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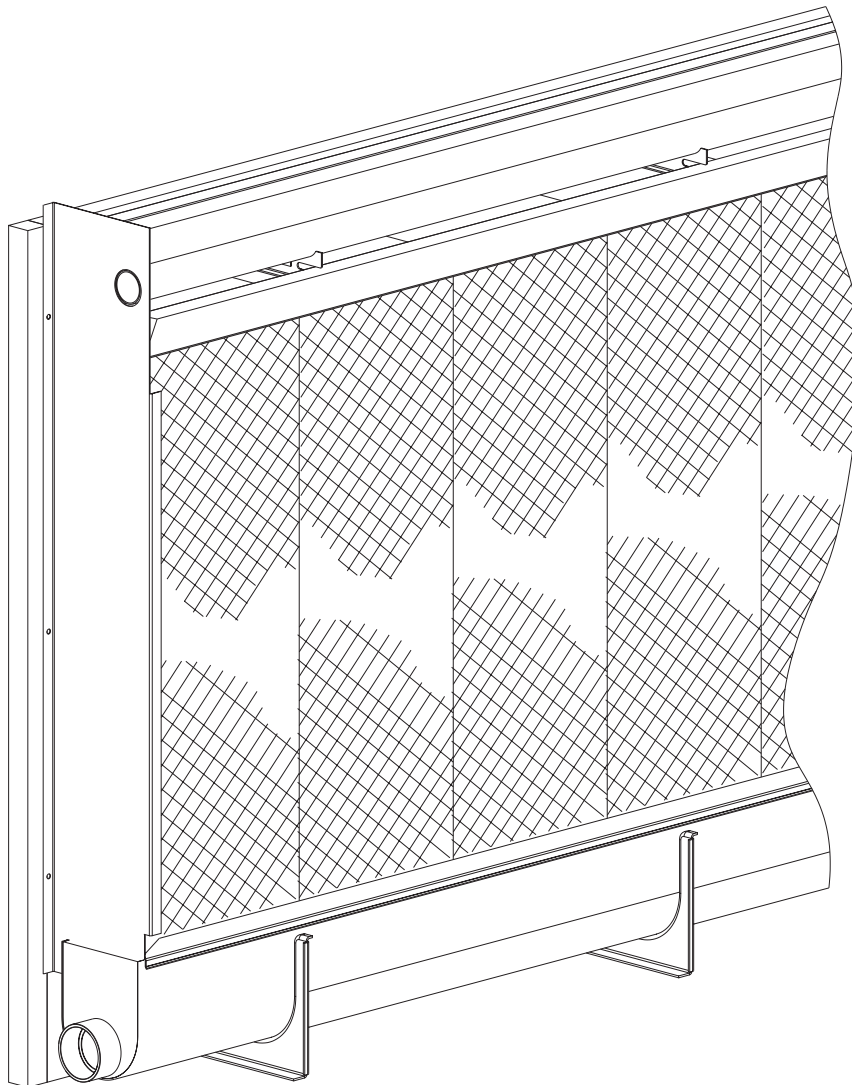
Form 610700  
May 2002



**Owners Manual &  
Instructions for  
Acme PDRPOT 6”  
Kool-Cel  
Evaporative  
Cooling System**

## **Model PDRPOT 6”**

**With 1-Piece Plastic Gutter and  
Open Stainless Steel Top**



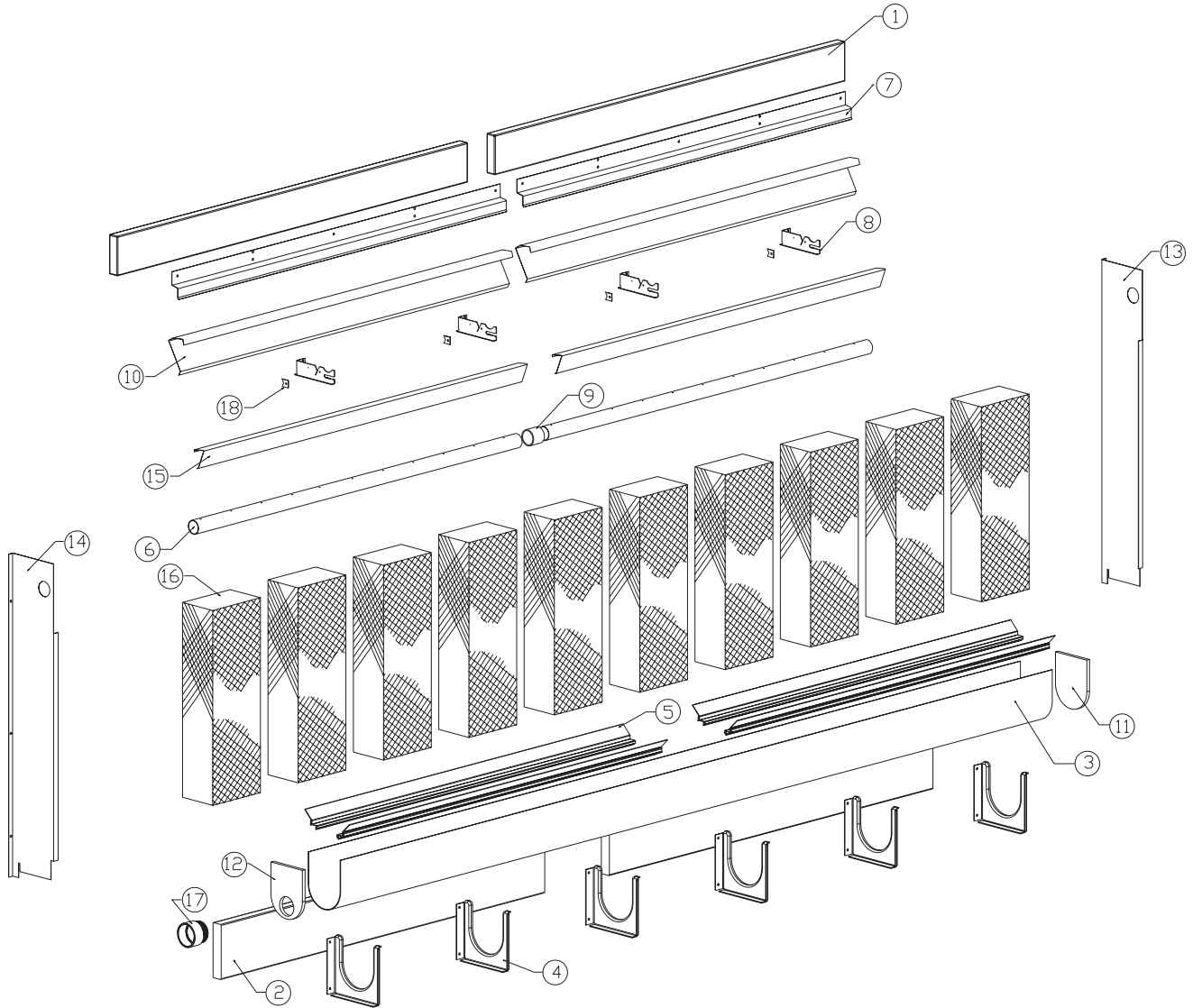


# PDRPOT 6" Evaporative Cooling System

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# PDRPOT 6" Exploded View



Parts Description			
Ref. No.	Description	Ref. No.	Description
1	Top Stringer (by others)	10	Splash Panel
2	Bottom Stringer (by others)	11	Plastic Gutter End Cap - Right
3	Plastic Gutter	12	Plastic Gutter End Cap - Left
4	Gutter Support	13	System End Cover - Right
5	Plastic Drip Collector	14	System End Cover - Left
6	Distribution Pipe	15	Pad Front Cover
7	Top Filler	16	6" Pad
8	Pipe Holder Bracket	17	2 1/2" MIP Adapter
9	1 1/2" Slip Coupling	18	Retainer Bracket



# PDRPOT 6" Evaporative Cooling System

## Components

### Packaging

Your Kool-Cel system consists of five components:

1. Kool-Cel pads 6" x 12" x 24", 36", 48", 60" and 72"
2. Water Pump
3. Distribution and return system. Available in 5' systems to 80' systems.
4. Plumbing Kit
5. End cover Package (optional)
  - \* Optional Pump Reservoir for use with 8" PVC Pipe
  - \* Optional Extension Kit
  - \* Optional Water Control Kit

### By Owner

Framing material

Sump tank, drain and cover, optional 8" PVC Transition Pump Tank or Optional Kool Flow Kit or Optional PDRP60 Pump Tank Kit

Water supply to float valve

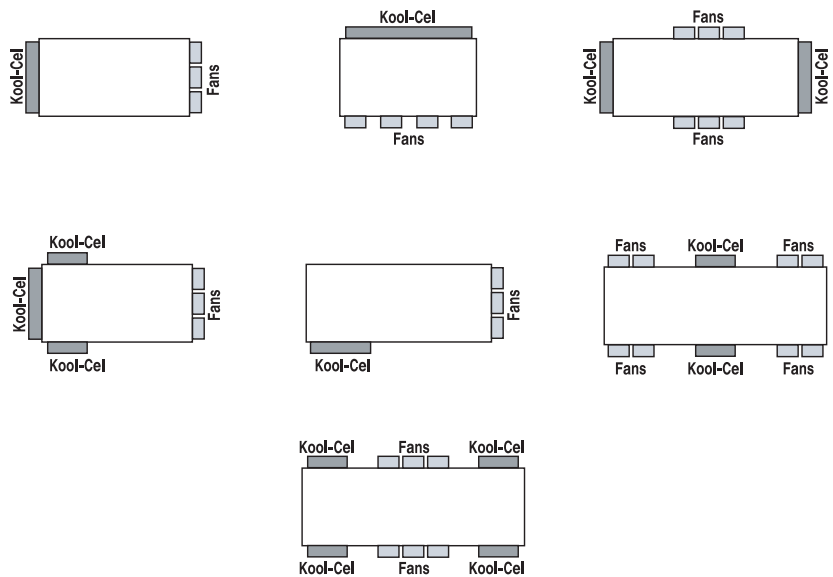
Return pipe from down spout to sump and filter

## Building Preparation

### Location of Pad System

The Kool-Cel pad should be placed away from the fans (opposite) so that the cooled air can flow through the building without turbulence. Pads should be no more than 250' from the fans in greenhouse buildings to avoid excessive temperature rise and velocities. In a greenhouse, the top of the pad should be near the top of the crop or have its midpoint centered on the midpoint of the crop.

In poultry and livestock installations the pad is generally placed on the outside of the buildings so that the top of the pad is not below the highest desired level. An eave extending beyond the PDRPOT system is recommended.





### Framed Opening and Structural Details

The height of the framed opening (A) is equal to the pad height minus 2". For example, a 48" high pad requires a 46" high opening.

The length of the framed opening (B) is equal to the pad system length.

### Overall Height of the System

The overall height of the system (C) is equal to the actual pad height plus 13".

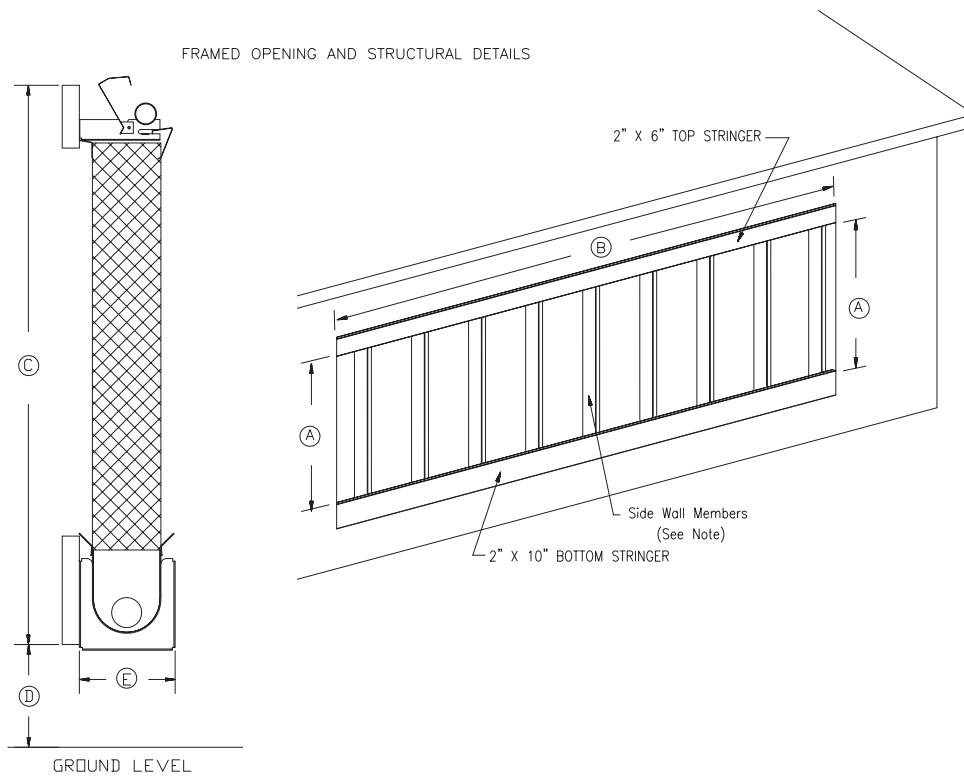


Figure 1

Framed Opening Layout		
Code	What It Represents	How to Calculate
A	Height of the framed opening	Pad height minus 2"
B	Length of the framed opening	Pad system length
C	Overall Height of the system (does not include allowance for return piping)	Pad height plus 13"
D	Allowance for either standard return piping or 8" PVC Transition Pump Tank	8" for standard or 12 1/2" for PVC Transition Pump Tank
E	Depth of system	8 1/2" Typical

**IMPORTANT Note:** In a standard system, allow 8" minimum for return piping to the reservoir (D). When the optional 8" PVC Transition Pump tank is used, allow 12 1/2" minimum (See Example 2).

**Note:** The side wall structural members should be left intact.



# PDRPOT 6" Evaporative Cooling System

## Example 1

50' pad system using 60" high pads and standard return piping to the reservoir:

Height of framed opening (A) = 60" minus 2" or 58"

Length of framed opening (B) = 50'

Overall system height (C) = 60" + 13" or 73"

Allowance for standard return piping (D) = 8"

## Example 2

50' pad system using 60" high pads and 8" PVC Transition Pump Tank:

Height of framed opening (A) = 60" minus 2" or 58"

Length of framed opening (B) = 50'

Overall system height (C) = 60" + 13" or 73"

Allowance for 8" PVC Transition Pump Tank = 12 1/2"

## Stringers

The framing and support stringers could be any type of material (metal channels, square tubing, treated wood, etc.). The design should provide a flat surface for mounting support brackets and the lower stringer should be capable of carrying a load of 4.11 lbs. per sq. ft. Of pad. All framing in this manual refers to treated wood. The framed opening must be vertical and square for proper installation of the system. The use of a chalk line during stringer installation will aid in keeping the system square. Stringers should be mounted with threaded bolts, not lag screws.

## Sump Tank and Cover

Provide a tank with a capacity of 1 gallon per square foot of pad area for 6" pads. A tank cover should be provided capable of supporting the pump (#30-35 lbs., #60-50 lbs.). The sump should be set in place prior to start of the installation of the distribution and return system.

## Optional Transition Pump Tank

See "8" PVC Transition Pump Tank" on page 15.

## Optional Water Control System

See "Kool Flow Water Control System" on page 13.

## System Installation

After installing all framing materials, the Kool-Cel distribution and return system will go together simply and quickly following the instructions step by step.

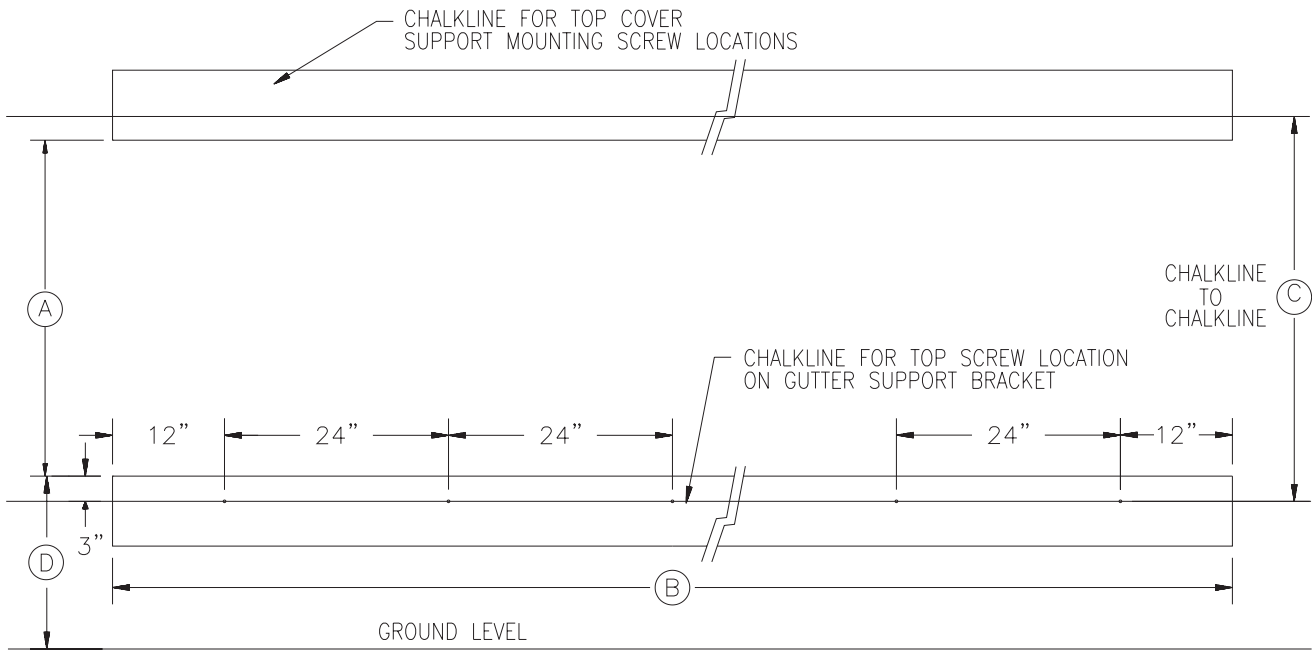
### Hints:

- Framing -** Verify framing installation using instructions and Figure 1 drawing in "Framed Opening and Structural Details" on page 6.  
If framing is not properly installed as shown, the system will not operate properly.
- Caulking -** Where the following instructions refer to caulking, use the Butylgrip caulking supplied unless otherwise specified.
- Packages -** Place all cartons in the areas of installation and open the top of the carton. Do not remove the material until needed. **Note:** The packaging slips and installation and maintenance instructions should be retained for future reference.

## Gutter and Gutter Support Bracket Installation

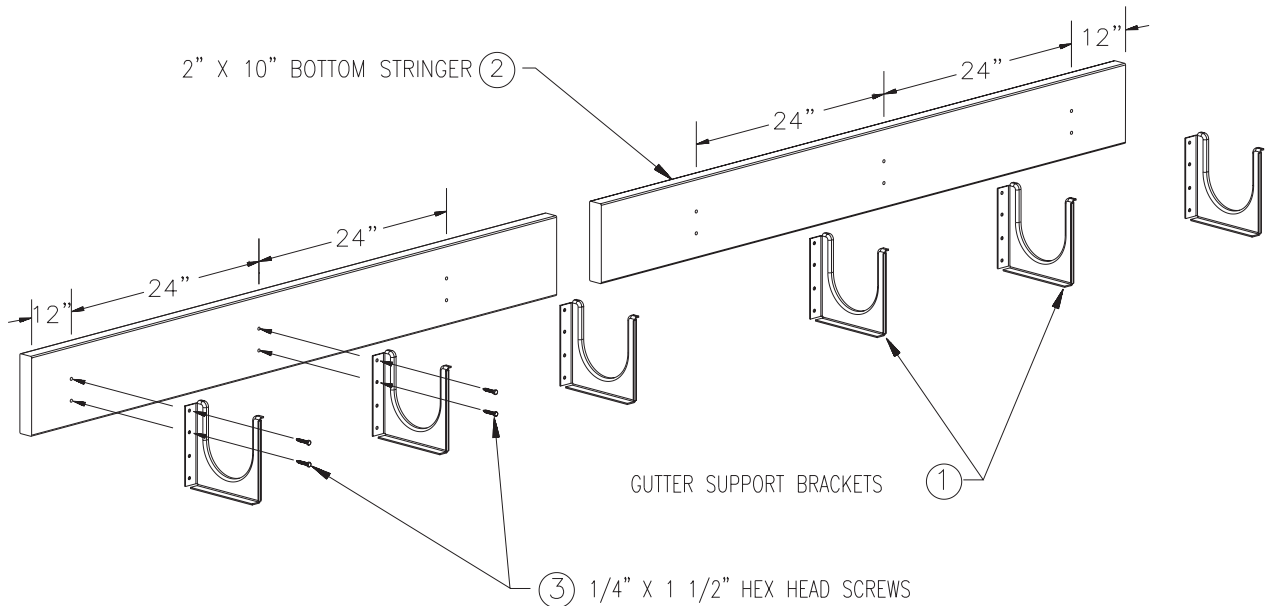
- To locate the gutter support bracket position on the bottom stringer, refer to chalk line shown in figure 2. The chalk line should be 3" down from the top of the stringer and run its full length. The chalk line will be used to locate the top hole position of the brackets. Hole spacing is shown in Figure 2 and Figure 3.

A =	Ordered Pad Height minus 2"
B =	Ordered Pad Length
C =	Ordered Pad Height plus 2 3/4"
D =	Minimum dimension for 8" pipe system is 17 3/4" (Ground level to top of lower stringer.)



**Figure 2**

- Install all gutter support brackets (1) as shown in Figure 3, making sure brackets are vertical.



**Figure 3**



# PDRPOT 6" Evaporative Cooling System

3. Locate the gutter end caps shown in Figure 4.
4. The gutter is a single piece of plastic 18" wide that comes rolled in a carton. Locate the gutter and roll out along the length of the framed opening.
5. The gutter has pre-punched holes at each end. The end caps also have pre-drilled alignment holes as shown in Figure 4 to match the holes in the gutter. After applying a bead of caulking around the end cap, match the two lower holes in the end cap with the center holes in the gutter and attach using the #10 x 3/4 screws and washers provided.

**Note:** Use the #10 x 1/2 screws in the two bottom holes on the end with the drain hole.

6. Continue attaching the gutter to the end cap by forcing the plastic against the end cap and securing it at the pre-punched holes using the #10 x 3/4 screws and washers.
7. Install the second end cap using the same method.
8. With the end caps installed, lay the entire gutter on the gutter support as shown in Figure 6. The end of the gutter should be 12" from the first gutter support (6" for a five foot system).

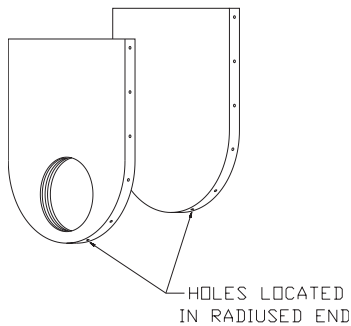


Figure 4

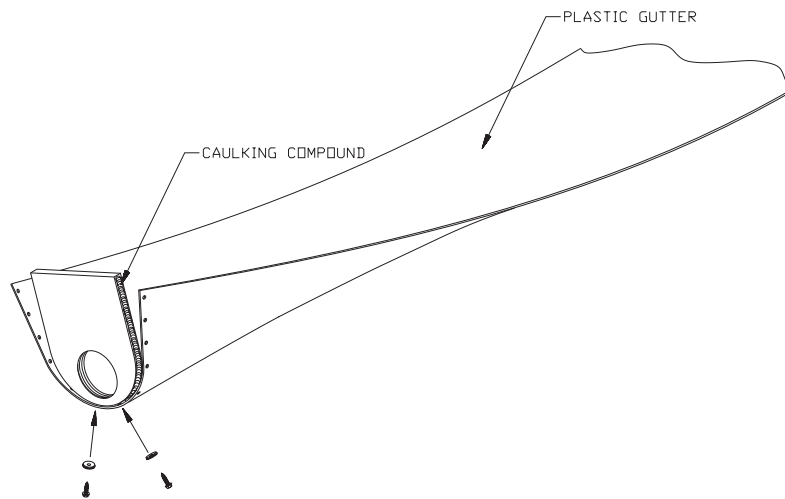


Figure 5

9. To install the gutter, starting at one end, fold the gutter into a "U" shape and push down into the support bracket. Continue the process from one end of the system to the other.
10. After the gutter is in the brackets, adjust the gutter so that the sides are at the same level.

**Warning: DO NOT attach plastic gutter to house stringer in any way. Gutter must be free to expand and contract.**

11. Install the drip collector as shown in Figure 7 by

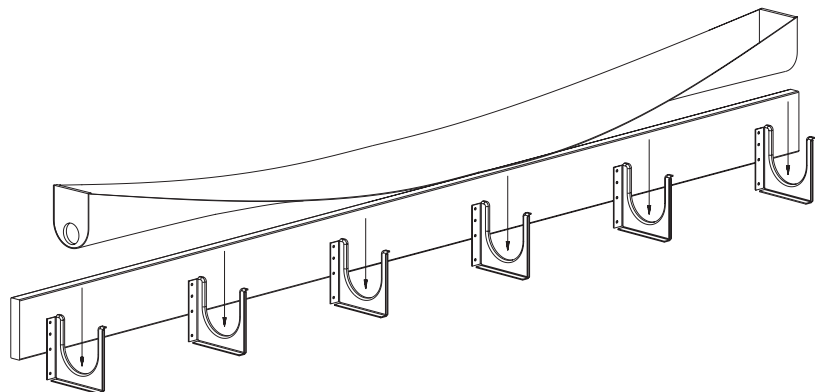


Figure 6





starting the outside slot over the edge of the gutter with the drip collector against the end cap. Push the drip collector down to seat into position going from one end to the other.

12. Caulk the end of each section prior to installing the next section to insure a leak free joint in the drip collector.
13. Install the 2 1/2" plastic male pipe adapter in the end cap as shown in Figure 8.

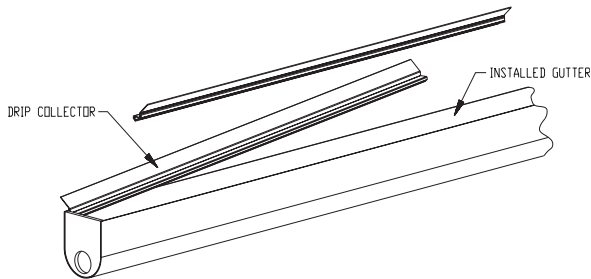


Figure 7

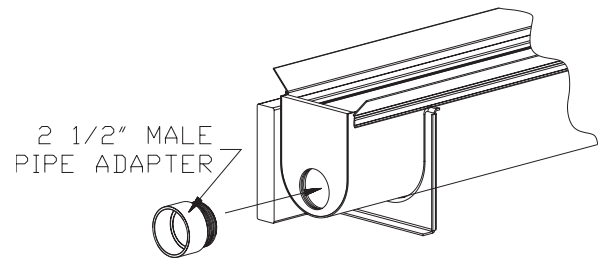


Figure 8

### System Top Installation

1. Beginning at the drain end, install the top filler sections along the chalk line shown in Figure 2 using the 1/4" x 1 1/2" hex head screws provided. Attach the top filler to the wall using the single holes as shown in Figure 9.
2. Install the pipe holder bracket to the top stringer by lining up the hole pairs in the top filler sections with the hole pairs on pipe holder bracket as shown in Figure 10. Attach the pipe holder brackets to the stringers with 1/4" x 1 1/2" hex head screws as shown in figure 10.

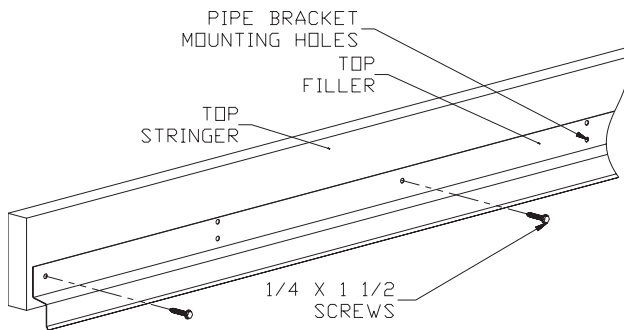


Figure9

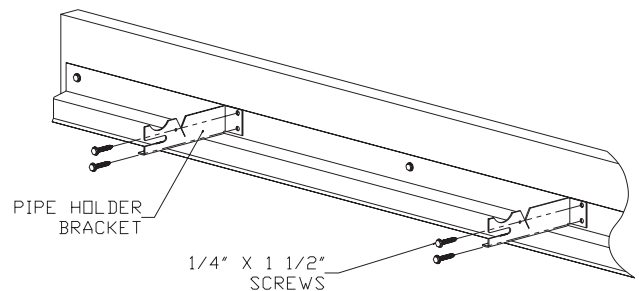


Figure 10



## PDRPOT 6" Evaporative Cooling System

3. Install the splash panels as shown in Figure 11 by starting at the drain end and placing the first splash panel into the slots of the pipe holder brackets. The end of the first splash panel should line up with the inside of the gutter end cap. Install the remaining splash panels in the same fashion and overlap the ends of the splash panels by 1 inch.
4. Secure the splash panels in place with the splash panel retainers as shown in Figure 12 using the #10 x 1/2" screws provided.
5. Place a 10' section of 1 1/2" pipe (with the metered holes pointing to the slight break in the splash panel as shown in figure 14) into the pipe holder brackets at the drain end of the system. Enough pipe should extend beyond the top cover support to later attach a 90° elbow for plumbing installation as in Figure 12.

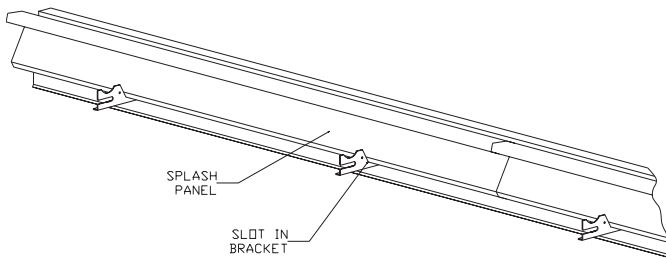


Figure 11

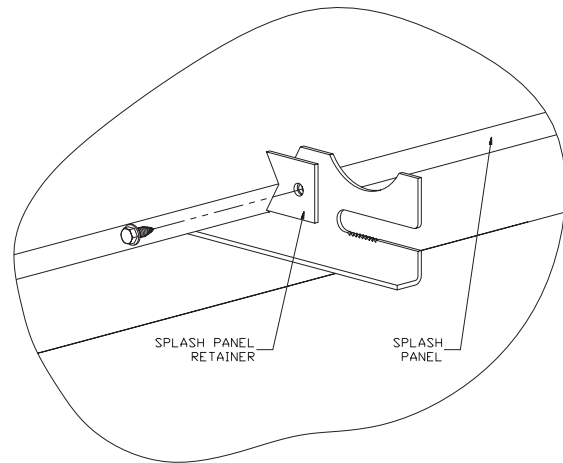


Figure 12

6. Install a 1 1/2" slip joint coupling on the pipe end away from the drain and assemble another 10' section of pipe. **Do not use pvc cement on these joints.** The coupling and pipe should be pushed tightly together **but not cemented.** Make sure the metered holes point to the slight break in the splash panel as shown by the arrow in figure 14 so the system will have proper water distribution.
7. Install the remaining pipe using the 1 1/2" coupling (no cement), always making certain that the metered holes point the proper direction as shown in Figure 14. Again, each pipe should extend beyond the opposite end to later attach a 1 1/2" tee for installation of the bleed-off clean-out assembly.

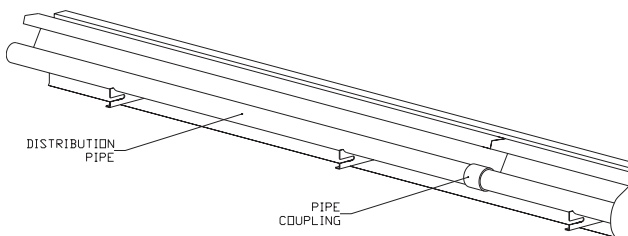


Figure 13

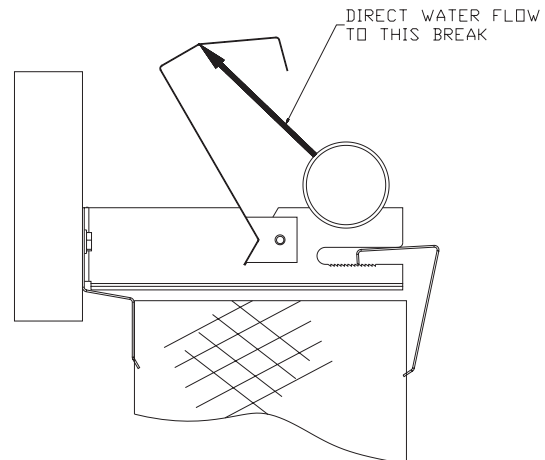


Figure 14

### End Cover Installation

1. The system end covers attach to the stringer and to a 2" filler in the wall. Install a 2" filler between the top stringer and bottom stringer at each end of the pad system.
2. Locate the two system end covers as shown in Figure 15. Slip the system end cover over the distribution pipe. Attach the system end cover to the top stringer using the 1/4" x 1 1/2" screws provided.
3. Next, attach the system end cover to the 2" filler using the 1/4" x 1 1/2" screws provided. The bottom of the system end cover fits inside the gutter end cap. This part does not fasten to the end cap due to expansion and contraction of the gutter with changes in temperature. Next, install the system end cover on the other end in the same manner.

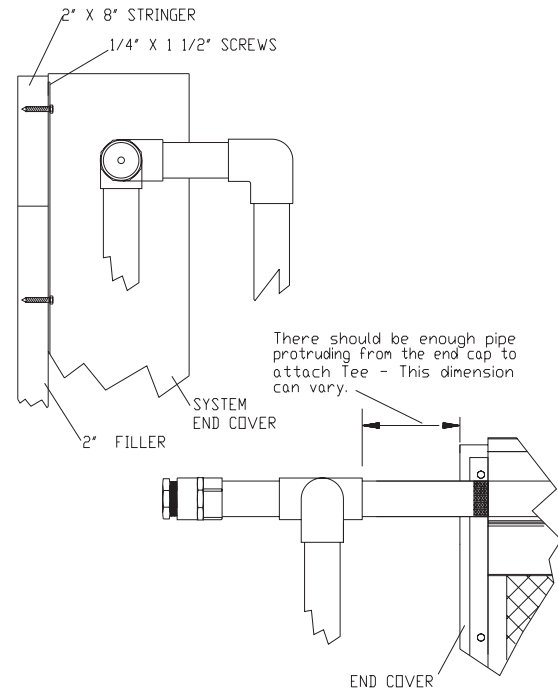


Figure 15

### Pad Installation

1. **Install the pads before installing the top cover.** (Installing pads with the pad front cover in place could result in pad damage and "springing" of the pad front cover which could result in improper channeling of the water). Place the bottom of the pad firmly on the drip collector and under the pipe. **For 6" pads that have unequal angles, be sure to follow the Air Flow Arrows on the side of the pad.**
2. **Note:** The last pad to be installed at the end may need to be trimmed to fit easily into the available space. **Do not** force the last pad into a space that is smaller than the pad. To seal the ends of the system, apply caulking tape to the pipe extending outside the end cap as shown in Figure 18. Cut the tape to fit around the pipe. Press the end cap firm against the top cover and wrap the tape around the pipe, snug against the end cap. Trim away the excess tape.

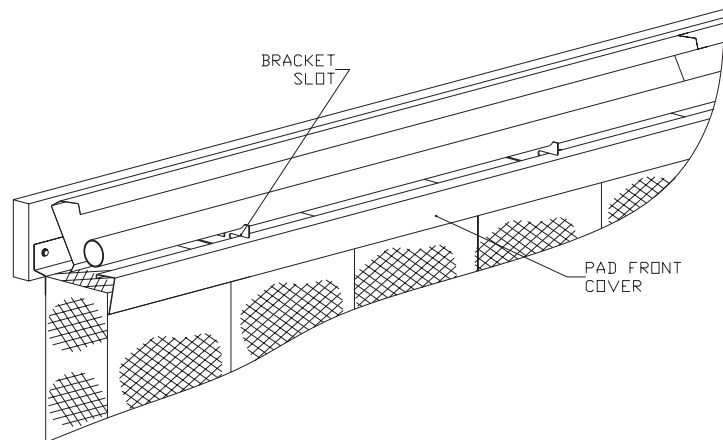


Figure 16

### Top/Pipe Cover Installation

**After the pad installation,** install the pad front cover. Beginning at the drain end, install the first section of the pad front cover by inserting the short let into the slots in the pipe holder brackets as shown in Figure 16. The end of the pad front cover should be aligned with the edge of the first pad. Continue installing pad front cover sections until complete.



# PDRPOT 6" Evaporative Cooling System

## Plumbing Installation

A complete plumbing kit is available through your distributor. Extra items are included in this kit so that one kit may fit all installations. If you have not purchased this kit, refer to Figures 17 & 18 for items required. Assemble the plumbing as shown in Figures 17 & 18 after the system has been installed.

### Bleed-Off Assembly Installation

Locate the bleed-off end opposite the supply line (or drain). Locate the following parts and install in the number sequence shown. Cement the pipe and fittings but **DO NOT** cement the threads of the female adapter or the male threads of the plugs. Allow at least one hour drying time for the cement.

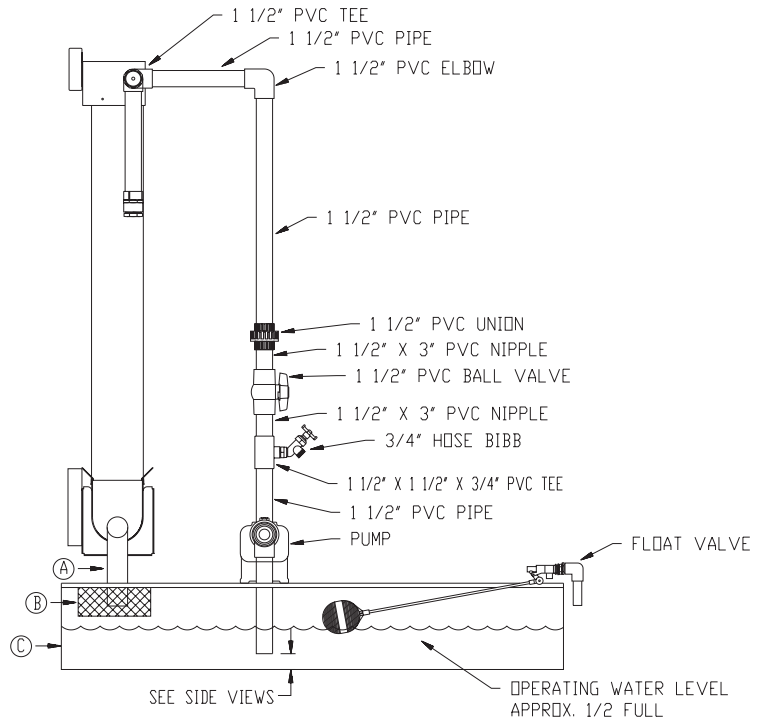


Figure 17

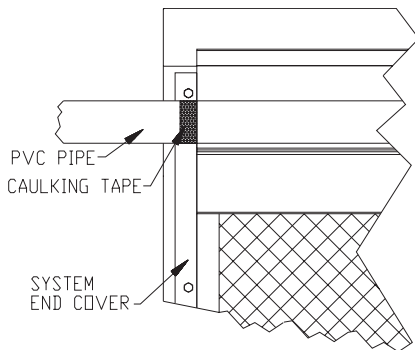
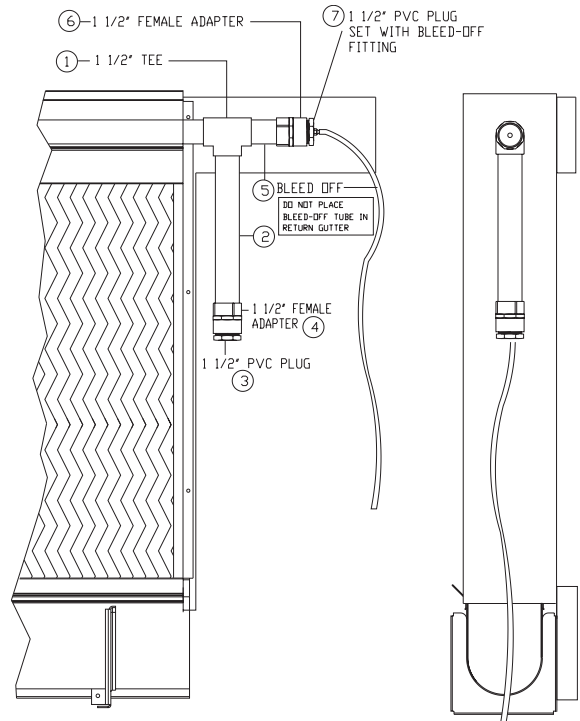


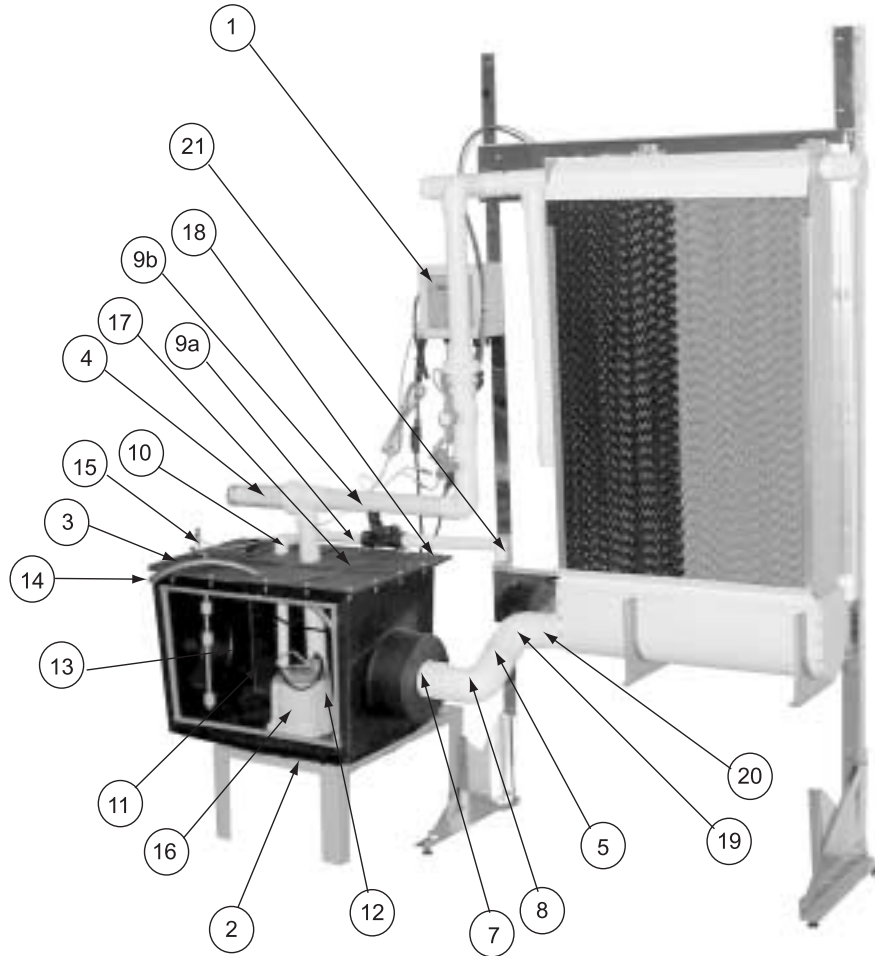
Figure 18

Bleed-Off Assembly Parts Listing		
Ref. No.	Description	Qty.
1	1 1/2" Tee	1
2	2'4" Piece of 1 1/2" Pipe	1
3	1 1/2" Female Adapter	1
4	1 1/2" Plug	1
5	Short Piece of 1 1/2" Pipe	1
6	1 1/2" Female Adapter	1
7	1 1/2" Plug Set with Bleed-Off Tube Fitting	1
8	Bleed-Off Tube	1

**BLEED-OFF ASSEMBLY NOT  
REQUIRED WITH FULLY  
AUTOMATED KOOL-FLOW  
SYSTEM**



## Kool-Flow Water Control System (optional)

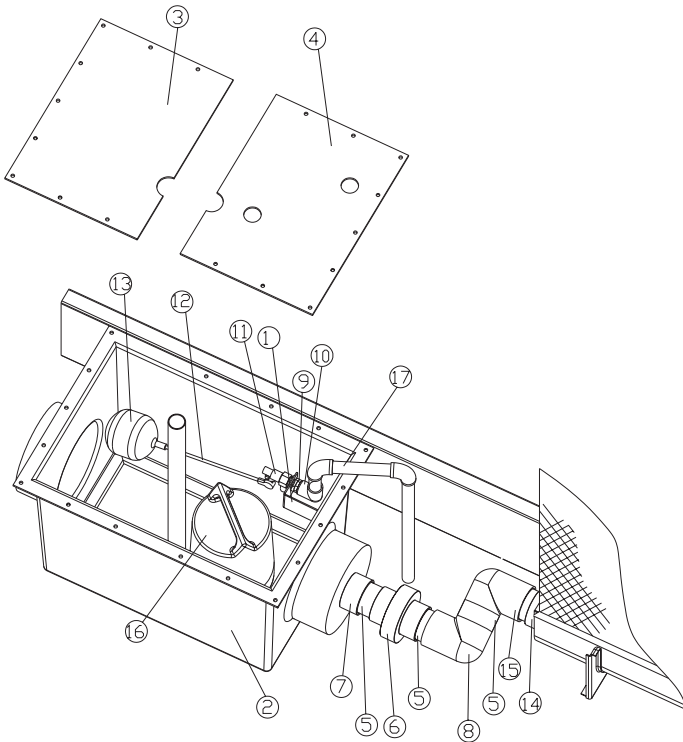
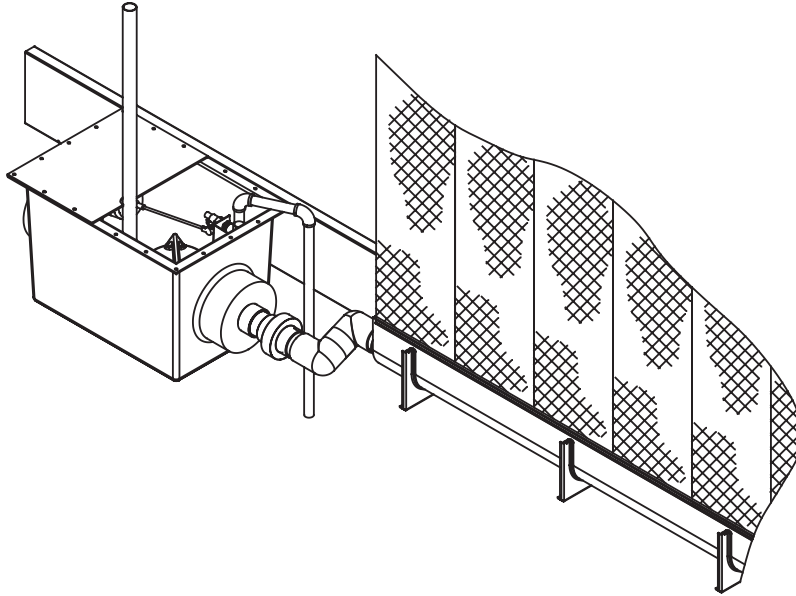


Kool-Flow Parts Listing							
Ref. No.	Description	Auto Flush	Manual Flush	Ref. No.	Description	Auto Flush	Manual Flush
1	Kool-Flow Control	1	1	11b	Solenoid Valve (not shown)	optional	optional
2	Pump Reservoir	1	1	12	Drain Pump	1	0
3	Reservoir Cover - Left	1	1	13	Float Switch	1	1
4	Reservoir Cover - Right	1	1	14	Drain Hose	1	0
5	2 1/2" PVC Pipe	22"	22"	15	Water Proof Terminals	7	7
6	2 1/2" PVC Union (not shown)	optional	optional	<b>The following are supplied as separate items or supplied by others.</b>			
7	2 1/2" PVC MIP Adapter	1	1				
8	2 1/2" PVC Elbow	1	1	16	Circulating Pump	1	1
9a	1" to 3/4" PVC Bushing	2	2	17	Filter (Plumbing Completer Kit)	1	1
9b	3/4" to 1/2" PVC Bushing (not shown)	optional	optional	18	1 1/2" PVC Pipe and Fittings (Plumbing Completer Kit)	set	set
10	3/4" PVC Elbow	1	1	19	2 1/2" PVC MIP Adapter (PDRP)	1	1
11a	Slow Off Water Valve	1	1	20	2 1/2" PVC Elbow (PDRP)	1	1
				21	Water Supply Plumbing Supplied By Others		



# PDRPOT 6" Evaporative Cooling System

## PDRP60 Pump Tank (optional)

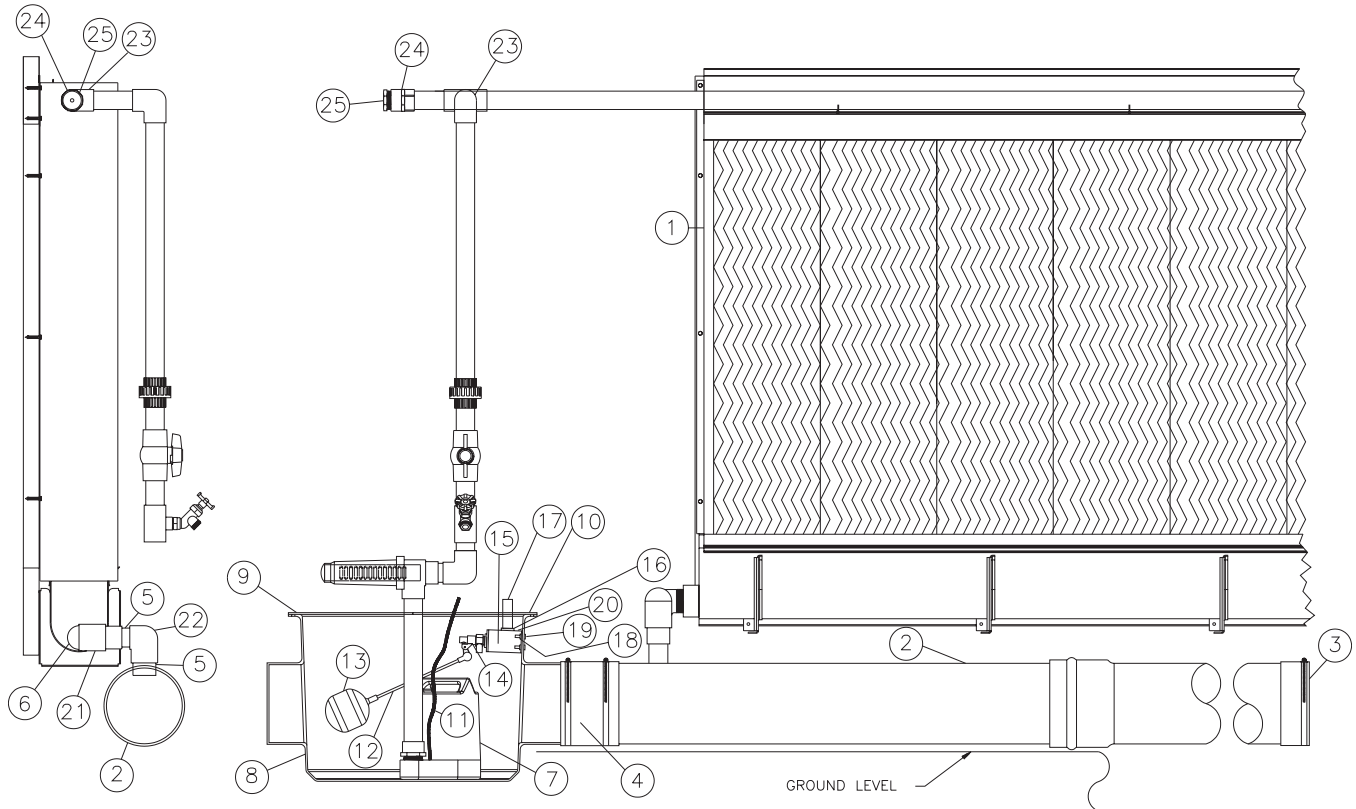


PDRP60 Parts Listing		
Ref. No.	Description	Qty.
1	Water Valve Bracket	1
2	Pump Reservoir	1
3	Reservoir Cover - Left	1
4	Reservoir Cover - Right	1
5	2 1/2" PVC Pipe	22"
6	2 1/2" PVC Union (optional)	1
7	2 1/2" PVC MIP Adapter	1
8	2 1/2" PVC Elbow	1
9	3/4 to 1/2" PVC Reducing Bushing	3
10	3/4" PVC Elbow	1
11	Water Valve	1
12	Float Rod	1
13	Float	1
The following parts are either part of the PDRP System or supplied by others.		
14	2 1/2" PVC MIP Adapter (PDRP)	1
15	2 1/2" PVC Elbow (PDRP)	1
16	Pump (optional)	1
17	Water Supply Plumbing (by others)	



## 8" PVC Transition Pump Tank (optional)

Install the transition pump tank according to figures below. Framing considerations for this optional equipment are described on page 5 of this booklet.



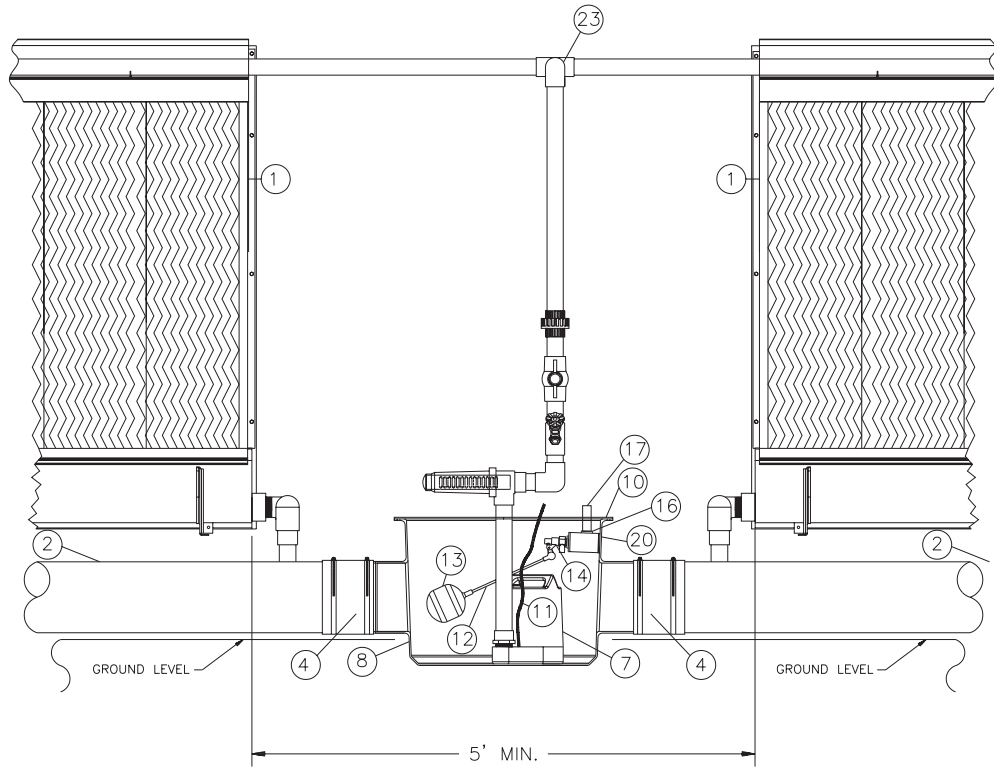
8" PVC Transition Pump Tank & Related Items Parts Listing			
Ref. No.	Description	Ref. No.	Description
*1	Kool-Cel System	*14	Float Valve
†2	8" PVC Pipe	15	Float Valve Bracket
3	8" Pipe Cap w/Connector	16	3/4" PVC Elbow
4	8" Coupler 1/8 x 6 x 30 Neoprene	†17	3/4" PVC Pipe
†5	2 1/2" PVC Pipe	18	1/4" - 20 Hex Head Nut
*6	2 1/2" PVC MIP Adapter	19	1/4" - 20 Hex Head Bolt
7	Pump	20	3/4" to 1/2" Reducer Bushing
8	Transition Pump Tank	21	2 1/2" 90° Street Ell MIPT x SLIP
9	Transition Pump Tank Cover - Left	22	2 1/2" 90° Street Ell SP x SLIP
10	Transition Pump Tank Cover - Right	*23	1 1/2" Tee
11	Pump Power Cord (supplied w/pump)	*24	1 1/2" Female Adapter
12	Float Rod	*25	1 1/2" Plug
*13	Float		

\* Items supplied in Basic Package or Plumbing Completer Kit

† Supplied by others

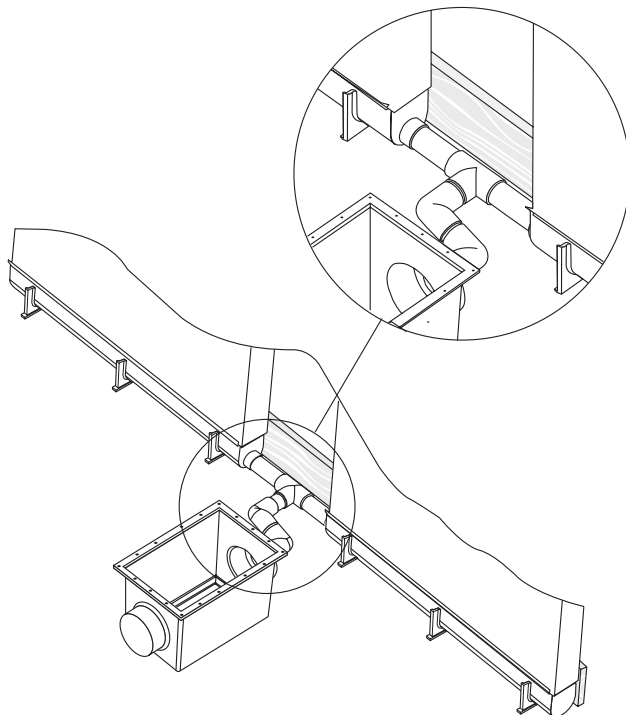


# PDRPOT 6" Evaporative Cooling System



Note: An 8" tee can be used to reduce the distance between the two systems to 34".

## Dual System Installation







## Start Up and Testing

- I. Test water - Make up water should be tested for Ph level and soluble salts. Ph must be between 6 and 9 and salt concentrates below 40,000 ppm. See "Pad Care" on page 18.
- II. Float valve - Open the water supply line to the sump. Adjust the float valve so the water shuts off before the water level in the tank reaches the top of the overflow pipe.
- III. Pump - Prime the pump (#30 and #60) per instructions received with the pump.
- IV. Flush the system to clean out all accumulated debris as follows:
  1. Open the flow valve. Close the clean out valve.
  2. Be sure pump is primed prior to operation. Run power to pump and let the system flush out for approximately 5 minutes.
  3. Remove plug from bleed-off end of system.
  4. Shut the pump off and replace plugs.
- V. Turn on the pump and be sure the water is flowing from all holes in the distribution pipe. Clean out any holes that are not spraying water.
- VI. Check the water flow from the pipe to insure that flow is into the plastic splash panel. If required, adjust the position of the pipe to insure water flow is going into the pad and not splashing out of the system. If the pipe is positioned properly but water is being thrown out of the system, adjust the flow valve until the water does not splash out.

## Maintenance

A regular maintenance schedule should be kept up to keep your Kool-Cel system operating at peak efficiency and to maximize the life of the system.

- I. A visual check should be made whenever you're in the area of the pad.
  1. Check for dry spots on the pad.
  2. Check for algae and scale on pads. See "Pad Care" on page 18.

**Note:** Temperature in a greenhouse that is empty will be considerably higher than a greenhouse with plants as the plants assist cooling by their transpiration.

- II. During the cooling season, when the pad is in operation:
  1. Weekly
    - a. Clean out strainer to prevent possible damage to pump. This may need to be done twice a week.
    - b. Clean out sediment plugs at the ends of system. (Remove plugs and drain into a bucket with system pump off. Replace plugs.)
    - c. Drain the sump to remove sediment; usually every two to four weeks. In areas with extremely high salt concentrates, this should be done weekly to lower salt concentrates in the sump. (Close the valve, connect hose to the hose bibb, open hose bibb and turn on the pump.)
  2. Monthly
    - a. Inspect the complete system:
      - 1) Check for leaks and repair.
      - 2) Check bleed-off connection to insure bleed-off is occurring at all times.
      - 3) check the strainer from the down spout in the sump - replace if necessary.
    - b. Test water for Ph level (make-up water and sump water). See "Pad Care" on page 18.



## PDRPOT 6" Evaporative Cooling System

3. Start and End of Cooling Season
  - a. At the end of the season, drain the pump and piping system to avoid damage caused by rust and impure particles in the water.
  - b. To restart the system in the spring, follow the "Start up and Testing" procedures above.
  - c. Inspect all parts and pads and replace any damaged or worn parts. See parts list and drawings on appropriate page or "Exploded View of System" on page 3.

### Pad Care

Kool-Cel pads are very durable and long lasting. To maximize the life of your pads and keep the efficiency of the original installation, review the following items and take necessary action to correct any conditions that may be detrimental to the pad.

- I. Ph of recirculating water (from sump) must be maintained between 6 and 9 (7 is pure water). If these limits are exceeded, the stiffening agents in the pad will leach out and destroy the pad. Water containing acids to a degree that the Ph is below 6.0 aromatic hydrocarbons, or wetting and dispersing agents, such as phosphates can be harmful to the pad.
- II. Hard Water resulting in calcium carbonate deposits on the pad is not harmful, but should be kept within limits. The well known Longelier formula can help to approximate the Ph above which the scaling will appear. The help of a good water treatment expert is advisable if any hardness problems are encountered.
- III. Sodium Chloride (salt water) concentrate above 50,000 ppm (approx.) will deposit salt on the pad and reduce air flow. Keep salt concentrates below 50,000 ppm in recirculating water and below 40,000 ppm in make-up water.
- IV. Algae will grow on any surface that is wet and exposed to sunlight. To help prevent algae build up, follow these tips:
  1. Do not draw make-up water from an open pond. Use well water or chlorinated water from city systems.
  2. Cover the sump to avoid exposure to sunlight and airborne particles and keep animals from drinking it.
  3. Keep the fans running after the pump is shut off to dry the pads, thus killing the algae spores left on the pad.
  4. Isolate the water make-up system from any other system that may carry fertilizers which would enhance algae growth.
  5. If algae persists, use a swimming pool water algaecide non-chlorine, chloride (tablet type) in the sump about 1/4 the concentrate suggested for pools.
- V. Airborne dust and bugs do not seem to clog the air flow passages of Kool-Cel. When the system is running this clogging washes away.
- VI. When Kool-Cel is installed within reach of poultry or livestock it should be guarded. To guard from poultry birds, a 10 x 14 mesh guard approximately 8" - 12" from the pad and the full length of the system should be provided up to approximately 3" from the bird's feet. The pad should be protected from livestock with a full heavy gage wire screen approximately 2" x 2" mesh and placed at least 6" from the pad.
- VII. Bleed-Off - Since the water is continuously evaporating and being replaced by fresh water, the salts and minerals are left behind in the re-circulating water. As these impurities become concentrated, they build up in the pads unless preventive steps are taken. To reduce the build up of deposits and scale, a bleed-off of 1 to 2 percent of the recirculating water is usually required. This is particularly true in areas that have a high mineral content in the water. The required bleed-off is provided by the bleed-off fitting in the plug.

**Note:** The bleed-off is not used with the Kool-Flow system.



<h1 style="margin: 0;">Material Safety Data Sheet (MSDS)</h1>		<p><b>Series:</b> #0697OI, #0697/GI, #0697/BI (All Labels)</p> <p><i>NFPA Rating:</i> 1-2-0 <i>HMIS Rating:</i> 1-2-0-B</p>			
<b>SECTION I</b>		<b>EMERGENCY TELEPHONE NO.</b>			
<b>TRADE NAME (IF NONE, PUT CHEMICAL)</b>	RD Pro Architectural Grade Butyl Sealant	(918) 825-5744 (24 Hrs.)			
<b>MANUFACTURER'S NAME AND TELEPHONE NO.</b>	Red Devil, Incorporated (918) 825-5744				
<b>ADDRESS (Number, Street, City, State, Zip Code)</b>	One Webb Street, Pryor, Oklahoma 74361				
<b>SECTION II - HAZARDOUS INGREDIENTS</b>		<b>%</b>	<b>TLV</b>	<b>PEL</b>	<b>UNITS</b>
<b>PRODUCT CONSISTS OF:</b>					
Mineral spirits (petrol.dist.) [64742-88-7]		5.0	100	500	ppm
Calcium carbonate** [1317-65-3] (as nuisance particulate, total)		58	10	15	mg/m3
Non-hazardous ingredients*		<40.0	NA	NA	
<p>*Unlisted ingredients are not considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).  **Inhalation of particulates unlikely due to product's physical state  VOC: 227 g/L. CARB Compliance: YES. Prop 65 Ingredients: NONE</p>					
<b>SECTION III - PHYSICAL DATA</b>					
<b>BOILING POINT (°F)</b>	NE	<b>SPECIFIC GRAVITY (H<sub>2</sub>O=1)</b>		>1.5	
<b>VAPOR PRESSURE (MM Hg.)</b>	NE	<b>PERCENT VOLATILES BY VOLUME (%)</b>		<40	
<b>VAPOR DENSITY (AIR=1)</b>	>1	<b>pH</b>		NA	
<b>SOLUBILITY IN WATER</b>	Insoluble	<b>EVAPORATION RATE</b>		>1.0 (BuAc = 1)	
<b>APPEARANCE AND ODOR</b>	Bronze, white or gray paste; solvent odor				
<b>SECTION IV - FIRE AND EXPLOSION HAZARD DATA</b>					
<b>FLASH POINT (Method used)</b>	110-115°F	<b>FLAMMABLE LIMITS</b>		LEL	NE
				UEL	NE
<b>EXTINGUISHING MEDIA</b>	Carbon dioxide, dry chemical, or foam				
<b>SPECIAL FIRE FIGHTING PROCEDURES</b>	Use water spray or fog to cool fire-exposed containers.				
<b>UNUSUAL FIRE AND EXPLOSION HAZARDS</b>	Closed containers may explode when exposed to extreme heat.				

NA - Not Applicable

NE - Not Established

UN - Unavailable



# PDRPOT 6" Evaporative Cooling System

<b>SECTION V - HEALTH HAZARD INFORMATION</b>	
<b>SYMPTOM/EFFECTS OR OVEREXPOSURE</b>	Inhalation of dust generated from dried product may cause respiratory irritation. High vapor concentrations may produce headache, dizziness and nausea. Prolonged or repeated skin contact may lead to drying and irritation. Contact may cause eye irritation.
<b>FIRST AID</b>	
<b>EYES</b>	Immediately flush eyes with large amounts of water while holding the eyelids open. Get medical attention if irritation persists.
<b>SKIN</b>	Wipe material from skin with cloth or paper towel, then wash exposed area with soap and water. Get medical help if irritation persists.
<b>INHALATION</b>	Move victim to fresh air and treat with artificial respiration if needed.
<b>INGESTION</b>	Contact local poison control center or physician IMMEDIATELY!!
<b>SECTION VI - REACTIVITY DATA</b>	
<b>STABILITY</b>	Normally stable. Avoid heat, open flame.
<b>INCOMPATIBLE MATERIALS</b>	Strong oxidizers
<b>HAZARDOUS DECOMPOSITION PRODUCTS</b>	Carbon monoxide, carbon dioxide
<b>SECTION VII - SPILL OR LEAK PROCEDURES</b>	
<b>PROCEDURES</b>	Depending on extent of spill, wear personal protective equipment (see Sect. VIII) and remove ignition sources. Wipe up with inert absorbent material.
<b>WASTE DISPOSAL METHOD</b>	Waste may be burned in an approved incinerator, or disposed of according to Local, State and Federal regulations.
<b>SECTION VIII - SPECIAL PROTECTION INFORMATION</b>	
<b>RESPIRATORY</b>	Not normally required. If TLV is exceeded, or for symptoms of overexposure, wear a NIOSH-approved respirator for organic vapors.
<b>EYEWEAR</b>	Wear safety glasses.
<b>CLOTHING/GLOVES</b>	Not normally required; in situations of extended skin contact, neoprene or other chemical resistant gloves are recommended.
<b>VENTILATION</b>	Provide adequate general dilution ventilation.
<b>SECTION IX - SPECIAL PRECAUTIONS</b>	
COMBUSTIBLE. Store in a closed container in cool area. Avoid heat & open flame.	
<b>Reviewed By:</b> <u>Larry G. Brandon</u>	<u>February 20, 2002</u>
<small>NAME</small>	<small>TITLE</small>
<small>DATE</small>	
<small>The information contained herein has been developed based upon current available scientific data. New information may be developed from time to time which may render the conclusions of this report obsolete. Therefore, no warranty is extended as to the applicability of this information to the user's intended purpose or for the consequences of its use or misuse.</small>	



MATERIAL SAFETY DATA SHEET- **MIKE 425**

MSDS0029  
Ver. No.1  
Ver. Date April 13, 1999

**SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**PRODUCT NAME:** Mike™ 425  
**PRODUCT CODES:** 55501, 55503, 55505, 55507, 55509  
**CHEMICAL FAMILY:** Organic  
**USE:** Multi-Purpose Solvent Cement  
**MANUFACTURE / SUPPLIER**  
RectorSeal  
2601 Spenwick  
Houston, Texas 77055 USA

**EMERGENCY TELEPHONE NUMBERS:**  
Chemtrec 24 hours: (800) 424-9300  
RectorSeal: (713) 263-8001

**NON EMERGENCY TELEPHONE NUMBERS:**  
Technical Service: (800) 231-3345

**SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS**

<u>HAZARDOUS COMPONENTS</u>	<u>CAS NO.</u>	<u>APPROX</u>		<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>OTHER LIMITS</u>	<u>HMIS</u>	<u>NFPA</u>
		<u>%</u>	<u></u>					
Methyl Ethyl Ketone	78-93-3	47	Max	200 ppm	200 ppm	300 ppm STEL	H3,F3,R0	H1,F3,R0
Tetrahydrofuran	109-99-9	--		200 ppm	200 ppm	250 ppm STEL	H2,F3,R1	H2,F3,R1
Cyclohexanone	108-94-1	--		25 ppm	25 ppm	N/D	H2,F2,R0	H1,F2,R0

**SECTION 3 HAZARDS IDENTIFICATION**

**SUMMARY OF ACUTE HAZARDS** Overexposure may cause coughing, shortness of breath, dizziness, central nervous system depression, intoxication and collapse. It may cause irritation to the respiratory tract and to other mucous membranes.

<u>ROUTE OF EXPOSURE</u>	<u>SIGNS AND SYMPTOMS</u>	<u>PRIMARY ROUTE(S)</u>
<b>INHALATION:</b>	Overexposure may cause coughing, shortness of breath, dizziness, central nervous system depression, intoxication and collapse. It may cause irritation to the respiratory tract and to other mucous membranes.	Yes
<b>EYE CONTACT:</b>	Severely irritating. If not removed promptly, will injure eye tissue, which can result in permanent damage.	Yes
<b>SKIN CONTACT:</b>	Frequent or prolonged contact may irritate and cause dermatitis. Low order of toxicity.	Yes
<b>INGESTION:</b>	Low order of toxicity. Small amounts of the liquid aspirated into the respiratory system during ingestion, or from vomiting, may cause bronchiopneumonia or pulmonary edema.	No

**SUMMARY OF CHRONIC HAZARDS:** Repeated or prolonged exposure may cause signs of central nervous system depression and respiratory irritation. This material has been shown to induce tumors in laboratory animals.

**MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE** Individuals with pre-existing or chronic diseases of the eyes, skin, respiratory system, cardiovascular system, gastrointestinal system, liver, or kidneys may have increased susceptibility to excessive exposure.

**SECTION 4 FIRST AID MEASURES**

**INHALATION:** If overcome by exposure, remove victim to fresh air immediately. Give oxygen or artificial respiration as needed. Obtain emergency medical attention. Prompt action is essential.

**EYE CONTACT:** Immediately flush with large amounts of water for at least 15 minutes. Get prompt medical attention.

**SKIN CONTACT:** Immediately flush with large amounts of water; use soap if available. Remove contaminated clothing.

**INGESTION:** If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

**SECTION 5 FIRE FIGHTING MEASURES**

**FLASH POINT:** 14°F (-10°C) SETA CC **FLAMMABILITY LIMITS:** LEL: 2% UEL: 11.8%

**EXTINGUISHING MEDIA:** Foam, dry chemical, carbon dioxide or water fog.

**SPECIAL FIRE FIGHTING PROCEDURES:** Wear self-contained full face piece breathing apparatus and other protective clothing. Hazardous decomposition products possible (see Section 10). Evacuate area. Dike fire control area as run-off may create additional fire hazard and environmental contamination. Cool heat exposed containers with water. If spill or leak has not ignited, use water spray to disperse vapors.

**UNUSUAL FIRE AND EXPLOSION HAZARDS** Extremely flammable – very low flash point. Vapors are heavier than air and may travel along ground or to low spots at considerable distance to a source of ignition resulting in potential flashback. Burning liquid may float on water. Heat may build up pressure and rupture closed containers.

**SECTION 6 ACCIDENTAL RELEASE MEASURES**

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED** Remove all sources of ignition. Use absorbent materials to prevent footing hazard and to contain. Ventilate area with natural or explosion-proof, forced air ventilation. Avoid flushing into sewers, drains, waterways, and soil. Wear protective clothing and respiratory protection during cleanup. Also, if product is subject to CERCLA reporting (see Section 15) notify the National Response Center.

**SECTION 7 STORAGE AND HANDLING**

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING** Keep container closed and upright when not in use. Do not store near heat, sparks, or open flames. If transferring this material to other containers, ground all containers to avoid static electricity buildup and discharge which may ignite flammable vapors.

**OTHER PRECAUTIONS:** Avoid prolonged or repeated contact with skin or clothing. Empty containers may contain residues and vapors; treat as if full and observe all products precautions. Do not reuse empty containers. **KEEP OUT OF REACH OF CHILDREN.**



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### SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

**RESPIRATORY PROTECTION (SPECIFY TYPE):** In confined, poorly ventilated areas, use NIOSH/MSHA approved air purifying or supplied air respirators.

**VENTILATION – LOCAL EXHAUST:** Acceptable  
**MECHANICAL (GENERAL):** Preferable  
**Special:** Explosion proof equipment.  
**OTHER:** N/A

**PROTECTIVE GLOVES:** Wear non-permeable gloves. **EYE PROTECTION:** Chemical splash goggles (ANSI Z-87.1 or equivalent)

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT:** Coveralls recommended.

**WORK/HYGIENIC PRACTICES:** Where use can result in skin contact, wash exposed areas thoroughly before eating, drinking, smoking, or leaving work area. Launder contaminated clothing before reuse.

### SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

**BOILING POINT:** 151°F (66°C) @ 760mm Hg  
**VAPOR PRESSURE (mm Hg):** 140 @ 68°F (20°C)  
**VAPOR DENSITY (AIR = 1):** 2.5  
**SOLUBILITY IN WATER:** N/D  
**SPECIFIC GRAVITY (H<sub>2</sub>O = 1):** 0.97  
**MELTING POINT:** N/A  
**EVAPORATION RATE (ETHYL ACETATE = 1):** 6  
**APPEARANCE/ODOR:** Amber Liquid/Pungent Odor

### SECTION 10 STABILITY AND REACTIVITY

**STABILITY:** Can form potentially explosive peroxides upon long standing in air.

**CONDITIONS TO AVOID:** Heat, sparks, open flames, and strong oxidizing, acidic and basic conditions.

**INCOMPATIBILITY (MATERIALS TO AVOID):** Oxidizers, acids and bases.

**HAZARDOUS DECOMPOSITION PRODUCTS:** CO, CO<sub>2</sub>, HCl and fragmented hydrocarbons.

**HAZARDOUS POLYMERIZATION:** Can occur in presence of cationic initiators such as selected Lewis Acids or strong proton acids.

### SECTION 11 TOXICOLOGY INFORMATION

**CARCINOGENICITY:** NTP: No **IARC MONOGRAPHS:** No **OSHA REGULATED:** No

<u>SUBSTANCE</u>	<u>CAS NO.</u>	<u>LD50</u>	<u>LC50</u>
Methyl Ethyl Ketone	78-93-3	Oral-Rat LD50:2737 mg/kg	Inhalation-Rat LC50:23,500 mg/m <sup>3</sup> /8H
Tetrahydrofuran	109-99-9	Oral-Rat LD50:1650 mg/kg	Inhalation-Rat LC50:21,000 ppm/3H
Cyclohexanone	108-94-1	Oral-Rat LD50:1535 mg/kg	Inhalation-Rat LC50:8000 ppm/4H

**ADDITIONAL TOX INFORMATION:** Tetrahydrofuran – The National Toxicology Program has reported that exposures of mice and rats to THF vapor levels up to 1800 ppm 6hr/day, 5 days/week for their lifetime caused an incidence of kidney tumors in male rats and liver tumors in female mice. The significance of these findings for human health are unclear at this time, and may be related to 'species specific' effects. Elevated incidences of tumors in humans have not been reported for THF.

### SECTION 12 ECOLOGICAL INFORMATION

<u>SUBSTANCE</u>	<u>FOOD CHAIN CON POTENTIAL</u>	<u>WATERFOWL TOXICITY</u>	<u>BOD</u>	<u>AQUATIC TOXICITY</u>
Methyl Ethyl Ketone	None	N/A	214%	5640 mg/l/48 hr/bluegill/TLm/fresh water
Tetrahydrofuran	None	N/A	N/A	N/A
Cyclohexanone	None	N/A	N/A	N/A

### SECTION 13 DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL METHOD:** RCRA classified hazardous waste. Dispose of absorbed materials and liquid waste in approved, controlled incineration facility in accordance with all local, state and federal regulations.

### SECTION 14 TRANSPORTATION INFORMATION

**DOT:** Adhesives, Class 3, UN 1133, PG II, ERG#127. Quarts and less: Consumer Commodity, ORM-D

**OCEAN (IMDG):** Adhesives, Class 3.2, PG II, IMDG#3174, EMS#3-05, MFAG#330

**AIR (IATA):** Adhesives, Class 3, UN 1133, PG II, ERG#127

**WHMIS (CANADA):** Class B-2

### SECTION 15 REGULATORY INFORMATION

<u>SUBSTANCE</u>	<u>SARA 313</u>	<u>TSCA INVENTORY</u>	<u>CERCLA RQ</u>	<u>RCRA CODE</u>
Methyl Ethyl Ketone	Yes	Yes	5,000 lb.	U159
Tetrahydrofuran	No	Yes	1,000 lb.	U213
Cyclohexanone	No	Yes	5,000 lb.	U057

### SECTION 16 OTHER INFORMATION

This document is prepared pursuant to the OSHA Hazardous Communication Standard (29 CFR 1910.1200). The information herein is given in good faith, but no warranty, express or implied is made. Consult RectorSeal for further information: (713) 263-8001.

**kool-ceil**® PDRPOT 6" Evaporative Cooling System

## TERMS AND CONDITIONS

**DESIGN CHANGES** Acme reserves the right to make changes in design, improvements and additions in and to its products any time without imposing any liability or obligations to itself to apply or install the same in any product manufactured by it.

**TITLE** The title and right of possession of the equipment sold herein shall remain with the Company and such equipment shall remain personal property until all payments herein (in-

cluding deferred payments whether evidenced by notes or otherwise) shall have been made in full in cash and the Purchaser agrees to do all acts necessary to perfect and maintain such right and title in the Company.

**SAFETY ACCESSORIES** The Company manufactures equipment designed to serve multiple applications and offers a wide range of safety equipment, including guards and other devices, as may be required to meet customer specifica-

tions. Without exception, the Company recommends that all orders include applicable safety devices. Equipment ordered without applicable safety devices is clearly the responsibility of the Purchaser. Further, the Purchaser warrants that he has determined and acquired any and all safety devices required for equipment sold by the Company. Weather covers and guards for motor and V-belt drives, couplings, shafts and bearings, along with inlet and outlet screens, are optional accessories noted in the price list.

These instructions cover the usual installation, operation and maintenance methods for which the product(s) was designed. They do not purport to cover all details or variations in the product(s) nor to provide for every possible contingency that might be met in connection with the installation, operation and maintenance. For any departures from these instructions, or should particular problems arise which are not covered sufficiently for the purchaser's purpose, the matter should be referred to the Company.

**WARNING** Acme products are designed and manufactured to provide reliable performance but they are not guaranteed to be 100% free of defects. Even reliable products will experience occasional failures and this possibility should be recognized by the User. If these products are used in a life support ventilation system where failure could result in loss or injury, the User should provide adequate back-up ventilation, supplementary natural ventilation or failure alarm system, or acknowledge willingness to accept the risk of such loss or injury.

**WARNING DO NOT** use in HAZARDOUS ENVIRONMENTS where fan's electrical system could provide ignition to combustible or flammable materials unless unit is specifically built for hazardous environments.

**CAUTION** Guards must be installed when fan is within reach of personnel or within seven (7) feet (2.134 m) of working level or when deemed advisable for safety.

**DISCLAIMER** The Company has made a diligent effort to illustrate and describe the products in this literature accurately; however, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the products are merchantable, or fit for a particular purpose, or that the products will necessarily conform to the illustrations or descriptions or dimensions.

## LIMITED WARRANTY

**WARRANTY AND DISCLAIMER:** Acme Engineering and Manufacturing Corporation extends this limited warranty to the original buyer and warrants that products manufactured by the Company shall be free from original defects in workmanship and materials for two years from date of shipment, provided same have been properly stored, installed, serviced, maintained and operated. This warranty shall not apply to products which have been altered or repaired without the Company's express authorization, or altered or repaired in any way so as, in the Company's judgment, to affect its performance or reliability, nor which have been improperly installed or subjected to misuse, negligence, or accident, or incorrectly used in combination with other substances. The Buyer assumes all risks and liability for results of use of the products. Warranties on purchased parts, such as but not limited to bearings, sheaves, belts, couplings, electric motors, pumps, controls and heaters are limited to the terms of warranty extended by our supplier.

Polyethylene tubing and cooling pads are warranted to be free of defects in material and workmanship for a period of 90 days from date of shipment and a like warranty applies to the cross fluted cellular type cooling cells for a period of two years from date of shipment provided same have been properly handled, stored, installed, serviced, maintained and operated. And further, not subjected to excessive heat, corrosive agents or chemicals, or mechanical abuse that may cause tearing, crushing or undue deterioration nor used on a system or in a manner other than that for which it was designed as explained in the product literature.

**LIMITATION OF REMEDY AND DAMAGES:** All claims under this warranty must be made in

writing and delivered to P. O. Box 978, Muskogee, Oklahoma, 74402, within 15 days after discovery of the defect and prior to the expiration of two years from the date of shipment by the Company of the product claimed defective, and Buyer shall be barred from any remedy if Buyer fails to make such claim within such period.

Within 30 days after receipt of a timely claim, the Company shall have the option either to inspect the product while in Buyer's possession or to request Buyer to return the product to the Company at Buyer's expense for inspection by the Company. The Company shall replace, or at its option repair, free of charge, any product it determines to be defective, and it shall ship the repaired or replacement product to Buyer F.O.B. point of shipment; provided, however, if circumstances are such as in the Company's judgment to prohibit repair or replacement to remedy the warranted defects, the Buyer's sole and exclusive remedy shall be a refund to the Buyer of any part of the invoice price, paid to the Company, for the defective product or part.

The Company is not responsible for the cost of removal of the defective product or part, damages due to removal, or any expenses incurred in shipping the product or part to or from the Company's plant, or the installation of the repaired or replaced product or part.

Implied warranties, when applicable, shall commence upon the same date as the express warranty provided above, and shall, except for warranties of title, extend only for the duration of the express warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. The only remedy provided to you under an applicable implied warranty and the express warranty shall be the remedy provided under

the express warranty, subject to the terms and conditions contained therein. The Company shall not be liable for incidental and consequential losses and damages under the express warranty, any applicable implied warranty, or claims for negligence, except to the extent that this limitation is found to be unenforceable under applicable state law.

Some states 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 which vary from state to state.

No employee, agent, dealer, or other person is authorized to give any warranties on behalf of the Company or to assume for the Company any other liability in connection with any of its products except in writing and signed by an officer of the Company.

**REPLACEMENT PARTS** If replacement parts are ordered, buyer warrants that the original components in which these replacement parts will be placed are in satisfactory working condition, and when said replacement parts are installed, the resultant installation will operate in a safe manner, at speeds and temperatures for which the original equipment was purchased.

**TECHNICAL ADVICE AND RECOMMENDATIONS, DISCLAIMER:** Notwithstanding any past practice or dealings or any custom of the trade, sales shall not include the furnishing of technical advice or assistance or system design. Any such assistance shall be at the Company's sole option and may be subject to additional charge.

The Company assumes no obligation or liability on account of any recommendations, opinions or advice as to the choice, installation or use of products. Any such recommendations, opinions or advice are given and shall be accepted at your own risk and shall not constitute any warranty or guarantee of such products or their performance.

**GENERAL** In no event shall any claim for consequential damages be made by either party. The Company will comply with all applicable Federal, State, and local laws.



ACME ENGINEERING AND  
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