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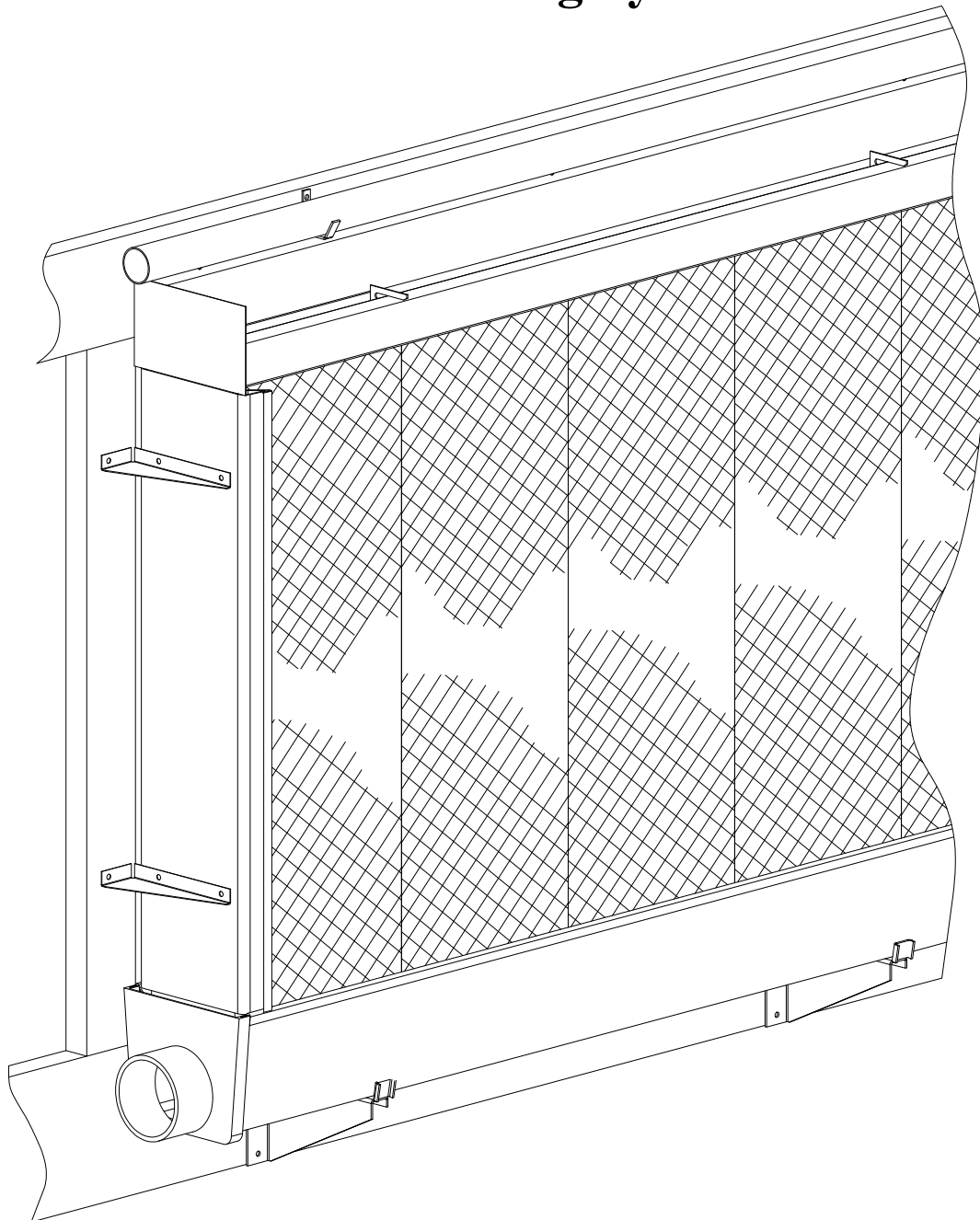
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## OWNERS MANUAL • INSTALLATION INSTRUCTIONS

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# MODEL OSEG

## 6" Kool-Cel<sup>®</sup> Open Stainless Steel Top With Extruded Gutter Cooling System



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## I. Components

### A. Standard Kool-Cel components provided by Acme:

1. Kool-Cel pads 6" x 12" x 24", 36", 48", 60", or 72" .
2. Water Pump.
3. Distribution and return system. Available in 5' systems to 85' systems. Includes distribution pipe, top assembly, pad support assembly, pipe gutter, and support brackets.
4. Plumbing Kit.
5. End Cover Package.
6. PVC Inline Pump Tank
7. Float Valve

### B. Optional Kool-Cel Components provided by Acme upon request:

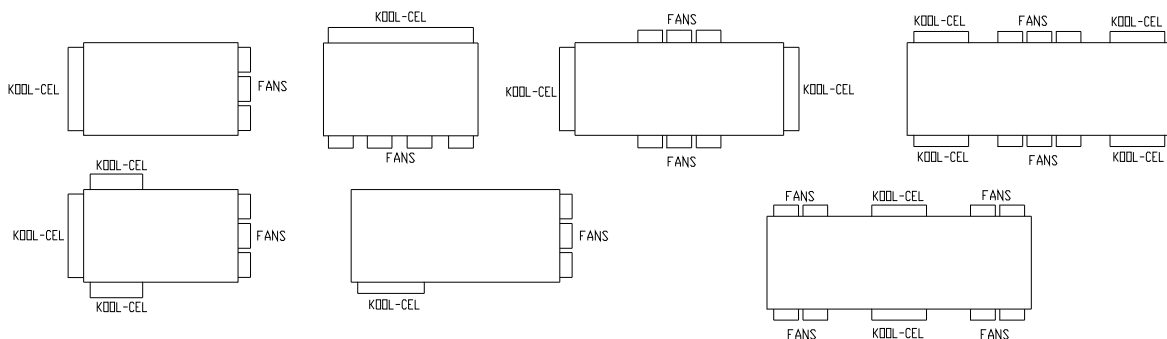
1. PT50-OTP 50 Gallon Pump Tank Kit.
2. Center Drain Kit.

### C. Provided By Owner or Others:

- Framing material.
- Water Supply to float valve.

## II. Building Preparation:

### A. Location of Pad System: Typical Pad/Fan Relative Locations.



The Kool-Cel pad should be placed away from the fans (opposite) so that the cooled air can flow through the building without turbulence as shown in Figure 1. Pads should be no more than 250' from the fans in greenhouse buildings to avoid excessive temperature rise and velocities.

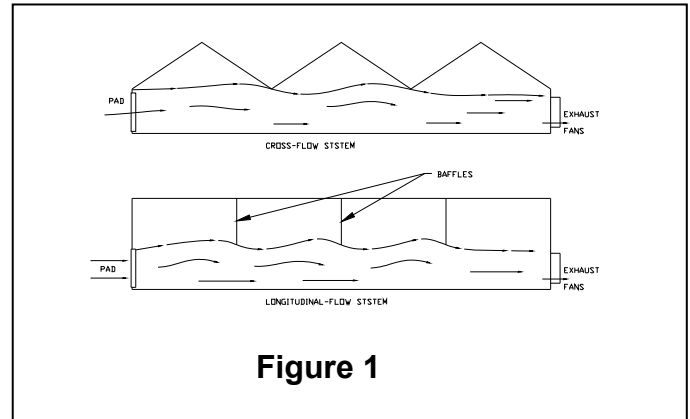
In a **greenhouse**, the top of the pad should be near the top of the crop or have its midpoint centered on the midpoint of the crop.

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

**B. Framed Opening and Sizes**

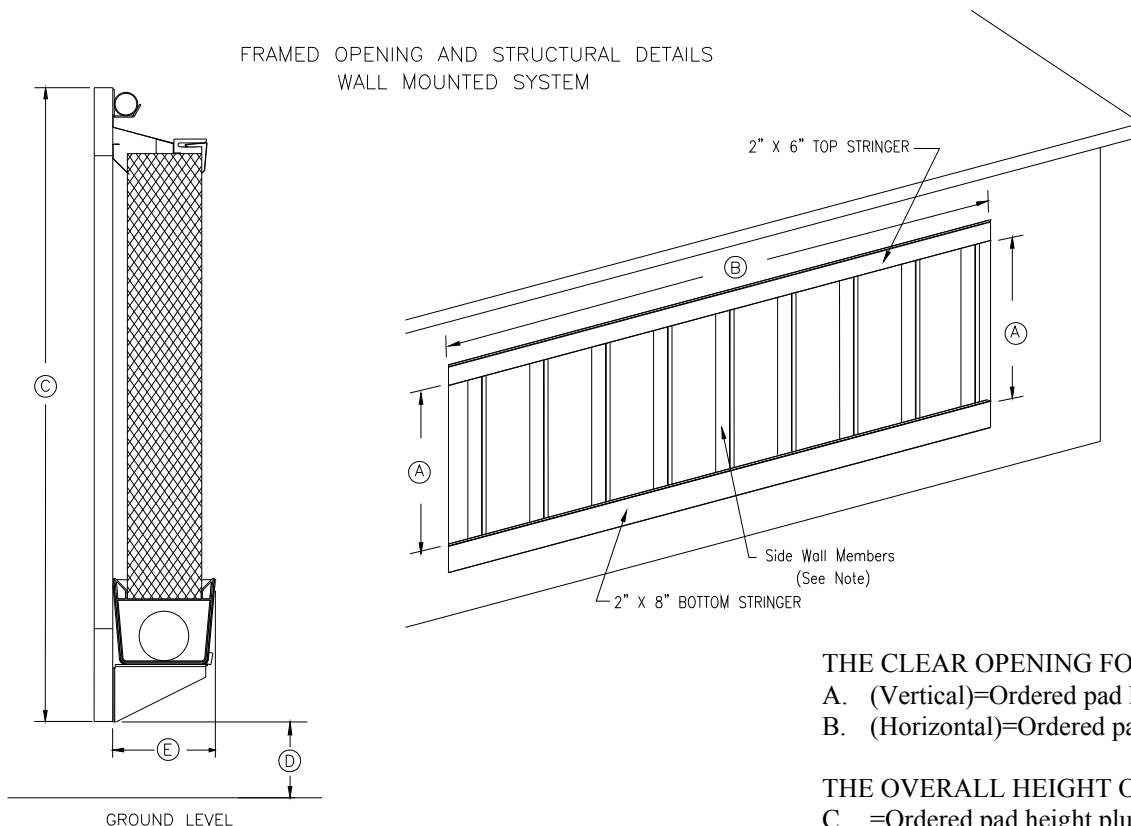
**Note:** The side wall structural members should be left intact as shown in Figure 2.

**C. Stringers Wall Mounted or Floor Mounted** – 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 and for wall mounted systems 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 or laser level during stringer installation will aid in keeping the system square.



**Figure 1**

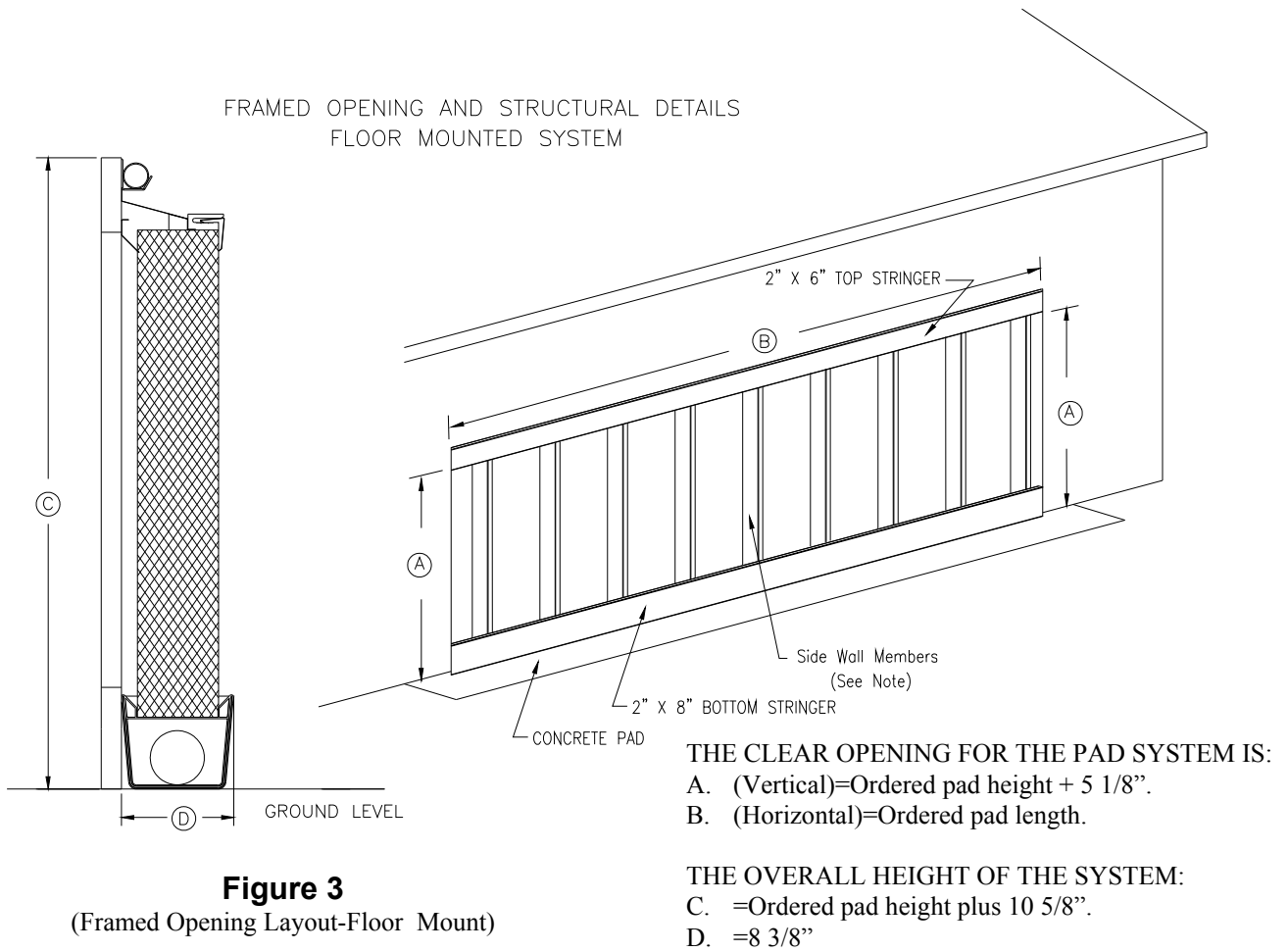
FRAMED OPENING AND STRUCTURAL DETAILS  
WALL MOUNTED SYSTEM



THE CLEAR OPENING FOR THE PAD SYSTEM IS:  
 A. (Vertical)=Ordered pad height + 2 1/4"  
 B. (Horizontal)=Ordered pad length.

THE OVERALL HEIGHT OF THE SYSTEM:  
 C. =Ordered pad height plus 15 1/4"  
 D. =Can be Zero.  
 E. =8 13/16".

**Figure 2**  
(Framed Opening Layout - Wall Mount)



**Figure 3**  
(Framed Opening Layout-Floor Mount)

**D. PVC Inline Pump Tank – See Page 13.**

**III. 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 -If framing is not properly installed as shown in the Installation Instructions, the system will not operate properly. Refer to Section II.B, and Figure 1 to verify the framing has been installed accurately.

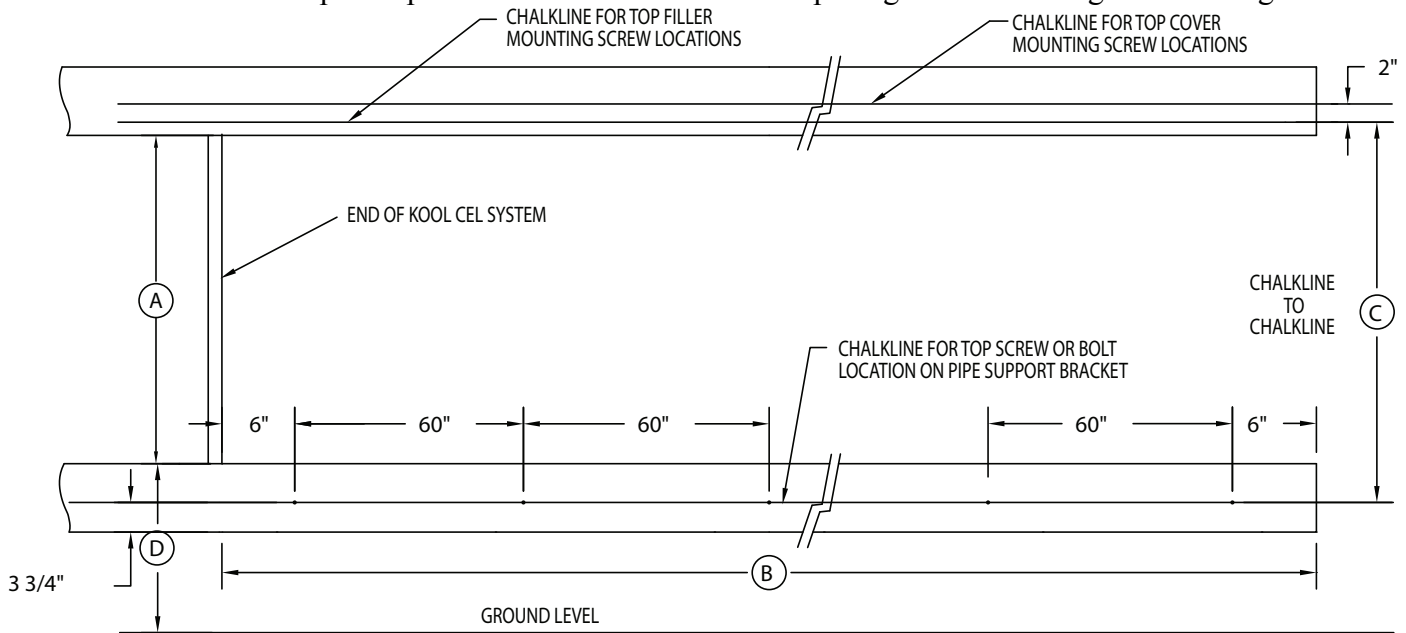
Caulking - Where the installation instructions refer to caulking, use the Butylgrip caulking supplied with the OSEG Kool-Cel System unless otherwise specified.

Packages - Place all cartons in the area of installation and open the top of the cartons. **Do not remove the material until needed.** NOTE: The packing slips and Installation and Maintenance Instructions should be retained for future reference.

**A. Gutter Installation**

**1. Gutter Support Bracket-Wall Mount**

A) To locate the gutter support bracket position on the bottom stringer for the extruded gutter, refer to chalk line shown in Figure 4. The chalk line should be  $3\frac{3}{4}$ " from the bottom of the bottom 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 4 and Figure 5.



A= Ordered Pad Height +  $2\frac{1}{4}$ "

B= Ordered Pad Length

C= Ordered Pad Height plus  $7\frac{1}{4}$ "

D= Minimum dimension is  $7\frac{1}{2}$ "

(Ground level to top of lower stringer.)

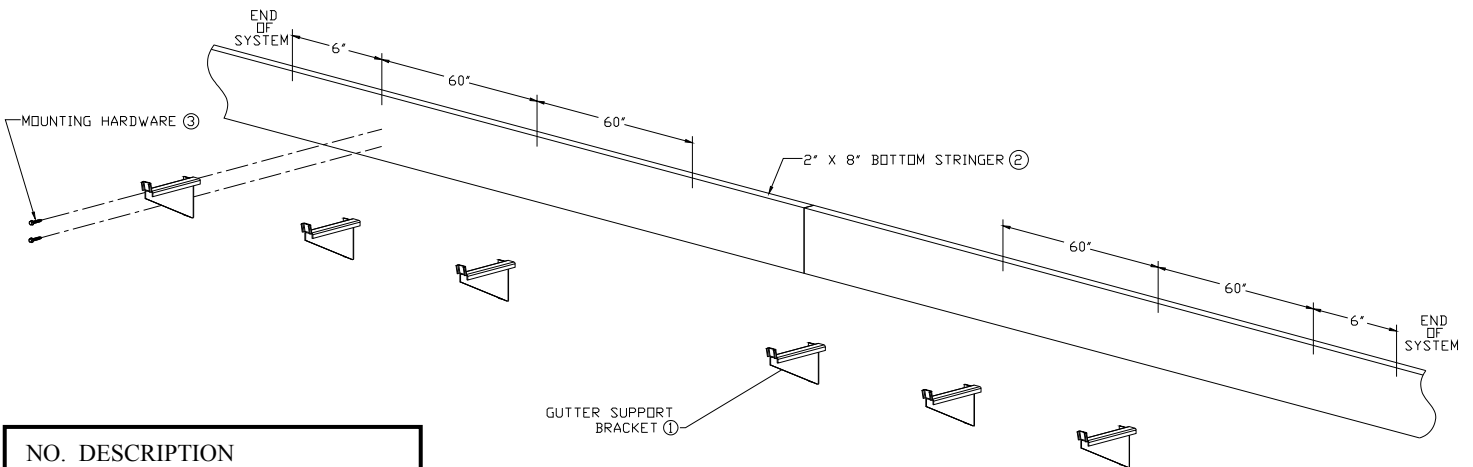
D= Minimum dimension is  $15\frac{1}{2}$ "

(Ground level to top of lower string)

**Figure 3**

**Figure 4**

B) Locate the gutter support brackets. Install all gutter support brackets as shown in Figure 4, making sure brackets are vertical. Note: The bracket's top hole should be on the chalk line. Lag screws are shown. They are to be used if going into the 2x8 material at a 4x4 post location. If going into the 2x8 material at a location other than the 4x4 post, use the  $\frac{1}{4}$ " x  $2\frac{1}{2}$ " bolts, washers and nuts.

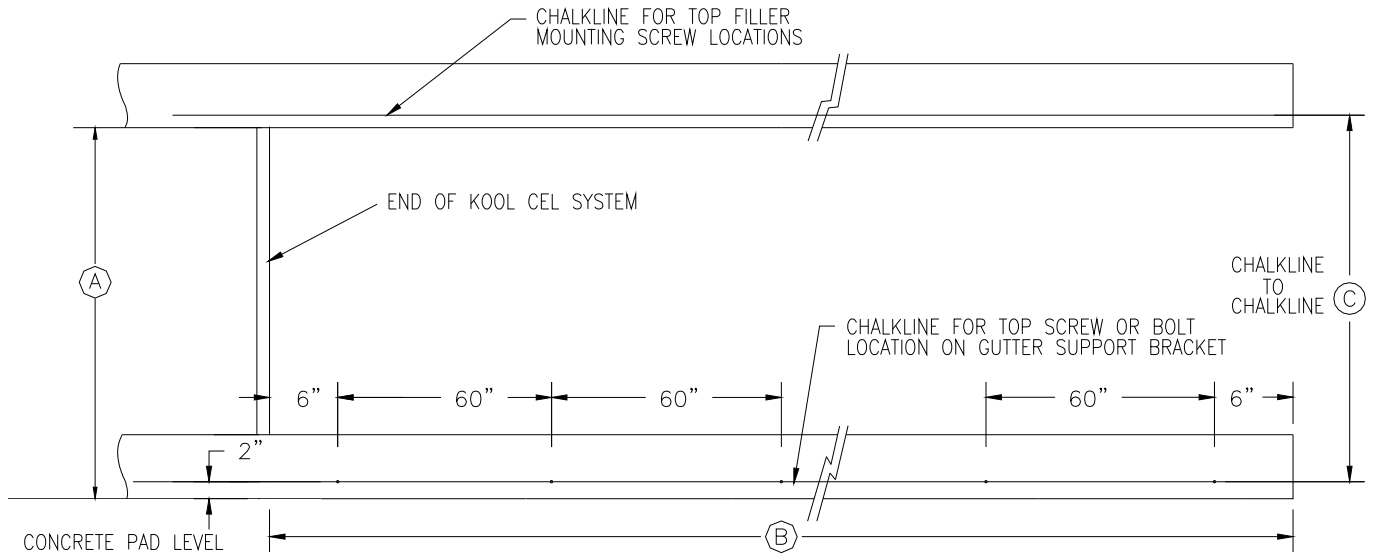


NO.	DESCRIPTION
1	Pipe Support Bracket
2	2" x 8" Bottom Stringer
3	$\frac{1}{4}$ " x $3\frac{1}{2}$ " Hex Head Lag Screw or $\frac{1}{4}$ " x $2\frac{1}{2}$ " bolt, washer, and nut.

**Figure 5**

## 2. Gutter Support Bracket-Floor Mount

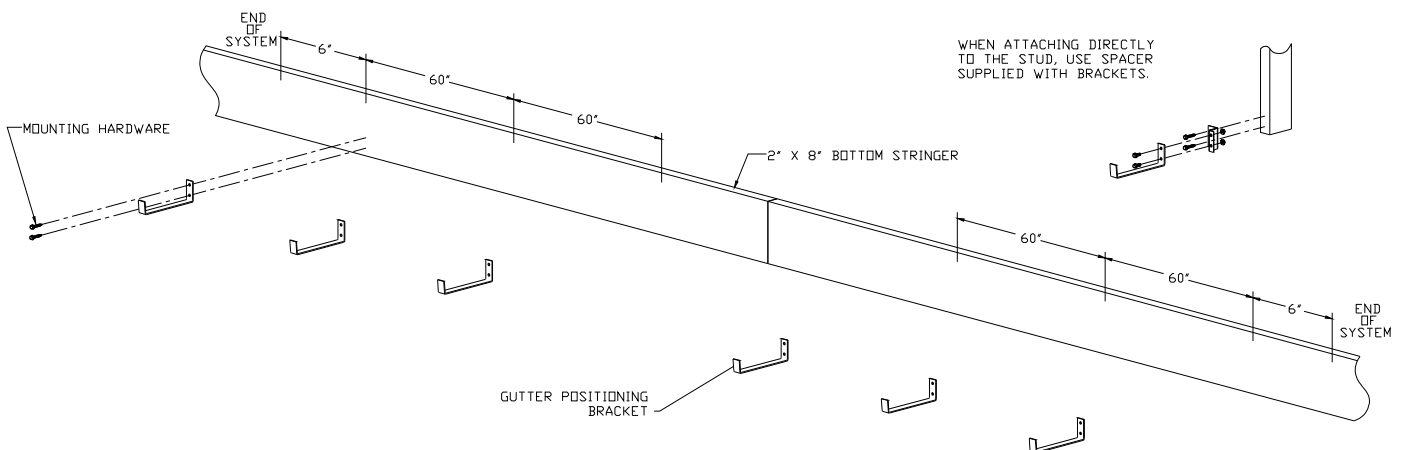
- A) To locate the extruded Kool-Cel floor bracket position on the bottom stringer or wall studs in the absence of stringers for the extruded gutter, refer to chalk line shown in Figure 6. The chalk line should be 2" from the bottom of the bottom stringer or concrete pad and run its full length. The chalk line will be used to locate the top hole position of the brackets. Hole spacing is shown in Figure 6 and Figure 7.



**Figure 6**

- A= Ordered Pad Height + 5 1/8"  
 B= Ordered Pad Length  
 C= Ordered Pad Height + 3 11/16"

- B) Locate the extruded Kool-Cel floor brackets. Install all extruded Kool-Cel floor brackets as shown in Figure 7, making sure brackets are vertical. Note: The bracket's top hole should be on the chalk line. If a bottom stringer not used, mount the extruded Kool-Cel floor bracket to a floor bracket spacer using the 1/4" x 3/4" bolts and nuts provided and attach to the wall stud or 4" x 4" post using the lag screws provided as shown in the inset of Figure 7.

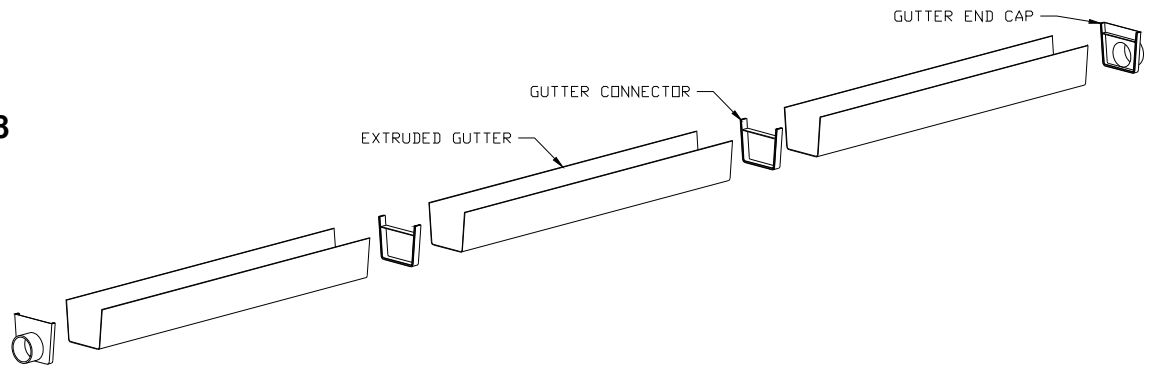


**Figure 7**

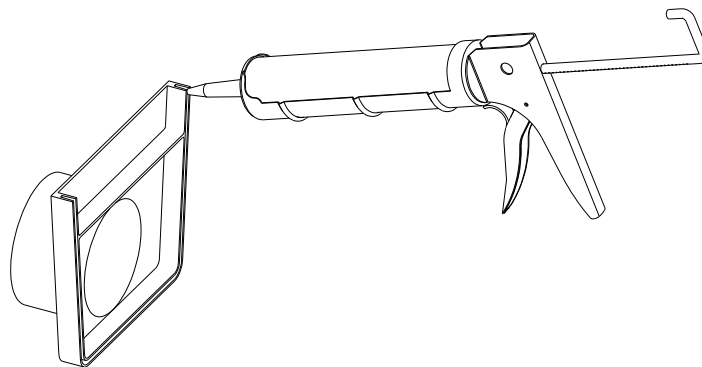
### 3. Gutter Installation

- A) Locate the gutter sections and lay them out along the length of the framed opening (see Figure 8 to identify gutter parts).
- B) Locate the gutter end caps and gutter connectors as shown in Figure 8.

**Figure 8**

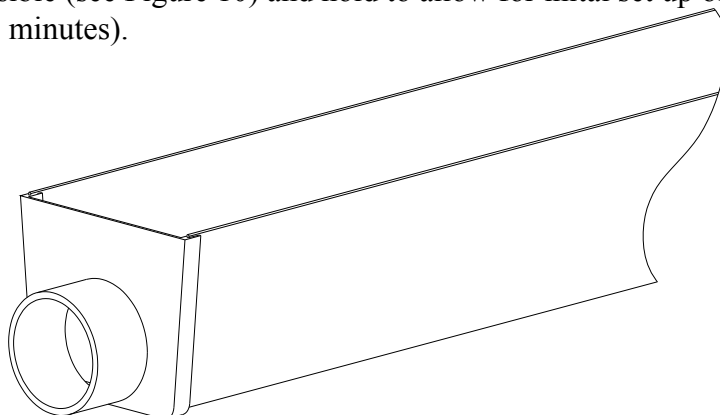


- C) Locate the Paste PVC Cement tubes supplied with the system. Cut the tube tip as close to the end as possible to leave a small hole in the end. Apply the Paste PVC Cement to the gutter end cap by completely filling the groove of the end cap as shown in Figure 9.



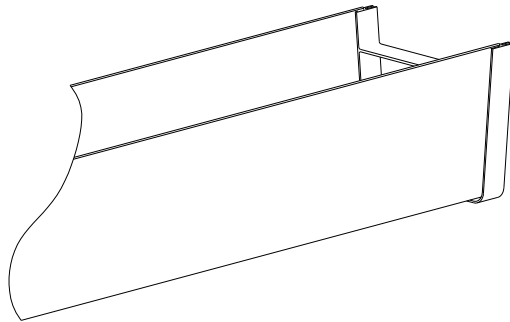
**Figure 9**

- D) After filling the groove in the end cap with Paste PVC Cement, place a section of gutter into the groove of the end cap. Make sure the end cap is on the gutter section as far as possible (see Figure 10) and hold to allow for initial set up of the cement (approximately 1 to 2 minutes).



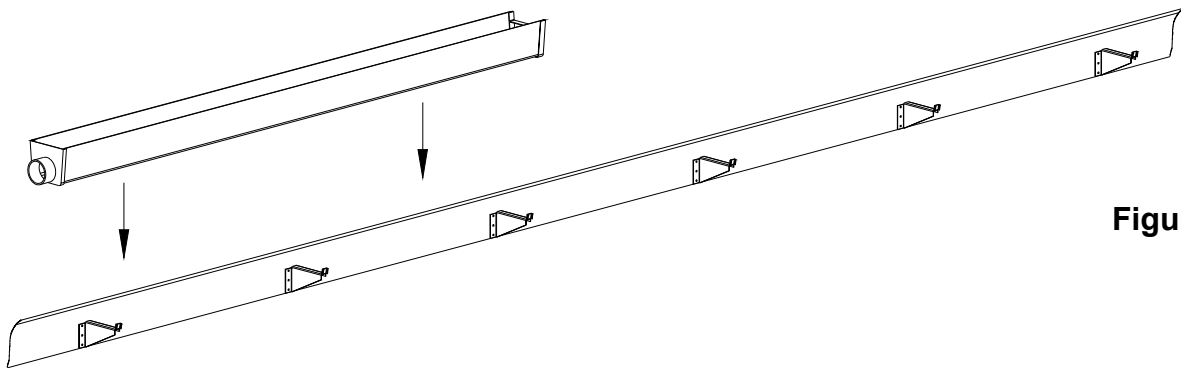
**Figure 10**

- E) Using the Paste PVC Cement, apply the cement to one of the gutter connectors by completely filling the groove of the gutter connector. Place a section of gutter into the groove of the gutter connector. Make sure the gutter connector is on the gutter section as far as possible (see Figure 11) and hold to allow for initial set up of the cement (approximately 1 to 2 minutes)
- F) Repeat step E until all gutter connectors are installed. Do not connect the gutter sections until step G.



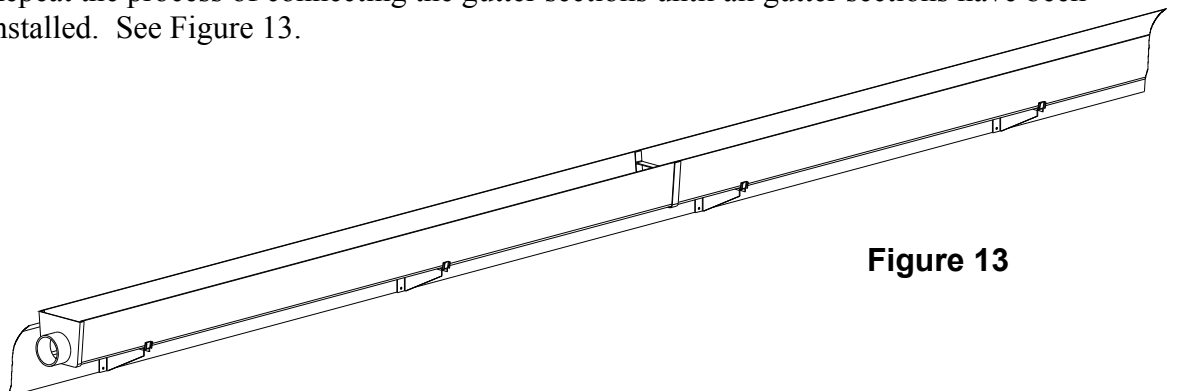
**Figure 11**

- G) Care should be taken when working with the sections with the end caps and gutter connectors installed. The joints will be fragile until their full cure time. Place the first gutter section with end cap and gutter connector into the gutter brackets as shown in Figure 12. Apply the Paste PVC Cement to the gutter connector on the end of the gutter section. Place the next section of gutter into the gutter brackets and into the groove of the gutter connector. Make sure the gutter connector is on the gutter section as far as possible (see Figure 13) and hold to allow for initial set up of the cement.



**Figure 12**

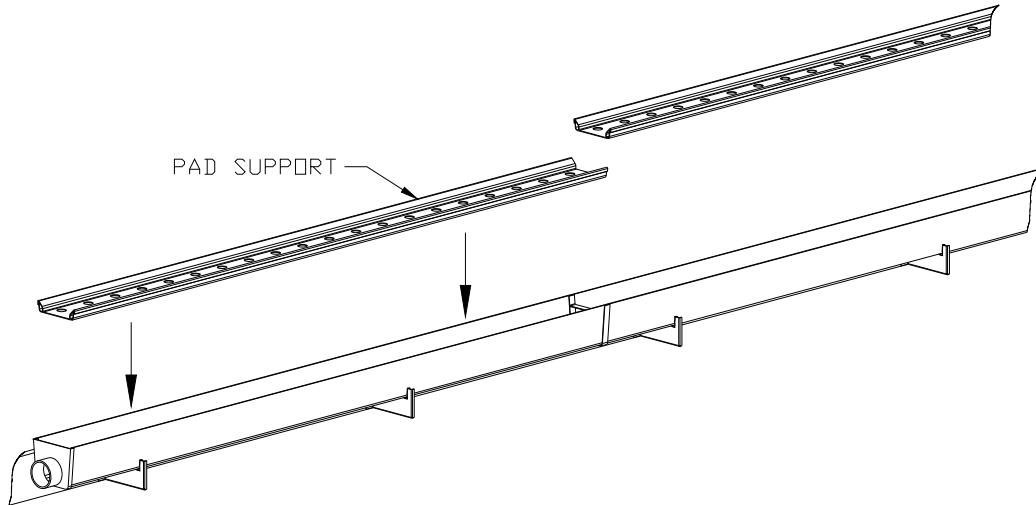
- H) Repeat the process of connecting the gutter sections until all gutter sections have been installed. See Figure 13.



**Figure 13**



I) Locate the pad supports install them on the gutter assembly as shown in Figure 14.

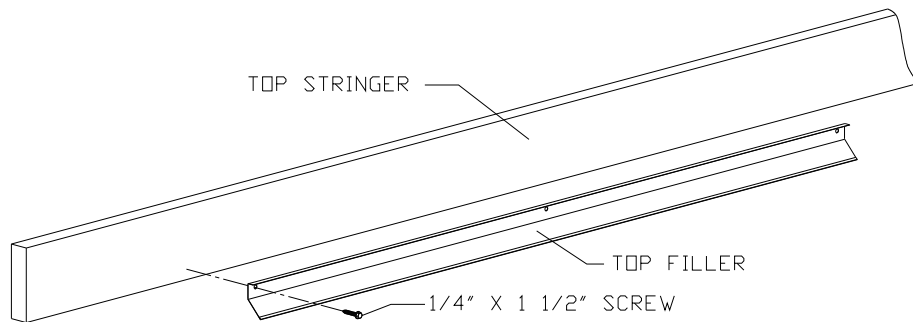


J) Allow the Paste PVC Cement to cure for 2 hours before adding the pads or end caps. If installing the system in temperatures below 40 degrees, curing time will be much longer.

K) Install the 4 inch rubber pipe cap and clamp on the gutter end cap of the end opposite the pump tank.

## B. System Top Installation

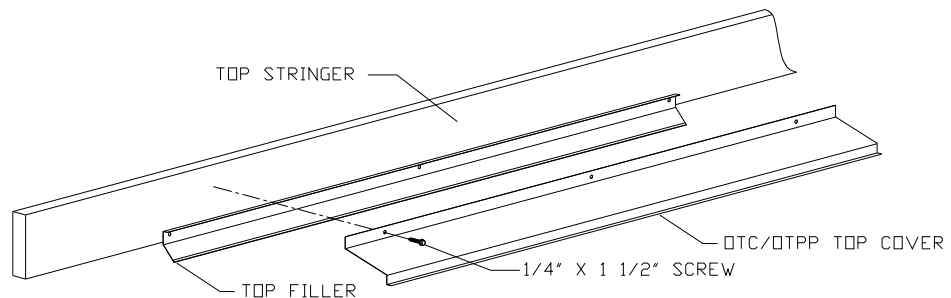
1. Locate the top filler and attach to the top stringer using the  $\frac{1}{4}$  x  $1\frac{1}{2}$  inch hex head screws provided as shown in Figure 15. Note: The end of the top filler should be aligned with the end of pad support. The screw location for the top filler holes is shown in Figure 4 or Figure 6.



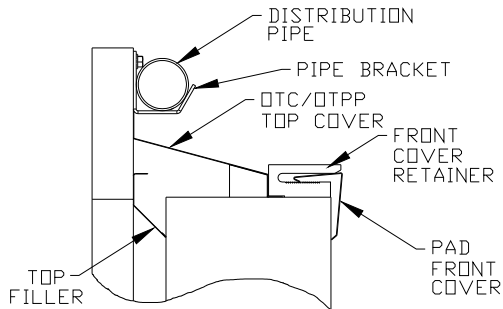
**Figure 15**

2. Locate the OSEG top cover shown in Figure 16. Attach the OSEG top cover to the top stringer using the  $\frac{1}{4}$  x  $1\frac{1}{2}$  inch hex head screws provided as shown in Figure 16. Place a section of pad into the end of the Kool-Cel system to check for proper location.

**Figure 16**

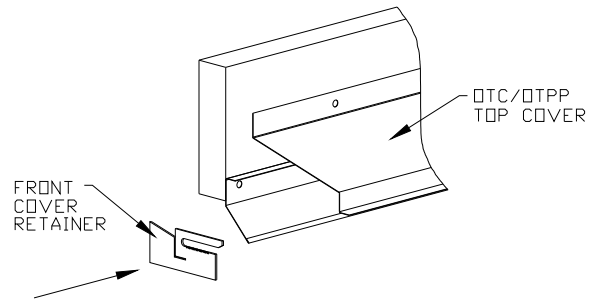


3. Locate the pipe brackets as shown in Figure 17. Place the pipe bracket 6 inches from the end of the system and space the brackets on 42 inch centers. The bottom of the pipe bracket should be at the top of the top cover as shown in Figure 17.



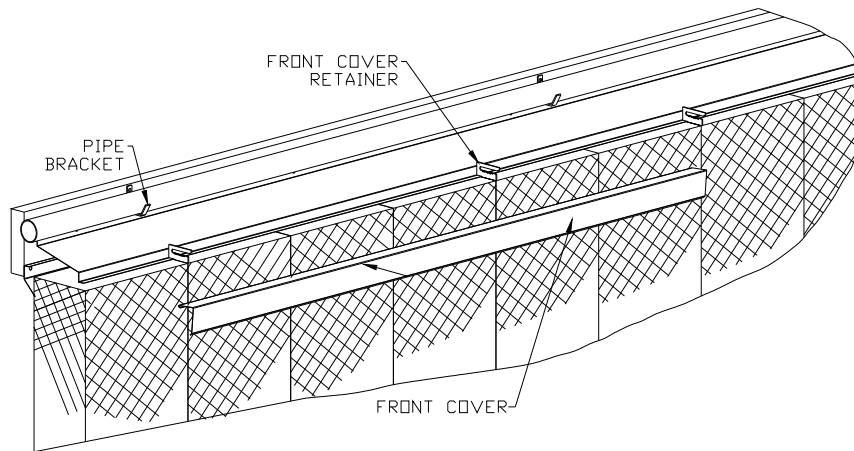
**FIGURE 17**

**FIGURE 18**

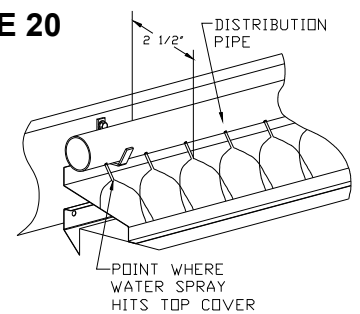


4. Locate the front cover retainers as shown in Figure 18. These retainers slide over the top cover and have to be installed from the end of the system. Install the front cover retainers as shown in Figure 18. Each front cover retainer will be located one foot from the end of the front cover between the Kool-Cel pads as shown in Figure 18.

**FIGURE 19**



**FIGURE 20**



5. Place a 10' section of 1 1/2" pipe WITH THE METERED HOLES POINTING TOWARD THE TOP COVER onto the pipe brackets at the pump tank end of the system. Enough pipe should extend beyond the top cover to later attach a coupling for plumbing installation as shown in Figure 24.
6. Install a 1 1/2" slip joint coupling on the pipe end away from the pump tank end 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 ARE POINTING TOWARD THE TOP COVER SO THE WATER WILL SPRAY ON THE TOP COVER FOR PROPER WATER DISTRIBUTION as shown in Figure 20.
7. Install the remaining pipe using the 1 1/2" couplings (no cement), always making certain that the metered holes point toward the top cover as shown in Figure 20.
8. When the installation is complete and the water is turned on, rotate the pipe so that water will strike the top cover 2 1/2 inches away from the wall as shown in Figure 20.

Figure 21

### C. Pad Installation

1. Place the bottom of the pad firmly on the drip collector and under the pad rear cover. SOME PADS HAVE DIFFERENT ANGLES. IF SO THE 6 INCH PADS MUST BE INSTALLED AS SHOWN IN FIGURE 21 WITH THE HIGHER ANGLE OF THE FLUTES POINTING UPWARD AND TOWARD THE BUILDING. (If you can see through the flutes you should be looking at the ceiling of the building.) **NOTE:** The front cover supports should be placed between the first and second Kool-Cel pads from the end of the front covers as shown in Figures 19 and 23. **NOTE:** After installing all but the last two pads, install the end pad in the system leaving a space for the next to last pad as shown in Figure 22. Measure the width of the space for the last pad and cut the width of last pad to fit into the available space. **DO NOT** force the last pad into a space that is smaller than the pad.
2. Install the pad front cover as shown in Figure 19 by inserting the front edge (edge with small brake over 90 degrees) into the front of the front cover retainers. Push the rear of the pad front cover until it is tight against the pads. Each pad front cover will cover five Kool Cel Pads. To remove the pad front cover, lift up on the front of the front cover until the front cover is disengaged from the notches in the slot and pull away from the Kool Cel pads.

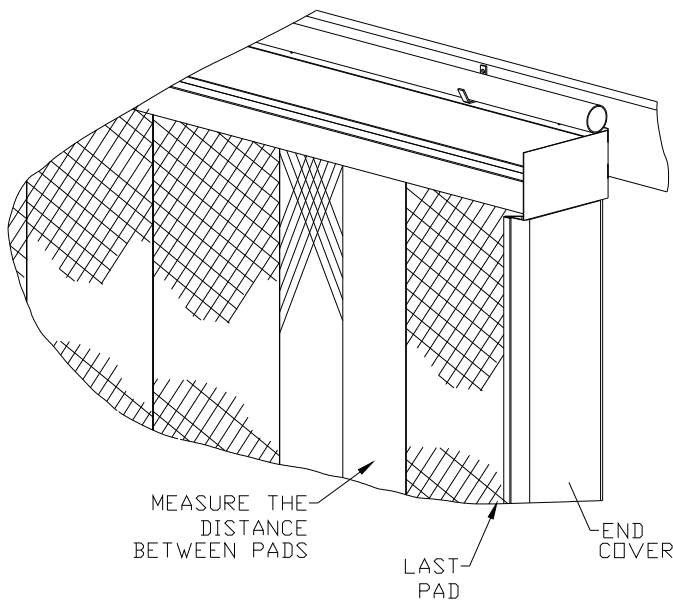
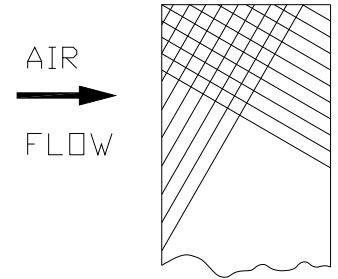


Figure 22

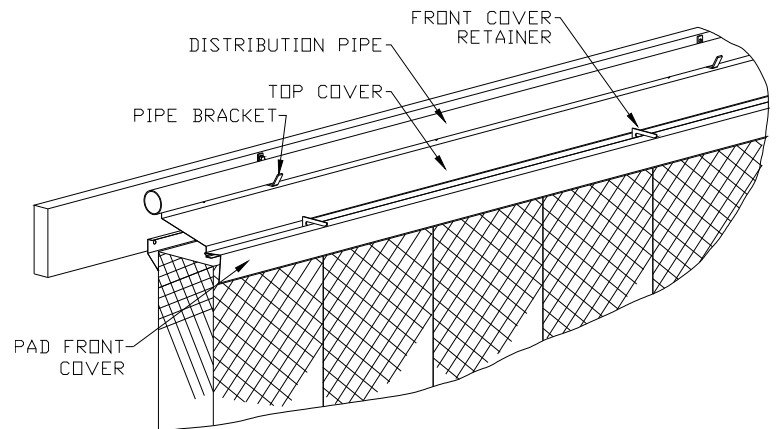
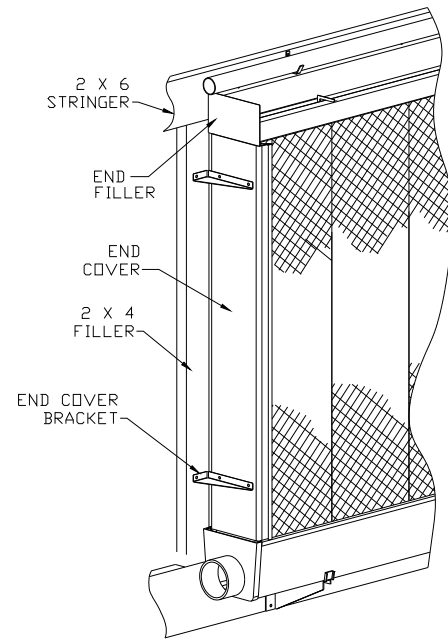


Figure 23

### D. System End Cover Installation

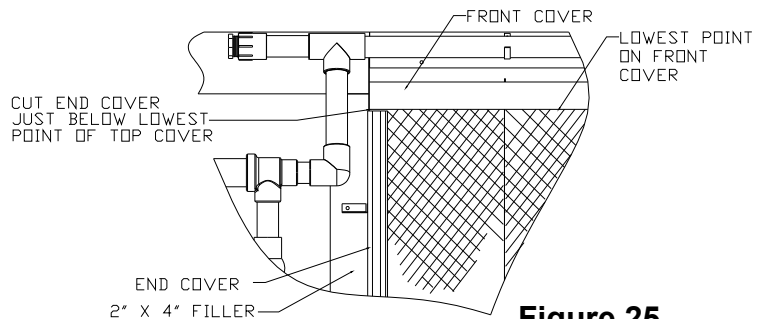
1. Install a 2" x 4" filler in the wall mounted between the top stringer and bottom stringer with the inside of the 2" x 4" at the end of the Kool-Cel system as shown in Figure 24. The system end covers fit over the end pad and attach to the 2" x 4" filler using the end cover mounting brackets shown in Figure 24.
2. Install the end filler (Figure 24) to cover the open end of the top cover and to cover the pipe. Note: The end filler has to go over the distribution pipe prior to completing the piping installation.

3. Locate the two end covers as shown in Figure 24. Each system is supplied with two end covers long enough for the maximum length system. Cut the end cover to length by measuring the distance from the top of the gutter end cap to the lowest part of the front cover (see Figure 25).
4. With the end cover in place on the pad, move the end cover filler against the outside of the end cover and mark the hole locations. Drill 7/32 (.218) inch diameter holes at those locations. Using the #10 bolts and nuts provided, attach the end cover filler to the inside of the end cover.
5. Locate the end cover mounting bracket and place it



**Figure 24**

against the 2" x 4" filler and the end cover as shown in Figure 25. Using the 1/4" x 1 1/2" screws provided, attach the mounting bracket to the 2" x 4" filler. Using the #10 tek screws provided, screw the end cover mounting bracket to the end cover. The end cover filler should be placed against the top cover support such that there is no gap between the end cover filler and the top cover support.



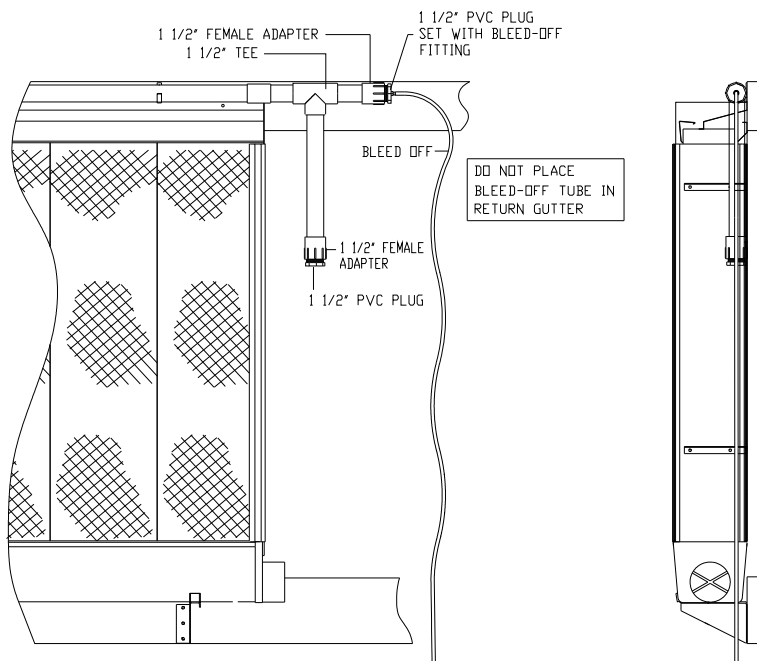
**Figure 25**

**E. Bleed-Off Assembly Installation**

1. Locate the bleed-off end opposite the supply line (or drain). Locate the parts outlined in Table 1 and install in the numbered sequence shown in Table 1 and Figure 26. 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.

**Table 1**

ITEM	DESCRIPTION	QT Y
1	1-1/2" Tee	1
2	2'4" Piece of 1-1/2" Pipe	1
3, 6	1-1/2" Female Adapter	2
4	1-1/2" Plug	1
5	Short piece of 1-1/2" Pipe	1
6	See Above	
7	1-1/2" plug set with bleed-off tube fitting	1
8	Bleed-off Tube	1



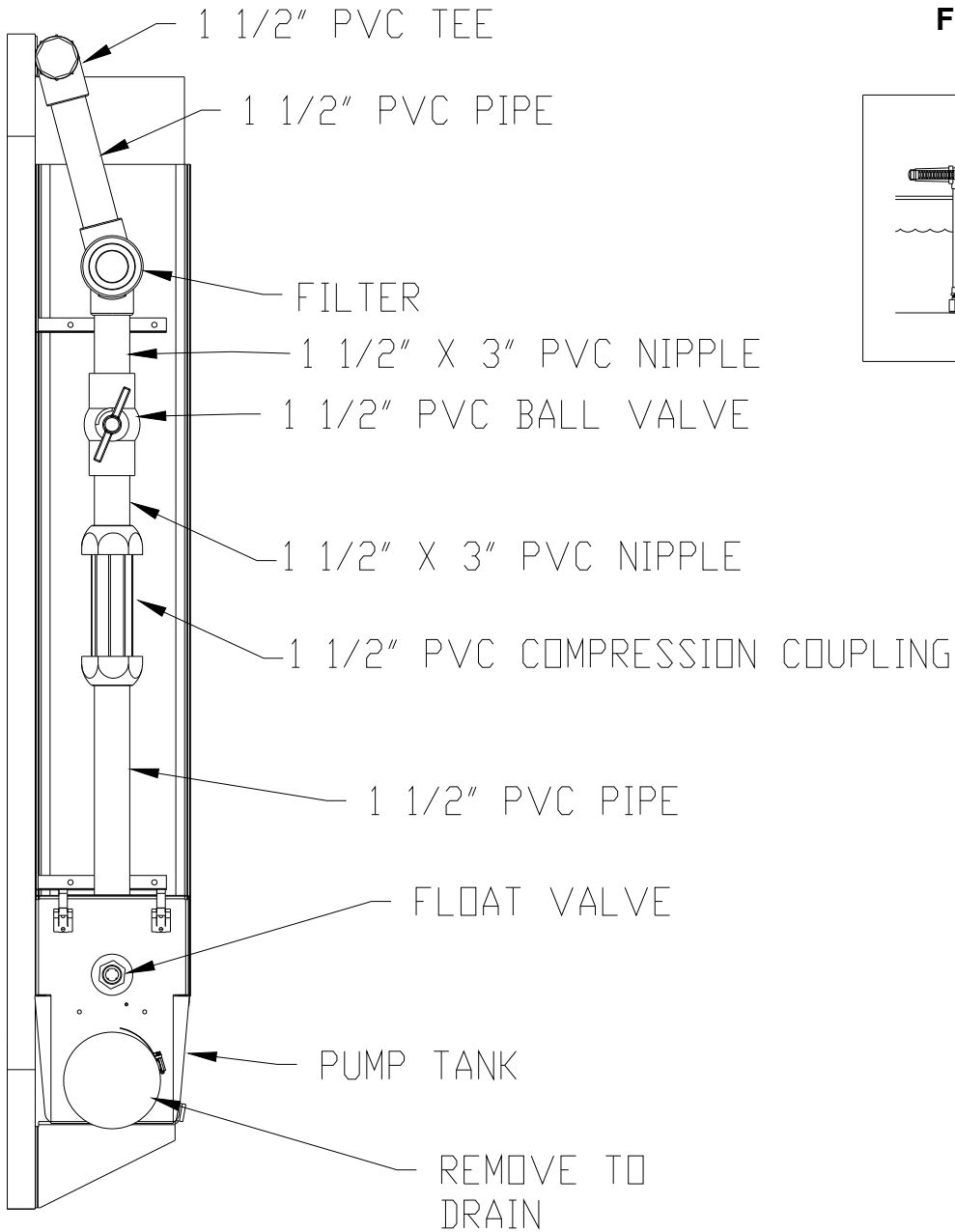
**Figure 26**

**DO NOT PLACE BLEED-OFF TUBE IN RETURN GUTTER OR WATER SUPPLY.**

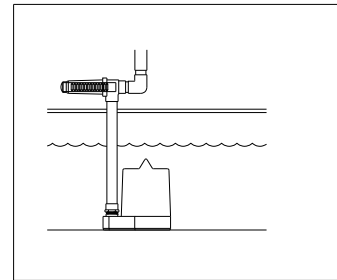
#### IV. Plumbing Installation

The plumbing parts shown in figure 27 are included with the In-Line tank and the Kool Cel system. Please assemble the water circulation system as shown in figure 27.

**Figure 27**  
**DRAIN END**

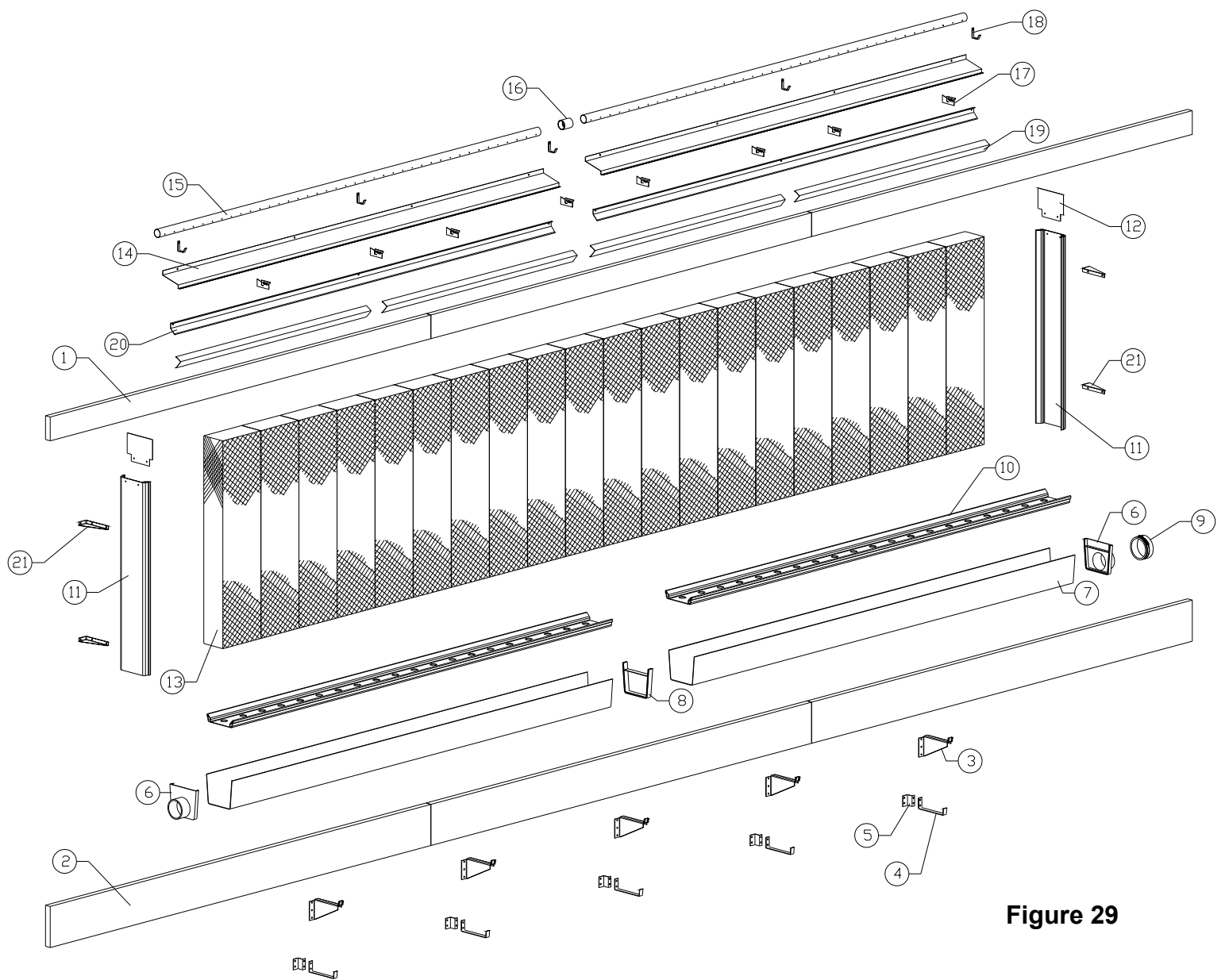


**Figure 28**



#### V. Exploded View

Bill of Material					
1		Top Stringer (by others)	12	580088	OSEG Top Cover Filler
2		Bottom Stringer (by others)	13		6" Pad
3	670637	Extruded KC Support	14	512218	Kool-Cel Top-Pipe - 120"
4	580094	Extruded KC Floor Bracket	15	512101	Distribution Pipe
5	580095	Floor Bracket Spacer	16	991535	1 1/2" Slip Coupling
6	993426	Gutter End Cap	17	670271	Front Cover Retainer
7	993423	Extruded Gutter - 120.5 Inch	18	670265	Open Top Pipe Hanger
8	993425	Gutter Connector	19	512107	Pad Front Cover
9	993491	4" Pipe Cap With Connector	20	512220	Top Filler - 120 Inch
10	993424	Pad Support - 119.5 Inch	21	580087	End Cover Mounting Bracket
11	993492	End Cover			



**Figure 29**

## VI. Extruded Gutter Inline Tank

Figure 30

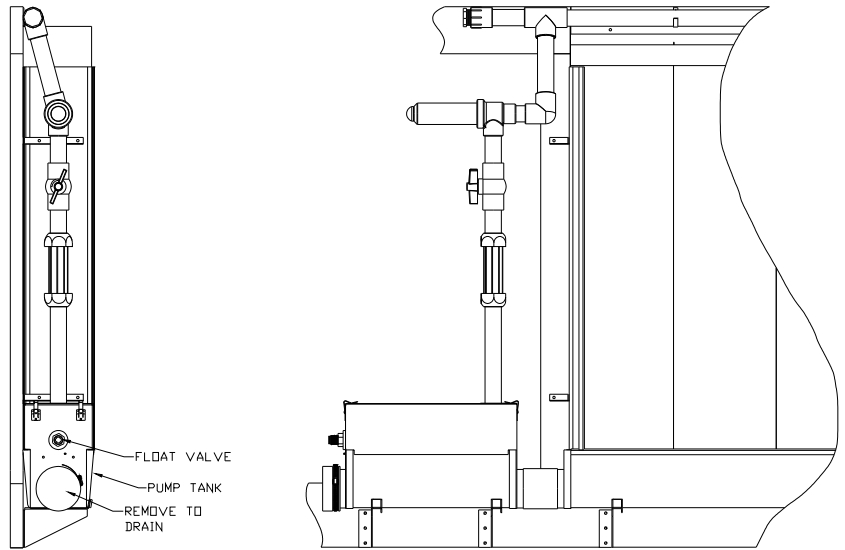
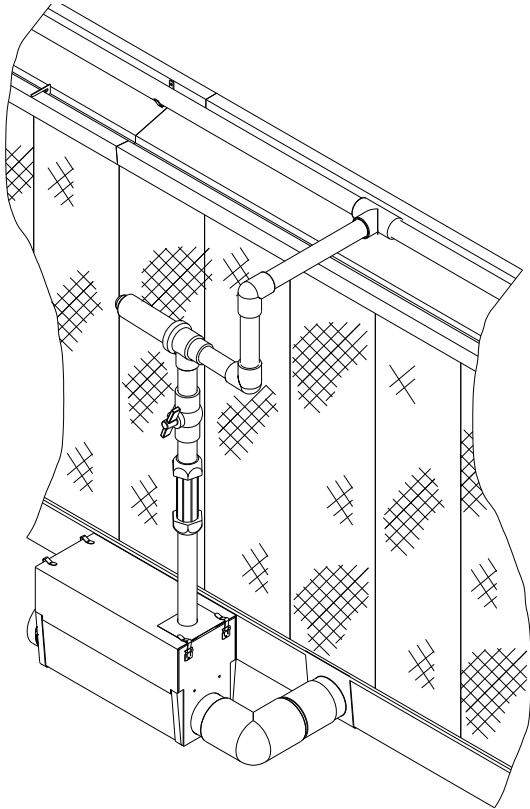
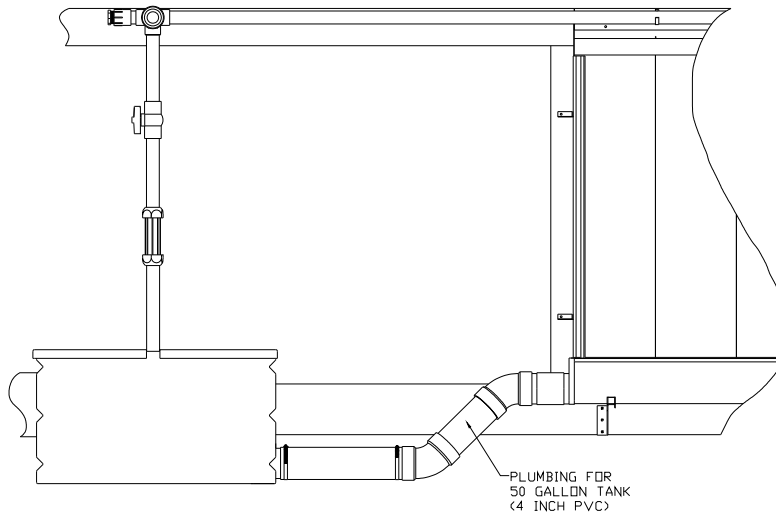
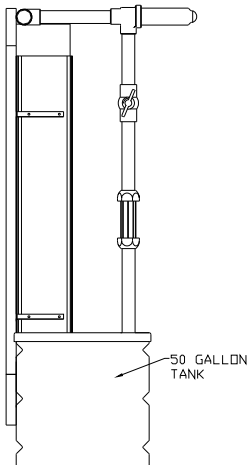


Figure 31

## VII. PT50-OTP 50 Gallon Pump Tank Kit

Figure 32



## VIII. Start Up and Testing

- A) 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” Section X.
- B) Float Valve – Initial adjustment should be such that the float just touches the bottom of the tank before water is applied. Open the water supply line to the pump tank. The initial filling of the gutter should bypass the float shutoff and fill the gutter until the water level in the gutter reaches 1 inch below the bottom of the pad. This will allow for the initial wetting of the dry pads.
- C) 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.
- D) 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.
- E) Check the water flow from the pipe to insure that flow is on the top cover per Figure 19. 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 and water is being thrown out of the system, adjust the flow valve until the water does not splash out.

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.

## IX. 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**.

- A) 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, ”
- B) 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. (Shut down the system and remove the 4 inch pipe cap and allow the water in the gutter to drain out.)
  - 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 in the filter – replace if necessary.
    - b) Test water for Ph level, (make up water and sump water) See “Pad Care” Section VIII.



### C) Start and End of Cooling Season

1. At the end of the season, drain the pump and piping system to avoid damage caused by rust and impure particles in the water. If the system is outside the building, you must drain and remove the pump to avoid freeze damage.
2. To restart the system in the spring, follow the “Start up and Testing” procedure (VIII).
3. Inspect all parts and pads and replace any damaged or worn parts. See parts list and drawings on appropriate page or exploded drawing on page 12.

### X. 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.

- A) 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.
- B) 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.
- C) 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.
- D) 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 to 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  $\frac{1}{4}$  the concentrate suggested for pools.
- E) 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.
- F) 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 birds’ 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.
- G) 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 steps are taken to prevent this. To reduce the build up of deposits and scale, a bleed-off of from 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.

## TERMS AND CONDITIONS OF SALE

**ACCEPTANCE** All orders and sales are subject to written approval and acceptance by an executive officer of Acme Engineering & Manufacturing Corporation at Muskogee, Oklahoma, (the "Company") and are not binding on the Company until so approved.

**DELIVERY** All shipping and delivery dates are estimated only. No delays in delivery will subject the Company to any costs, damages or fees for late delivery. Delivery of the products herein specified shall be made F.O.B. point of shipment, unless otherwise stated. The Company shall not be liable for delay due to causes beyond its reasonable control, such as Acts of God, acts of the purchaser, acts of civil or military authorities, priorities, fires, strikes, floods, epidemics, war, riots, delays in transportation, car shortages, and inability, due to reasons beyond its reasonable control, to obtain necessary labor, material, or manufacturing facilities. In the event of such a delay, the date of delivery shall be extended for a period equal to the time lost by reason of the delay.

**TERMS OF PAYMENT** If, in the judgment of the Company, the financial condition of the purchaser at any time does not justify continuation of manufacture or shipment on the terms of payment specified, the Company may require full or partial payment in advance.

Pro rata payments shall become due as shipments are made. Each shipment or delivery shall constitute a separate sale, and the default of any shipment or delivery shall constitute a separate sale, and the default of any shipment or delivery shall not vitiate the contract as to other shipments or deliveries.

**SALES AND SIMILAR TAXES** The Company's prices do not include sales, use, excise, or similar taxes. Consequently, in addition to the price specified herein, the amount of any present or future sales, use, excise, or other similar tax applicable to the sale of the product herein shall be paid by the Purchaser, or in lieu thereof

the Purchaser shall provide the Company with a tax exemption certificate acceptable to the taxing authorities.

**CANCELLATION** Any contract resulting from the Purchaser's order may be canceled by the Purchaser only by negotiations and upon payments of reasonable cancellation charges which will take into account expenses already incurred and commitments made by the Company.

**DESIGN CHANGES** The Company 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 products sold herein shall remain with the Company and such products shall remain personal property until all payments herein (including 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.

**PRICE ADJUSTMENTS** Prices are subject to change upon notice by the Company. Prices on existing orders are subject to surcharges in the event of cost increases of metals and transportation. All complete component accessory material manufactured by others and furnished with the Company's products such as motors, drives, vibration equipment, controls or other completely assembled component structures, are subject to adjustment to the price at time of shipment regardless of the date of original order entry.

**SAFETY ACCESSORIES** The Company manufactures products 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 specifications. Without exception, the Company recommends that all orders include applicable safety devices. Products ordered without applicable safety devices is clearly the responsibility of the Purchaser. Further, the Purchaser warrants that it has determined and acquired any and all safety devices required for products 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.

**GOVERNING LAW** The rights, obligations and remedies of Purchaser and the Company, the interpretation of these terms and conditions and the sale of products by the Company shall be governed by Oklahoma law, without regard to any principles of conflict of laws.

**ARBITRATION** Any dispute arising under or in connection with these terms and conditions or the sale of products shall be settled by binding arbitration administered by the American Arbitration Association under its Commercial Arbitration Rules, and judgment on the award rendered by the arbitrator may be entered in any court having jurisdiction thereof. The dispute shall be resolved by one neutral arbitrator who shall have no affiliation with either Purchaser or the Company and shall be selected by the American Arbitration Association office in Dallas, Texas. The arbitration proceedings shall be held in Muskogee, Oklahoma.

**APPLICABLE DOCUMENTS** The agreement between the Company and the Purchaser relating to the products includes these terms and conditions of sale, any applicable installation and maintenance instructions provided by the Company and any terms appearing on the Company's quotation, sales order acknowledgment and invoice.

**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 Purchaser and all End Users. If these products are used in a life support ventilation system where failure could result in loss or injury, the Purchaser and all End Users 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. Comply with all local and national safety codes including the National Electrical Code (NEC) and National Fire Protection Act (NFPA).

**CAUTION** Guards must be installed when fan is within reach of personnel or within eight (8) feet (2.5 m) of working level or when deemed advisable for safety.

**DISCLAIMER** The Company has made a diligent effort to illustrate and describe the products accurately in all Company literature; however such illustrations and descriptions are for the sole purpose of identification and do not express or imply any warranty.

## LIMITED WARRANTY

**WARRANTY AND DISCLAIMER:** The Company extends this limited warranty to the original purchaser and warrants that products supplied by the Company, shall be free from original defects in workmanship and materials for two years from date of shipment (except for the warranty periods noted for products listed below), provided same have been properly handled, 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 Purchaser assumes all risks and liability for results of use of all products.

Evaporative cooling pads are warranted to be free of defects in materials and workmanship 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.

The following products are warranted to be free of defects in materials and workmanship for the periods shown from date of shipment: Acme's exclusive duplex split pillow block bearings and shaft five years, belts one year, Polyethylene tubing 90 days, AIR40 Heater warranty one year, AIR40 Emitter warranty three years and DDP fan lifetime warranty on its propeller, cone, and housing.

**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 Purchaser shall be barred from any

remedy if Purchaser 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 Purchaser's possession or to request Purchaser to return the product to the Company at Purchaser'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 Purchaser 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 Purchaser's sole and exclusive remedy shall be a refund to the Purchaser 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.

The warranties set forth above do not apply to any components, accessories, parts or attachments manufactured by other manufacturers; such being subject to the manufacturer's warranty, if any. To the extent not prohibited by the manufacturer's warranty, the Company shall pass through to Purchaser such manufacturer's warranty.

**THE COMPANY'S WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARISING BY LAW OR OTHERWISE, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY EXPRESSLY DISCLAIMED AND WAIVED. THIS WARRANTY CONSTITUTES THE COMPANY'S SOLE AND EXCLUSIVE WARRANTY FOR DEFECTIVE GOODS AND PURCHASER'S SOLE AND EXCLUSIVE REMEDY FOR DEFECTIVE PRODUCTS.**

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, purchaser 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 product 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 Purchaser's and End User's risk and shall not constitute any warranty or guarantee of such products or their performance.

**LIMITATION OF LIABILITY** The cumulative liability of the Company to the Purchaser and any other persons for all claims in any way relating to or arising out of the products, including, but not limited to, any cause of action sounding in contract, tort, or strict liability, shall not exceed the total amount of the purchase price paid for those products which are the subject of any such claim. This limitation of liability is intended to apply without regard to whether other provisions of this agreement have been breached or have proven ineffective even if the Company has been advised of the possibility of such claims or demands. In no event shall the Company be liable to the Purchaser or any other person for any loss of profits or any incidental, special, exemplary, or consequential damages for any claims or demands brought by the Purchaser or such other persons.

**INDEMNITY** The Company's maximum liability to Purchaser and to any end user is as set forth above. The Company makes no warranty to anyone for any products not manufactured by the Company and shall have no liability for any use or installation of any products (whether manufactured by the Company or other manufacturers) not specifically authorized by this sale. Purchaser acknowledges various warnings by the Company regarding the products and its installation and use. If the Company incurs any claims, lawsuits, settlements, or expenses (including attorney fees) for any loss, injury, death or property damage including, but not limited to, claims arising out of the Purchaser's or any end user's installation or use of the products, the Purchaser shall indemnify and hold the Company harmless.



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