straight Span, Center-Mount In-Line Pump System

Center In-Line Pump Kits

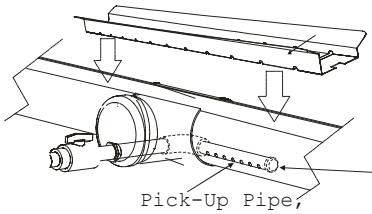
(Complete Assembly)

Center-Pump System is a Mega-Cool design to span lengths up to 120 feet from a single water supply & pump located at the center of the System as shown in the diagram below.



INSTRUCTIONS

1. Assemble Mega-Cool Systems following the procedures in this manual.
2. At the center of the span, connect the Center In-Line Pump Kit with 8" PVC tee section & 1-1/4" x 1-1/4" x 1-1/2" PVC tee reducer section as shown in diagram to the left.
3. Locate reservoir and In-Line Pump in the center of Mega-Cool System as shown in diagram to the left. Follow instructions on pages 20 & 21 to install In-Line Pump & water supply. Use In-Line Pump support brackets and wood platform to support In-Line Pump and strainer basket.
4. Installation complete.



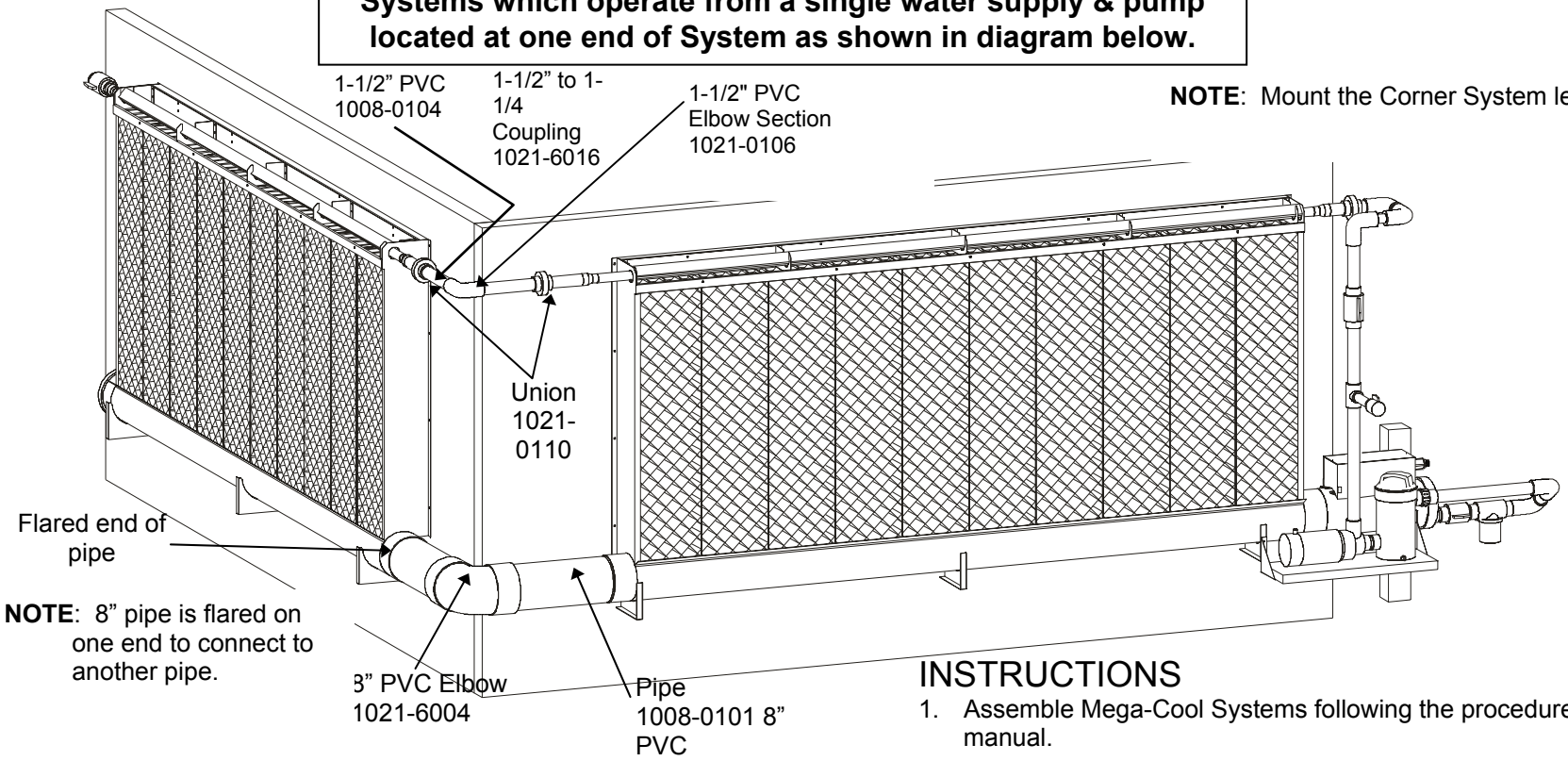
NOTE: Excessive turns/elbows in pipe will reduce water flow and stress the pump.

Mega-Cool 10'-80' Corner, End-Mount In-Line Pump System

End In-Line Pump Kits

(Complete Assembly)

The End-Pump System shown below is two Mega-Cool Systems which operate from a single water supply & pump located at one end of System as shown in diagram below.



NOTE: Mount the Corner System level.

NOTE: 8” pipe is flared on one end to connect to another pipe.

NOTES:

1. One side of the system can be longer than the other side as long as the TOTAL system length does not exceed 80 feet.
2. Pipe is in 10’ Length. If the cumulative distance of the systems from the corner is greater than 10’, additional pipe may be required.
3. Excessive turns/elbows in pipe will reduce water flow and stress the pump.

INSTRUCTIONS

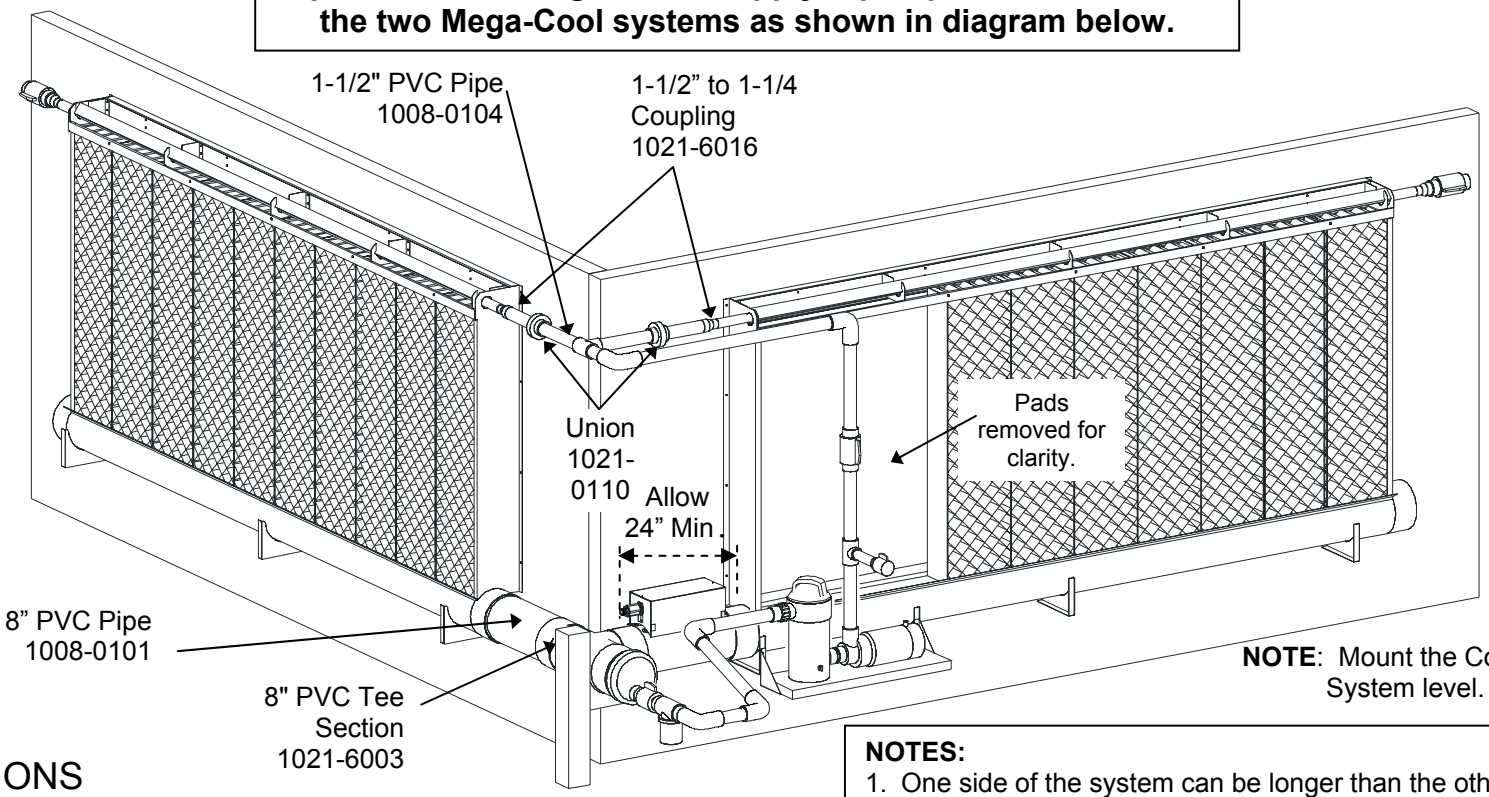
1. Assemble Mega-Cool Systems following the procedures in this manual.
2. At the corner of the building, connect the two systems with 8" PVC elbow section & 1-1/2" PVC elbow section as shown in diagram above.
3. Locate reservoir and In-Line Pump at one end of Mega-Cool System as shown in diagram above. Follow instructions on pages 20 & 21 to install In-Line Pump & water supply. Use In-Line Pump support brackets and wood platform to support In-Line Pump and strainer basket.
4. Installation complete.

Mega-Cool 10'-120' Corner, Center-Mount In-Line Pump System

Center In-Line Pump Kit

(Complete Assembly)

Center Pump System is two Mega-Cool Systems which operate from a single water supply & pump located between the two Mega-Cool systems as shown in diagram below.

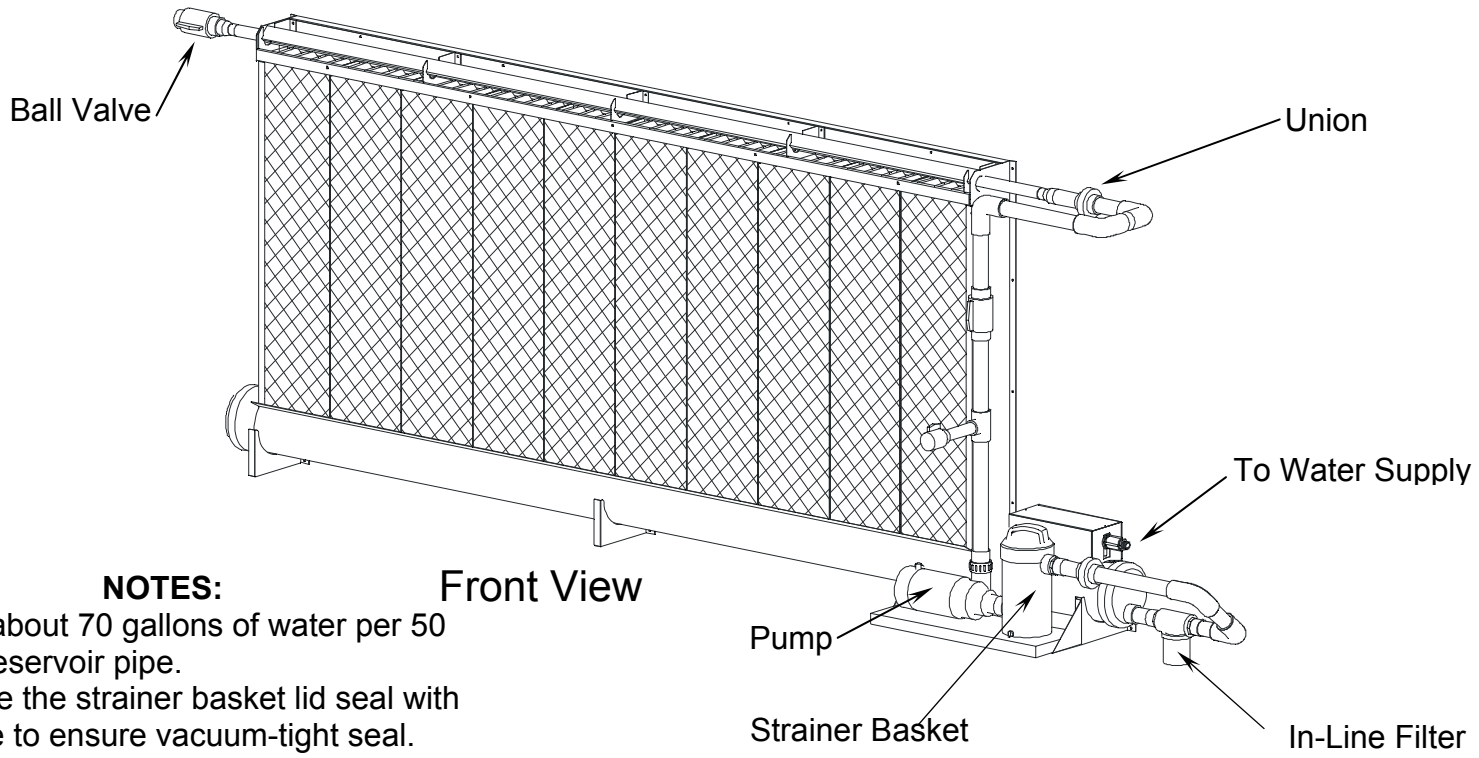


INSTRUCTIONS

1. Assemble Mega-Cool systems following the procedures in this manual.
2. At corner of building, connect systems together with 8" PVC Tee and 1-1/2" PVC Tee as shown in diagram above.
3. Assemble reservoir, In-Line Pump, and spray line according to procedures in this manual and as shown above.
4. Use In-Line Pump support brackets and wood platform to support In-Line Pump and strainer basket as shown on page 20.

NOTES:

1. One side of the system can be longer than the other side as long as the distance from the pump does not exceed 80 feet AND the total length does not exceed 120 feet.
2. If one of the systems are longer in length than the other, the pump must be mounted so that the water flow is direct to the longer system.
3. Pipe is in 10' Length. If the cumulative distance of the systems from the corner is greater than 10', additional pipe may be required.
4. Excessive turns/elbows in pipe will reduce water flow and stress the pump.



Front View

NOTES:

1. Expect about 70 gallons of water per 50 feet of reservoir pipe.
2. Lubricate the strainer basket lid seal with Vaseline to ensure vacuum-tight seal.

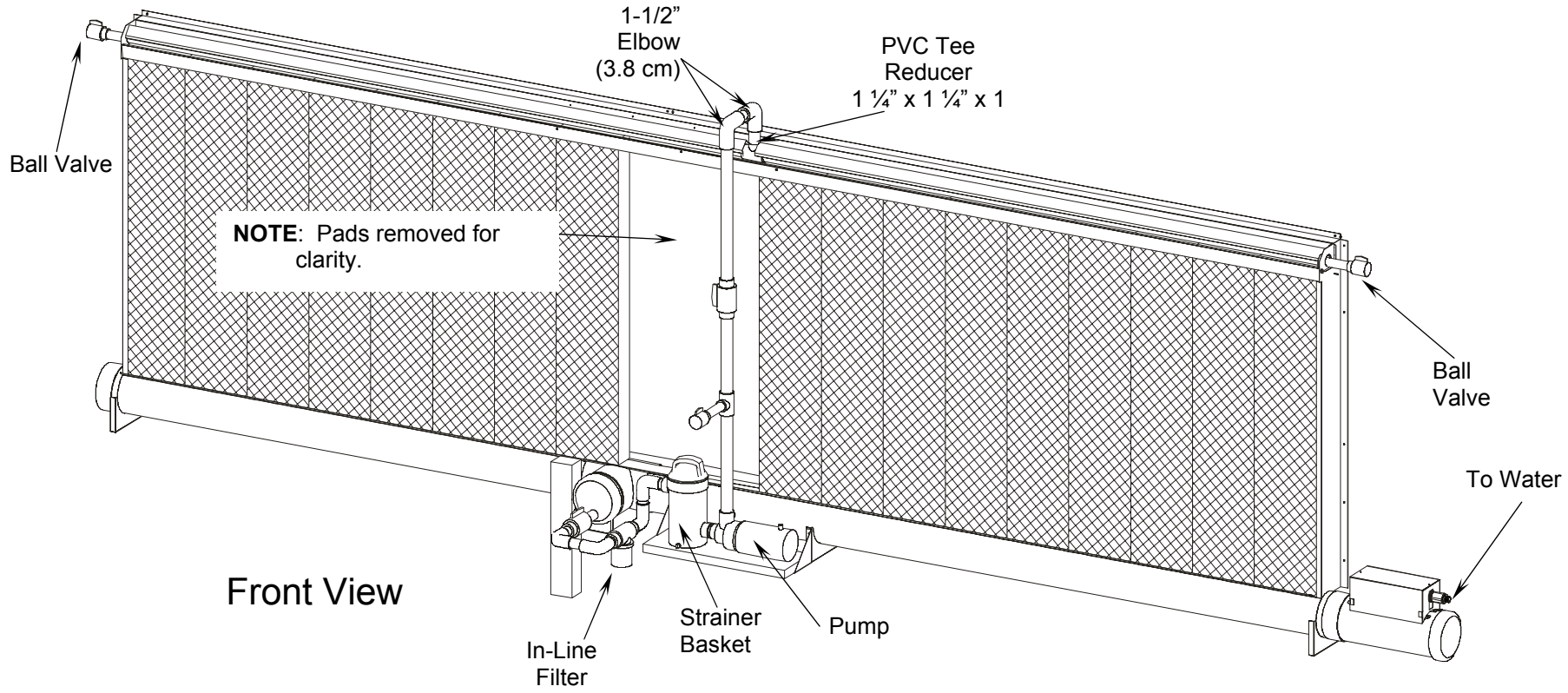
Flush System – In-Line Pump (End Mount Systems up to 80 ft.)

It is very important to flush the system. After completing system assembly, follow steps below in order to flush out debris from pipes.

1. Open ball valve at end of system. See diagram above.
2. Turn on water. Fill reservoir t fill line. Fill the Strainer Basket.

WARNING: Do not over tighten the Strainer Basket lid. Hand-Tight ONLY.

3. Turn on In-Line Pump to flush out system.
4. After flushing system, turn off In-Line Pump.
5. Close ball valve at end of spray line.
6. Clean In-Line Filter.
7. Resume normal operation.



Flush System – In-Line Pump (In-Line Center Mount Systems 10 ft. to 120 ft.)

It is very important to flush the system. After completing system assembly, follow steps below in order to flush out debris from pipes.

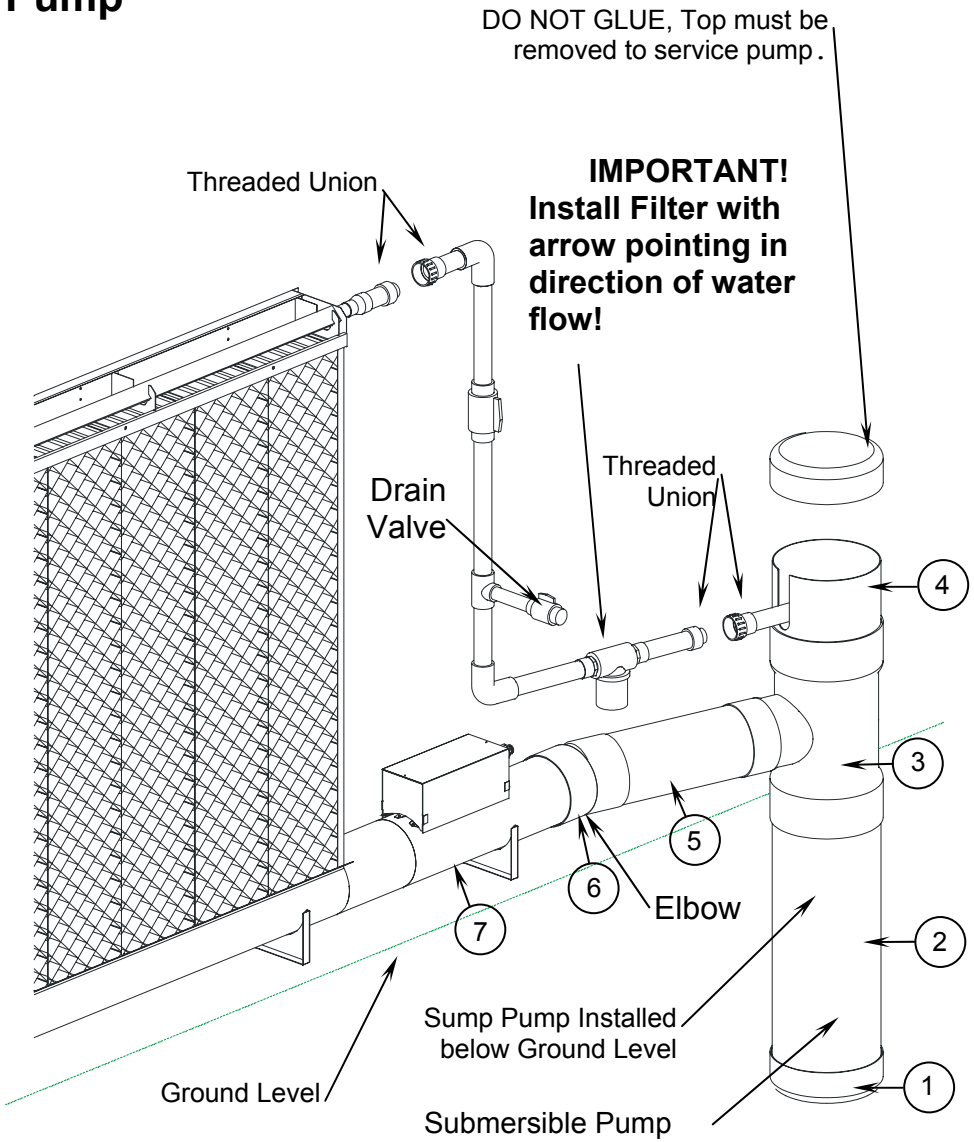
1. Open ball valves at both ends of system. See diagram above.
2. Turn on water. Fill reservoir to fill line. Fill the Strainer Basket.

WARNING: Do not over-tighten the Strainer Basket lid. Hand-tight ONLY.

3. Turn on In-Line Pump to flush out system.
4. After flushing system, turn off In-Line Pump.
5. Close ball valves at end of spray line.
6. Clean In-Line Filter.
7. Resume normal operation.

NOTE: Lubricate the strainer basket lid seal with Vaseline to ensure vacuum-tight seal.

Mega-Cool 10'-80' Straight, End-Mount Sump Pump



NOTE: The Pump housing is designed to be installed below ground level.

INSTRUCTIONS - Tee-Tank Assembly

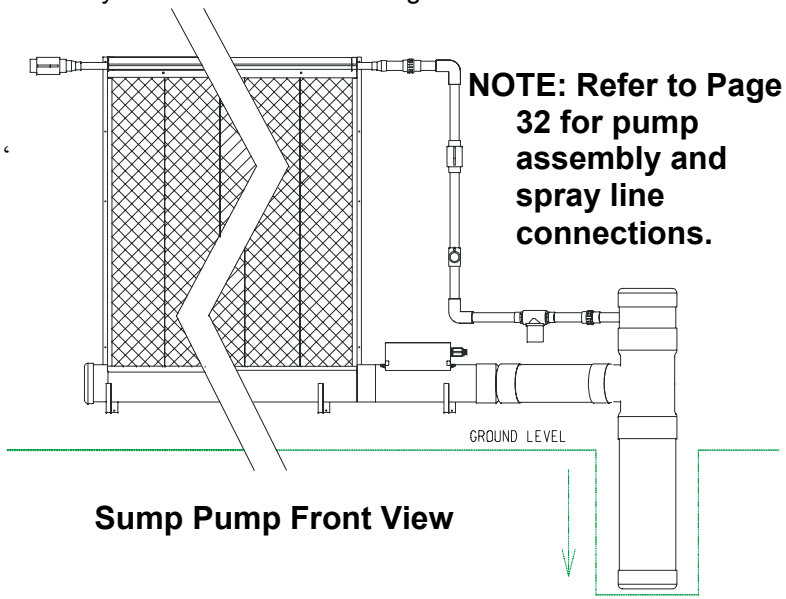
1. The PVC for the Tee-Tank Assembly is precut to length. Assemble the Tee-Tank in the order shown at the left.

2. Glue Bottom Cap (Item #1) to 12"x3' Reservoir Pipe (Item #2) as shown at the left.

3. Glue Reservoir Pipe (Item #2) into the bottom of Tee (Item #3). Then glue the Slotted Pipe (Item # 4) into the top of the Tee (Item #3). Make sure to align the slot in Item #4 with the extended center of Tee (Item #3) as shown at the left.

4. Glue the 8"x22 ½° Elbow (Item #6) onto the 8"x2' Pipe (Item #5). Then glue opposite end of the Elbow (Item #6) onto the 8" system Reservoir Pipe (Item #7) as shown at the left. Make sure the 8"x2' Pipe (Item #5) is level during assembly and is angled away from wall.

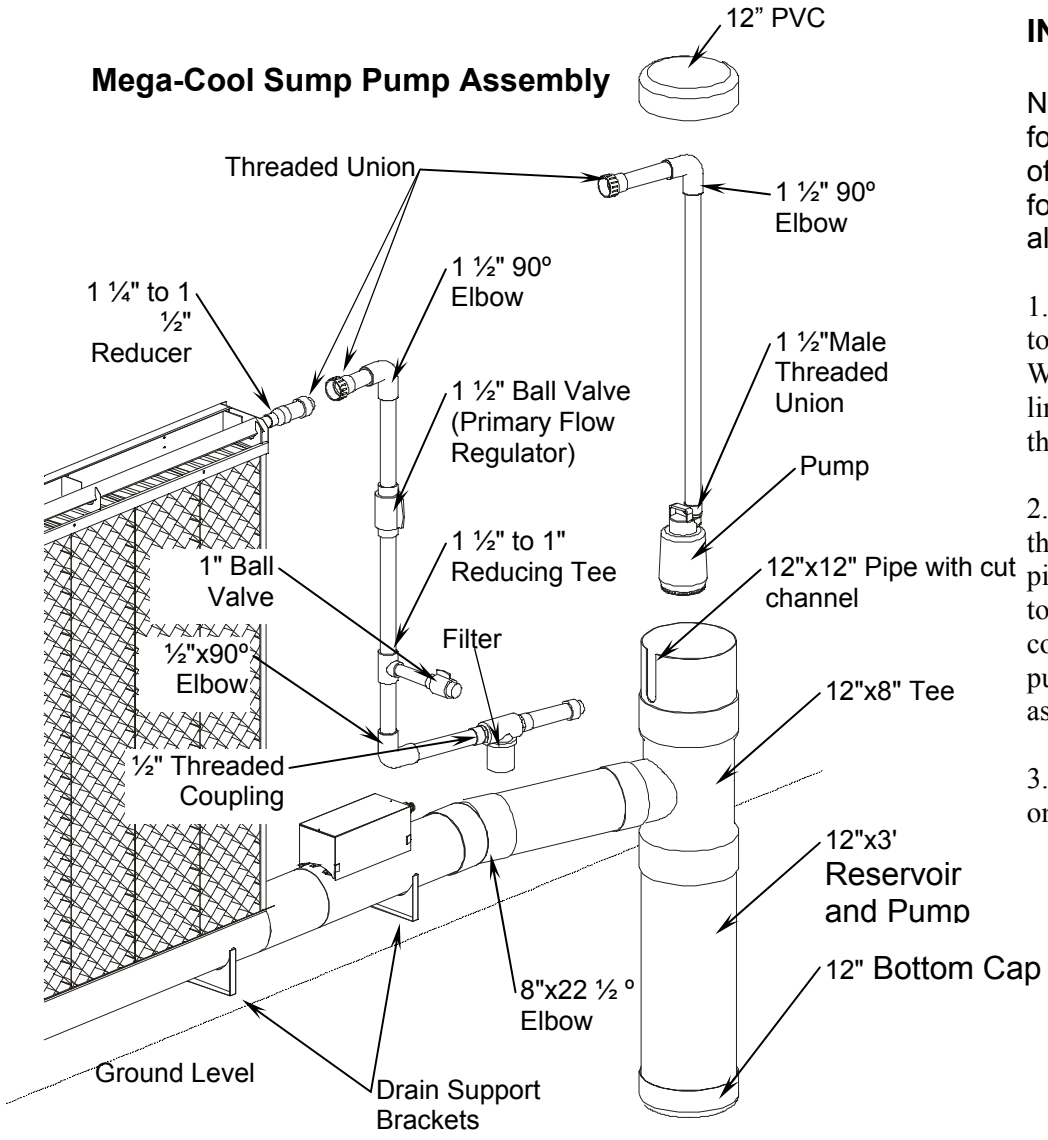
5. Glue Tee-Tank assembly (Items # 1, 2, 3 & 4) onto 8”x2’ pipe (Item #5) as shown at the left. Bottom part of Tee-Tank assembly must be installed below ground level as shown below.



NOTE: Refer to Page 32 for pump assembly and spray line connections.

Sump Pump Front View

Mega-Cool Sump Pump Assembly



NOTE: The Pump housing is designed to be installed below ground level.

INSTRUCTIONS - Connect Pump to Spray Line

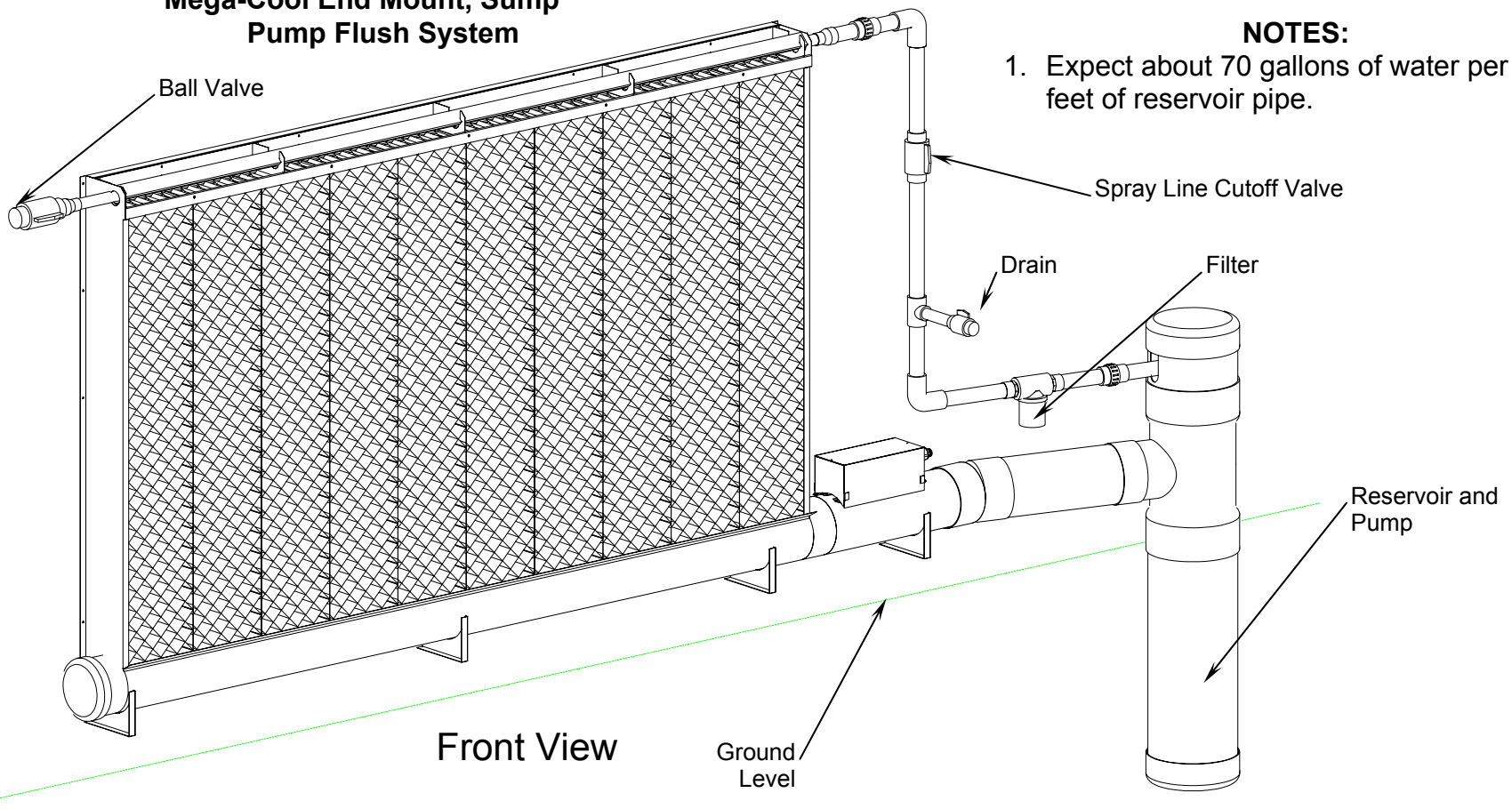
NOTE: The total vertical height of pipe sections in the following instructions must reach from Sump Pump to level of spray line. Adjust lengths of pipe sections as required for proper height. For proper alignment, cut and assemble all pieces of pipe and fittings before gluing together.

1. Cut pieces of 1 ½" pipe supplied to lengths needed and glue together with appropriate fittings called out as shown at the left. When cutting pieces of 1 ½" pipe, notice that the pump supply line must rest in slotted pipe and align with 8" pipe as shown in the Figure on Page 30.

2. Next, assemble remaining supply line assembly as shown at the left using fittings called out and 1 ½" pipe supplied. Cut 1 ½" pipe into necessary lengths required. When gluing all pieces together be sure that bottom part of supply line assembly containing filter is rotated to properly align and connect with pump supply line extending from slotted pipe at top of Tee-Tank assembly.

3. Once assembled, align and connect all supply lines as shown on Pages 30 and 31.

Mega-Cool End Mount, Sump Pump Flush System



NOTES:

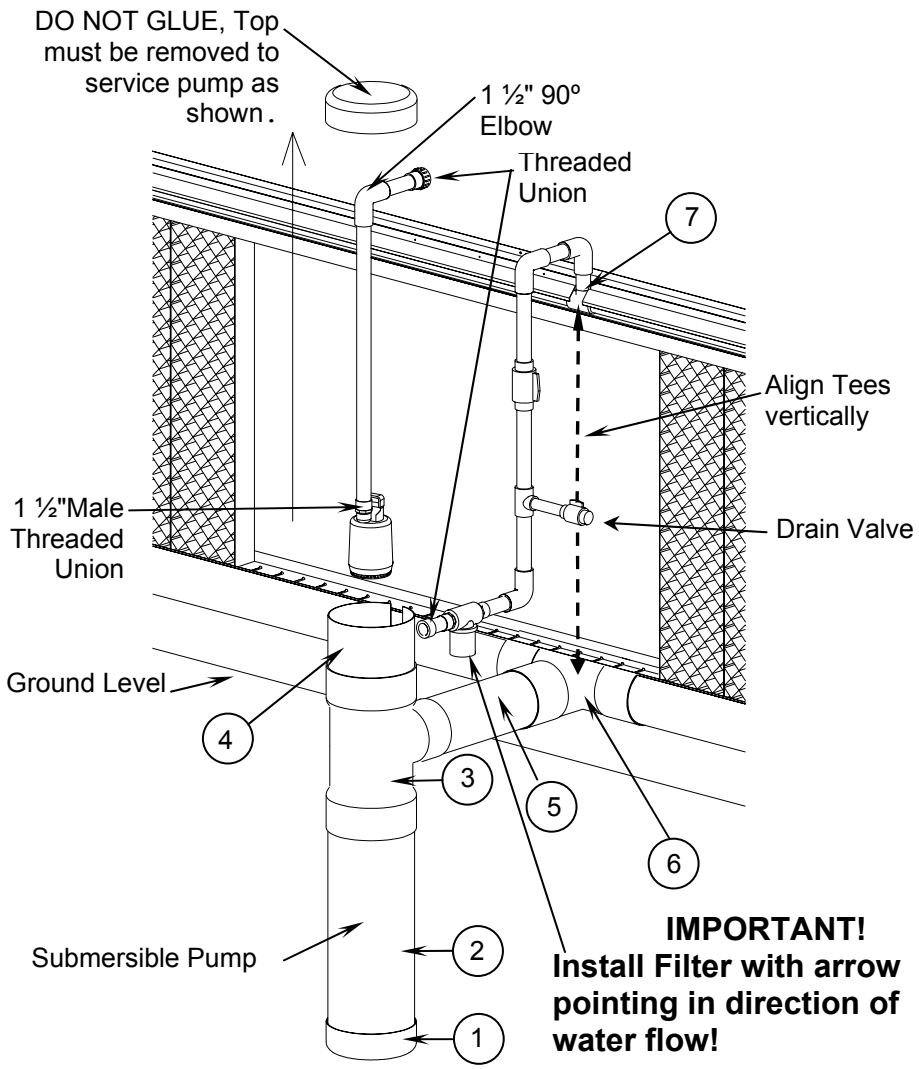
1. Expect about 70 gallons of water per 50 feet of reservoir pipe.

Flush System – Sump Pump (End Mount Systems Up To 80 ft.)

It is very important to flush the system. After completing system assembly, follow steps below in order to flush out debris from pipes.

1. Open ball valve at end of system. See diagram above.
2. Turn on water. Fill reservoir to fill line.
3. Turn on sump pump to flush out system
4. After flushing system, turn off sump pump.
5. Close ball valve at end of spray line.
6. Close spray line above filter.
7. Clean filter.
8. Open spray line.
9. Resume normal operation.

Mega-Cool 10'-80' Straight, Center-Mount Sump Pump

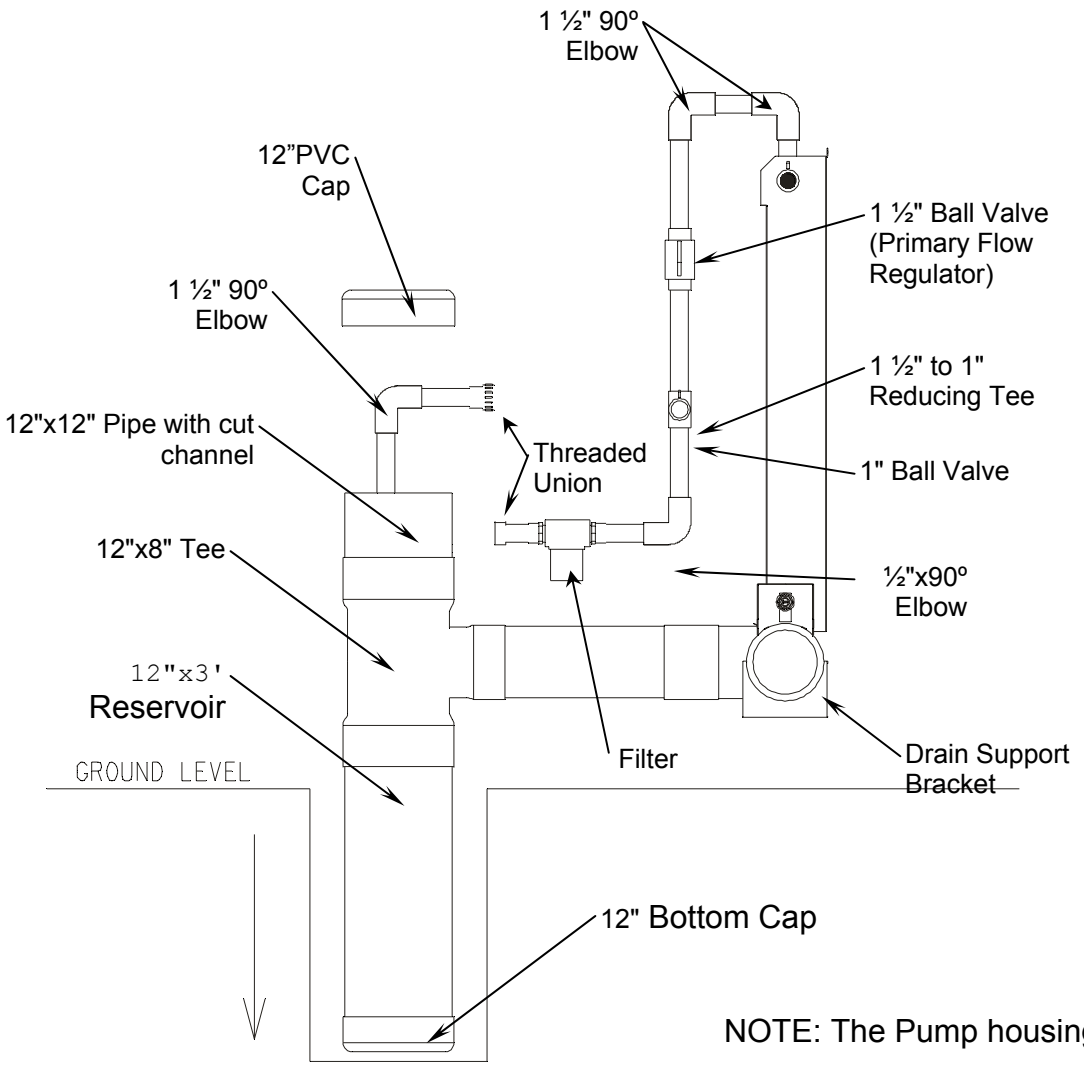


INSTRUCTIONS – Sump Pump Tee-Tank Assembly

1. The PVC for the Tee-Tank Assembly is precut to length. Assemble the Tee-Tank in the order shown at the left.
2. Locate the center of the system and install the 8” Tee (Item #6) into the 8” reservoir pipe.
3. Also at the center of the system, install the 1 ¼”x1 ¼”x 1 ½” PVC Tee Reducer (Item #7) into the spray line. The Tee reducer must be pointed vertically as shown. NOTE: Ensure that the two Tees (Items #6 & #7) are in vertical alignment.
4. Glue Bottom Cap (Item #1) to 12"x3' Reservoir Pipe (Item #2) as shown at the left.
5. Glue Reservoir Pipe (Item #2) into the bottom of Tee (Item #3). Then glue the Slotted Pipe (Item # 4) into the top of the Tee (Item #3). Make sure to align the slot in Item #4 with the extended center of Tee (Item #3) as shown at the left.
6. Glue the 8"x2’ pipe (Item #5) onto the 8" tee (Item #6) in the Mega-Cool. Make sure the 8"x2' Pipe (Item #5) is level during assembly.
7. Glue Tee-Tank assembly (Items # 1, 2, 3 & 4) onto 8”x2’ pipe (Item #5) as shown in Figure 1. Bottom part of Tee-Tank assembly must be installed below ground level as shown on page 35.

NOTE: Refer to Page 35 for pump assembly and spray line connections.

NOTE: The Pump housing is designed to be installed below ground level.



Sump Pump Side View

INSTRUCTIONS - Connect Pump to Spray Line

NOTE: The total vertical height of pipe sections in the following instructions must reach from Sump Pump to level of spray line. Adjust lengths of pipe sections as required for proper height. For proper alignment, cut and assemble all pieces of pipe and fittings before gluing together.

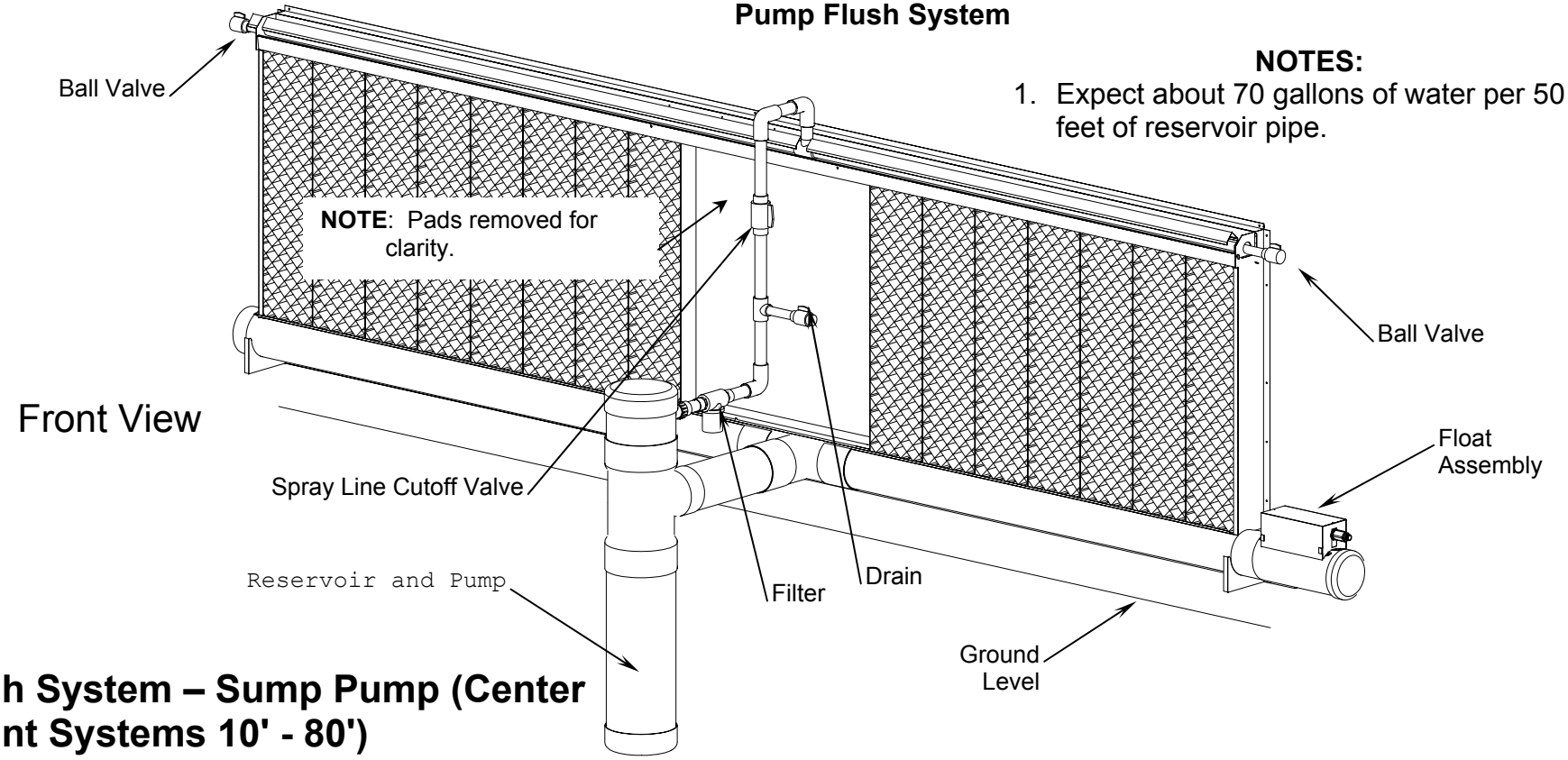
1. Cut pieces of 1 ½" pipe supplied to lengths needed and glue together with appropriate fittings called out as shown at the left. When cutting pieces of 1 ½" pipe, notice that the pump supply line must rest in slotted pipe and align with 8" pipe as shown.

2. Next, assemble remaining supply line assembly as shown at the left using fittings called out and 1 ½" pipe supplied. Cut 1 ½" pipe into necessary lengths required. When gluing all pieces together be sure that bottom part of supply line assembly containing filter is rotated to properly align and connect with pump supply line extending from slotted pipe at top of Tee-Tank assembly.

3. Once assembled, align and connect all supply lines as shown on Pages 33 and 34.

NOTE: The Pump housing is designed to be installed below ground level.

Mega-Cool 10 ft. – 80 ft. Sump Pump Flush System



NOTES:

1. Expect about 70 gallons of water per 50 feet of reservoir pipe.

Flush System – Sump Pump (Center Mount Systems 10' - 80')

It is very important to flush the system. After completing system assembly, follow steps below in order to flush out debris from pipes.

1. Open ball valves at both ends of system. See diagram above.
2. Turn on water. Fill reservoir to fill line.
3. Turn on sump pump to flush out system.
4. After flushing system, turn off sump pump.
5. Close ball valves at ends of spray line.
6. Close spray line above filter.
7. Clean filter.
8. Open spray line.
9. Resume normal operation.

Operation

Initial Start-up

When the pads are new, their slick surfaces will prevent the fast soaking that will happen with older pads. For this reason, when new pads are used for the first time, it is important to allow the Pump to run for one or two days continuously. This will "soak-in" the pads, and allow faster start-up later. This one to two days is called the "break-in" period.

At the end of the "break-in" period, inspect pads carefully. Any dry streaks will indicate an inconsistent water distribution. If you find these dry streaks, you will need to clean the spray line. To clean the spray line, follow the procedure outlined on next page.

Normal Operation

Under normal conditions, the Pump should run constantly when air is being drawn through the pads. If outside conditions are not warm enough to run the system constantly, it may not be warm enough to run at all.

While the system is operating, look for signs of scale formation. Scale is a concentration of solids that will "plate" onto the surface of the pads, if water contains too many impurities. If scale is noticed, increase your bleed off rate.

If you allow the water level in the reservoir to get too high, the bottom of the pads may stand in water. If the pads are submerged, they will become waterlogged. When this happens, they will lose their rigidity, and begin to break down at the bottom. This will greatly reduce pad life, and should be avoided.

Extending Pad Life

As you use the Mega-Cool system, you will notice the need for good preventative maintenance. Algae growth, scale (hard crusty deposits), and dirt accumulation are typical problems associated with poor maintenance. Maintaining the Mega Cool is very simple. It takes a small amount of time and effort. If you follow the guidelines below, your pad and gutters will last much longer, and be much more effective.

Limit On-Off Cycling

Many users have initially seen greater cooling effects from evaporative cooling systems when they run the system on a ten minute timer. Although this cooling may have a great short term effect, the pad life is greatly shortened. For this reason, you must choose for yourself which is more important.

When the system is started and stopped every ten minutes, the pads are wetted, and dried outs six times per hour (Up to 144 times per day!). Each time the pads dry, the minerals in the water remain on the pad, and limit the cooling effectiveness.

Mega Cool pads have a recommended water flow rate for best performance. If this flow rate is maintained, the water flowing down the pad will continuously flush the pad clean. (As only a small percentage of the water will evaporate).

Dry the pads completely each night by turning off the In-Line Pump, and drawing air through the pads with your fans.

Why Bleed-Off Water From The System?

If you have ever left a pot of coffee warming on the coffee maker, you know the two principles at work in evaporative cooling systems. First, as the coffee sits on the warming plate, the level of water in the pot goes down. Second, the remaining coffee gets stronger as the water evaporates. In your cooling system, these effects still apply. As water evaporates, no impurities are carried along. This leaves all sorts of minerals, chemicals, and other impurities behind. The concentration of impurities in the reservoir and system will quickly rise.

As the water is evaporated, the make-up water is added. Since this water still contains impurities, make up water contributes to the problem. The only way to reduce the concentration is by taking water from the system. Hired-Hand's Mega Cool system is designed with an exhaust valve in the supply line just before the pipe union on the discharge side of the In-Line Pump. This valve should be throttled to allow just enough water to escape the system.

The amount of water you should bleed off depends on the water quality in your area. If you have a large amount of impurities, you will need to allow more water to escape. If you see scale beginning to form on the pads, you will need to increase your bleed off rate. The best method for determining the bleed off rate is to first find out how much evaporation is occurring. To calculate a rough estimate of your evaporation, multiply the area of the pad by the air speed through the pad, by the temperature drop from one side to the other. Then divide the final number by 500,000.

For example: If your pad is five feet tall and 60 feet long, and your air speed is 300 feet per minute. Outside temperature is 95 degrees, and inside temperature is 75 degrees, you would give 3.6 gallons per minute.
If water is extremely hard – large amounts of minerals, etc. – then the bleed off rate should equal evaporation.
If minerals are a small problem, make the bleed off rate equal to from ¼ to ½ of the evaporation rate.
For areas with little or no dissolved solids, make the bleed off anywhere from one tenth to one fourth the evaporation rate.
These values are estimates, so individual rates will vary. Try to keep your water as clean as possible to minimize scale formation on the pads.

Water Distribution

Maintaining even water distribution to the pads is the most important way of extending pad life. If an area of pad does not receive enough water, it will clog or soften. If at any time you see dry spots or streaks, investigate to see why. Most problems associated with water distribution may be fixed with a good cleaning of the spray line. Follow procedures outlined below for cleaning the Mega-Cool System. For best results clean the system on a regular basis.

Hired-Hand Mega-Cool Checklist

Have the right amount of water running over the pad.

Identify and correct leaks in the system.

Reduce the amount of on-off cycles.

Excessive dust, fumes and harsh cleaners, should be avoided.

Disinfect the whole system once per quarter.

Have the sump and pad in the shade if possible.

Allow the pads to dry completely every 24 hours.

Never use phosphate based water treatment chemicals.

Drain the system during extended shutdowns.

Cleaning Mega-Cool System

1. Shut off Pump and clean strainer.
   To clean in-line filter: (a) close ball valve between filter and reservoir; (b) unscrew filter - dump out water; (c) replace filter; (d) open ball valve.
2. If possible, turn off fans. (If this is not possible, run fans at minimum levels).
3. Gently hose off pads. Clean algae from pads and pipes.
4. Flush reservoir: (a) Close ball valve between Pump and 1" dia. exhaust . (b) Open 1" dia. exhaust valve. (c) Turn on Pump. (d) Allow reservoir to flush for several minutes. NOTE: Fresh water will be added to reservoir by fill line as system flushes.
5. After flushing reservoir: (a) Turn off Pump. (b) Open ball valve between exhaust and union fitting. (c) Close exhaust valve.
6. Flush spray line: (a) Open ball valve at end of spray line. (b) Turn on Pump. (c) Flush for several minutes.
7. Disconnect union at end of spray line.
8. Insert brush into spray line. Brush out debris from spray line.
9. Reconnect union.
10. After flushing spray line: Turn off Pump. Close ball valve at end of spray line.
11. Refill reservoir to full level.
12. Resume normal operation.

Winterizing Mega-Cool System

If the system will not be operating for extended periods, follow the Cleaning instructions 1 through 9 in the previous section. Do not refill the system with water. Ensure that pumps are not submerged in water! For exposed metal parts, cover with a light coat of Spray Lubricant.

Algae Treatment

If algae develops on pipes or on the pads, it may be necessary to add a water treatment compound to control algae growth.

The following are approved products/chemicals for water treatment for Polar-Cool Systems and Pads:

Note: Do not exceed recommended dosage by manufacturer!

Product Names	Chemicals
• Evap 100 • Aquamax • Ice Wand • PWT by Jones Hamilton Co. • Agri-Cool II by RXV Products • Ice Guard AP Nu-Calgon Wholesaler, Inc. • VIROCIDE • Bio Stop • Kool-N-Kleen	• Quaternary amine • Sodium hydrogen sulfate • Alkyl dimethyl benxyl ammonium chloride

The following are **not** approved products/chemicals for water treatment for Polar-Cool Systems and Pads:

Product Names	Chemicals
• SYNTRxpH Powder and pHresh Air SYNTRx Chemicals • Peraclean 5 • Physan 20 • Greenshield CA • Chlorine Bleach • Proxy-Clean • AguaKlen	• **Oxidizing agents or oxidizing biocides** Example: Chlorine dioxide, Sodium hypochlorite (chlorine bleach), Calcium hypochlorite, Hydrantoin (bromine), Sodium Chlorite • **Caustic chemicals or compounds** Example: Sodium hydroxide • **Strong Acids** Example: Hydrochloric and sulfuric acids

You may also consult your local agricultural distributor for a recommended water treatment chemical. Water pH range must be 6-8 for maximum longevity.

Mega-Cool Replacement Parts

Description	6” Pad System	4” Pad System
BackPlate	0404-4546	0404-4693
8” Pipe Support Bracket	0404-3444	0404-3444
Cover	0403-4555	0403-4555
Drip Rail	0403-3443	0403-3474
Drip Rail (For 8” PVC Tee)	0403-5605	0403-5790
System Right Adjustable End Cap	0403-10570	----------
System Left Adjustable End Cap	0403-10571	----------
System Right End Cap Bottom	0403-10572	----------
System Left End Cap Bottom	0403-10573	----------
4 ft. System Right End Cap	----------	0403-4696
4 ft. System Left End Cap	----------	0403-4695
5 ft. System Right End Cap	----------	0403-4698
5 ft. System Left End Cap	----------	0403-4697
6 ft. System Right End Cap	----------	0403-4700
6 ft. System Left End Cap	----------	0403-4699
Float Cover	0404-4972	0404-4972
Float Valve Assembly	6450-7598	6450-7598
Float Extension Arm	1009-0102	1009-0102
Float 95 mm Ball	1009-0111	1009-0111
Float Extension Slide Arm	1009-0112	1009-0112
Float 90° Swivel	1009-0109	1009-0109
Float Bracket End	0404-4973	0404-4973
Float Bracket Adjustment End	0404-4974	0404-4974
In-Line Pump (60 Hz)	1062-5027	1062-5027
In-Line Pump (50 Hz)	1062-5013	1062-5013
In-Line Pump Support Bracket	0404-4436	0404-4436
In-Line Pump Cover	0404-4434	0404-4434
In-Line Pump Base	0404-4435	0404-4435
Sump Pump (60 Hz)	1062-5025	1062-5025
Splash Guard	0403-4548	0403-4548
Splash Guard Splice	0403-4557	0403-4557
Splash Guard Support Bracket	0403-4547	0403-4692
Back Plate Support	0404-4711	0404-4694

Description	6” Pad System	4” Pad System
In-Line Filter	1049-0100	1049-0100
Filter Screen	1049-0101	1049-0101
Filter Gasket	1049-0102	1049-0102
Strainer Basket	1062-5017	1062-5017
Reservoir Flashing	0404-5579	0404-5580

Fitting Description	Part No.
Ball valve 1-1/2"	1009-0101
Ball valve 1"	1009-0103
Elbow 90 1-1/2"	1021-0106
Adapter male 1-1/2"	1021-0109
Union 1-1/2"	1021-0110
Tee 1-1/2" to 1"	1021-0111
8" Removable Cap w/Clamp	1021-0116
Adapter MGHTx1"	1021-6002
Coupling 1-1/2" to 1-1/4"	1021-6016
Cap 1-1/2"	1021-6017
Barb 5/16”	1021-6022
8” PVC Tee	1021-6003

Kit Description	Part No.
Kit Brush Cleanout IC/MC	6650-5400

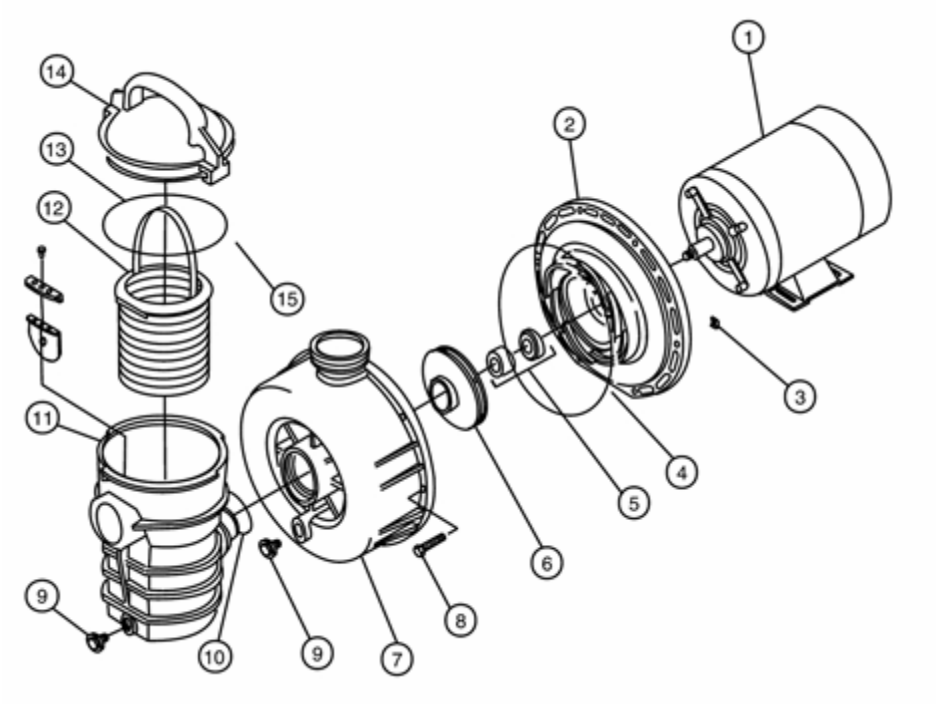
Mega-Cool Kits

Mega-Cool In-Line Pump Corner Kits			
Kit	Parts	Part Number	Qty
End In-Line Pump Kit 6518-9580	90° Elbow PVC Fitting	1001-0106	1
	8" PVC Elbow	1021-6004	1
	1-1/2" to 1-1/4" PVC Coupling	1021-6016	2
	8" PVC Pipe	1008-0101	10 ft.
	1-1/2" PVC Pipe	1008-0104	10 ft.
Center In-Line Pump Kit 6518-6581	90º Elbow PVC Fitting	1021-0106	1
	1-1/2" PVC TEE	1021-6024	1
	8" PVC TEE	1021-6003	1
	1-1/2" to 1-1/4" PVC Coupling	1021-6016	2
	8" PVC Pipe	1008-0101	10 ft.
	1-1/2" PVC Pipe	1008-0104	10 ft.

Mega-Cool In-Line Pump Supply Kits	
Kit Number	Description
6618-9500	MegaCool Supply Kit 240v 60Hz End-System
6618-9501	MegaCool Supply Kit 240v 50Hz End System
6618-9502	MegaCool Supply Kit w/o In-Line Pump End System
6618-9503	MegaCool Supply Kit 240v 60Hz Center-Mount w/6” PVC Tee Drip Rail
6618-9504	MegaCool Supply Kit 240v 50Hz Center-Mount w/6” PVC Tee Drip Rail
6618-9505	MegaCool Supply Kit w/o In-Line Pump Center-Mount w/6” PVC Tee Drip Rail
6618-9506	MegaCool Supply Kit 240v 60Hz Center-Mount w/4” PVC Tee Drip Rail
6618-9507	MegaCool Supply Kit 240v 50Hz Center-Mount w/4” PVC Tee Drip Rail
6618-9508	MegaCool Supply Kit w/o In-Line Pump Center-Mount w/4” PVC Tee Drip Rail

Mega-Cool Sump Pump Supply Kits	
Kit Number	Description
6618-9509	MegaCool Tee Tank Sump Pump Kit 240v 60Hz End Mount-System 80 ft.
6618-8500	MegaCool Tee Tank Sump Pump Kit 240v 60Hz 4” Center Mount-System 80 ft.
6618-9510	MegaCool Tee Tank Sump Pump Kit 240v 60Hz 6” Center Mount-System 80 ft.

Mega-Cool Pump Supply Kit



Mega-Cool Pump Supply Kits		
Item	Part No.	Description
1	1062-8000	3/4 hp, 1 spl, 48 frame Thru-Bolt 115, w/on-off switch
2	1062-8001	Diffuser - 3/4 hp bracket
3	1062-8002	Nut - 10-24 s/s, 6 req.
4	1062-8003	O-ring - 3/16 in. bracket diffuser
5	1062-8004	Seal - 5/8 in. mechanical PS 200
6	1062-8005	Impeller - 3/4 hp
7	1062-8006	Housing - body

Mega-Cool Pump Supply Kits		
Item	Part No.	Description
8	1062-8007	Screw 10-24-1 1/2 in. slotted hex, 6 req.
9	1062-8008	Plug 1/4 in. drain plug black
10	1062-8009	O-ring - 2 1/8 in. i.d. x 1/8 in. dia.
11	1062-8010	Pot
12	1062-8011	Basket w/handle
13	1062-8012	O-ring - lid
14	1062-8013	Lid - universal
15	1062-8014	Pot Replacement Assembly

NOTES


HIRED-HAND®