

AMERICAN COOLAIR CORPORATION



# Evaporative Cooling Systems



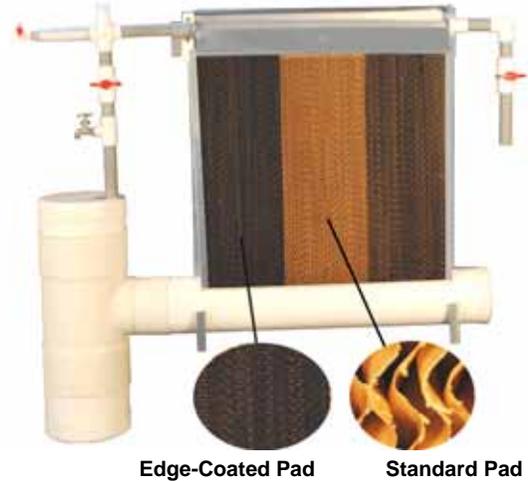
# Evaporative Cooling in Concept

To counter periods of extreme temperature that affect in-house environments and therefore production, Coolair Evaporative Cooling Pad Systems are used with outstanding success. When large quantities of air are pulled through Evaporative Cooling Pads that are saturated with water, a substantial cooling effect is realized due to the evaporation of that water. Used in conjunction with Coolair fans, a temperature reduction of 10-25 degrees is commonplace. Suited for virtually all geographic locations, the Coolair Evaporative Cooling System delivers the greatest economic benefits to areas where higher temperatures during longer periods of time are normal.

## The Evaporative Cooling Pad

Evaporative Cooling Pads (Evap Pads) are a product developed for horticultural and agricultural cooling applications. Evap Pads are made of a specially formulated cellulose paper, impregnated with insoluble anti-rot salts, stiffening saturants and wetting agents. Evap Pads have a cross fluted configuration that provides maximum cooling when warm air passes through the wet Evap Pad material.

- Evap Pads will not sag, rot or develop holes.
- With proper care and maintenance, Evap Pads will last for 5 years or more.
- There is no carry-over of water droplets to enter the house.
- Aesthetic appearance of Evap Pads compliments modern buildings.

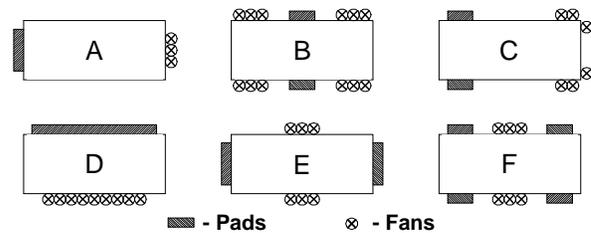


Evap Pads are 4" or 6" thick, and 12" or 24" wide with height increments every 12" from 24" to 72". The Evap Pads are positioned adjacent to each other to form a continuous surface of the required height and length. In addition to the standard Evap Pad, Edge-coated pads, which help reduce algae growth or build-up, are also available.

All 6" Evap Pads and 4" Evap Pads up to 48" tall are self-supporting, and do not require wire baskets or other supporting materials. The pads are held in place by component parts of the system. Tall pad supports are required on 4" pad systems over 4' tall. Standard Evaporative Cooling Systems are available from 2' to 6' tall in lengths up to 110'. Systems up to 12' tall are available with American Coolair's 'Doublestack' Evap Pad Cooling System.

## System Design

For poultry or livestock applications, the preferable pad location would be at the end of the building opposite the fans (Designs 'A' & 'C'). The air should be drawn the length of the building except in cases when the resulting air velocity would surpass the comfort level of the animals confined. In these instances, pad placement is recommended on both ends of the house with the fans installed on both sides of the middle (Designs 'E' & 'F').



Design 'B' shows a typical 'broiler' poultry house while Design 'D' shows a typical dairy installation.

For greenhouse applications, the Coolair Evap Pad is most effective when the system is centered on the plants to be cooled. Specific placement should be such that the upper portion of the pad itself is on the same level as the top of the crop to be cooled. Designs 'A' and 'D' show typical greenhouse installations.

An important consideration for the placement of pads in a building is the prevailing wind direction during the summer months. Pads should be placed on the same side as the prevailing winds with fan installation on the opposite side.

For system designs to suit the specific needs for your type of building and atmospheric conditions, you may wish to consult your American Coolair representative. However, as a general guide, you can use the following system recommendations to insure proper cooling in your building:

- For 4" pad systems: Use 1 sq. ft. of pad per 250 CFM.
- For 6" pad systems: Use 1 sq. ft. of pad per 400 CFM.

Example: A building has 6 fans that produce 20,000 CFM each for a total of 120,000 CFM through the building.

- 4" systems —  $120,000 \div 250 = 480$  sq. ft. of pad required.
- 6" systems —  $120,000 \div 400 = 300$  sq. ft. of pad required.



# Evaporative Cooling Systems

## PVC

- System length 5' to 110' - System height 2' to 6'
- Completely self-contained
- PVC trough and sump included
- Available in Standard Top (system includes pipe cover/spray deflector) or Open Top (for easy access to distribution pipe) designs
- Multiple pump designs available. For longer systems, consult your American Coolair representative.



## Aluminum

- System length 5' to 100' - System height 2' to 6'
- Ideal when large amounts of cooling is needed.
- Extruded aluminum trough
- Aluminum pipe cover/spray deflector
- Multiple pump designs available. For longer systems, consult your American Coolair representative.



## Pump and Sump

The pumps are sized for the system to supply at least 1/2 gallon of water per minute per linear foot of pad system. The integral PVC sump and trough hold an adequate water supply for systems up to 110' long and 6' high.

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The pumps are sized for the system to supply at least 1/2 gallon of water per minute per linear foot of pad system. The sump should be purchased locally and be sized for at least 3/4 gallon capacity per square foot of pad area.

## Doublestack

The Doublestack Evap Pad Cooling System features the Open Top distribution system, and is available in system heights from 7' to 12'. The Doublestack System includes rigid pad supports that completely bear the weight of the upper Evap Pads, keeping them securely in place. This prevents the weight of the upper pads from causing the lower pads to sag.

'Modular' Doublestack systems are available in lengths up to 60' and come standard with a PVC water return trough and PVC sump. 'Tank' systems are available from 50' to 100' in length and require a separate sump tank (to be purchased locally).

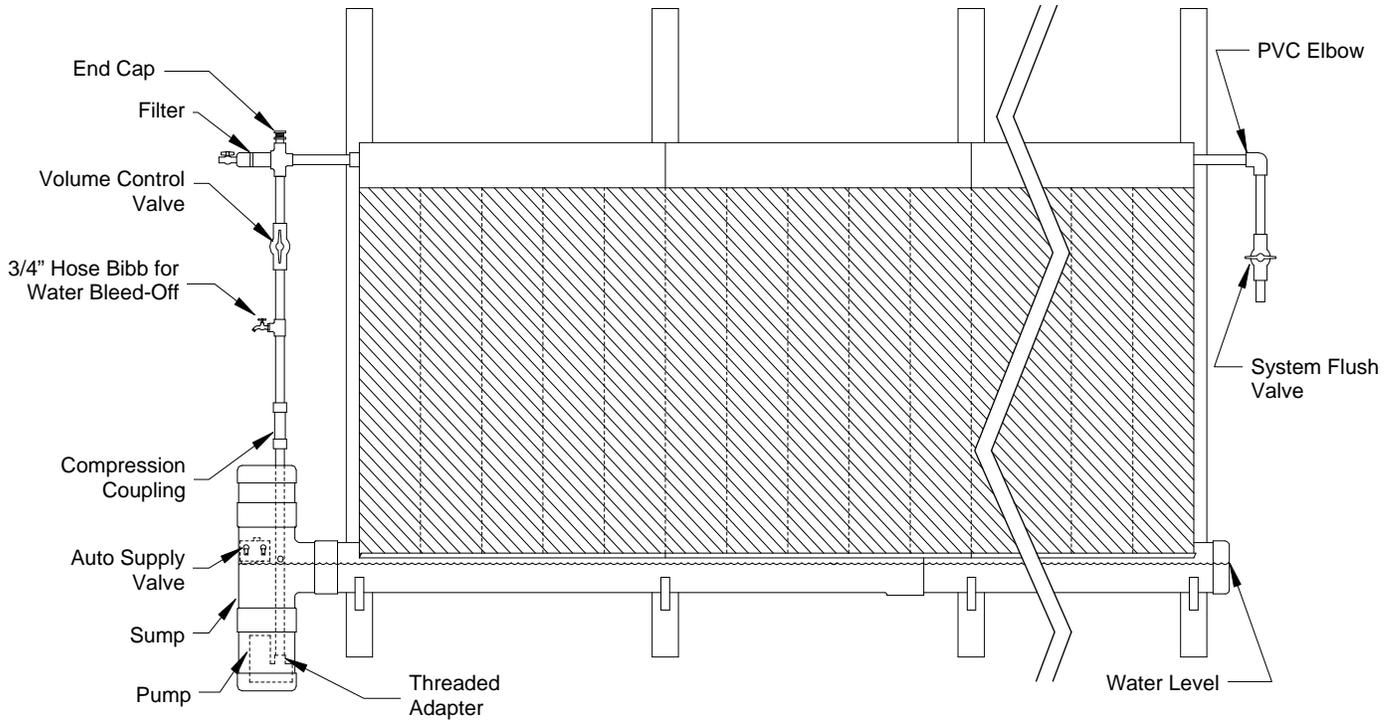


## Water Distribution System

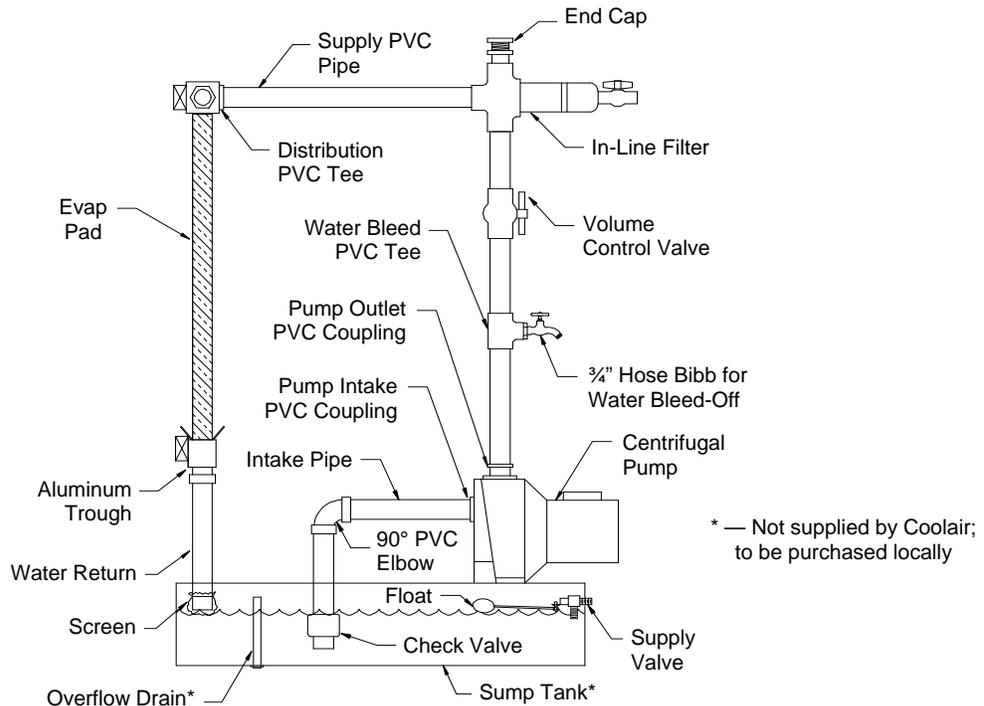
The water distribution systems for the PVC, Aluminum, and Doublestack designs feature PVC pipe with metered outlet holes, water return trough, water filter, an automatic supply valve, and a volume control valve. All systems also include top and bottom pad support material, water distribution pipe cover (except for Open Top systems), and all necessary fasteners.



## PVC Evaporative Cooling System (shown with a submersible pump)



## Aluminum Evaporative Cooling System (shown with a centrifugal pump)



### Limited Warranty

In the sale of its products, American Coolair Corporation agrees to correct, by repairs or replacement, any defects in workmanship or material that may develop under proper and normal use during the period of one year from the date of shipment from the factory. Any product or part proving, upon American Coolair's examination, to be defective during limited warranty period will be repaired or replaced, at American Coolair's option, f.o.b. factory, without charge. Deterioration or wear caused by chemicals, abrasive action or excessive heat shall not constitute defects. Motors are guaranteed only to the extent of the manufacturer's warranty. American Coolair's limited warranty does not apply to any of its products or parts that have been subject to accidental damage, misuse by the user, unauthorized modifications, improper installation or electrical wiring, or lack of proper lubrication or other service requirements as established by American Coolair. Repairs or replacements provided under the above terms shall constitute fulfillment of all American Coolair's obligations with respect to limited warranty. THE LIMITED WARRANTY STATED HEREIN IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, STATUTORY OR IMPLIED, INCLUDING WITHOUT LIMITATION THAT OF MERCHANTABILITY AND FITNESS. NO LIABILITY FOR REINSTALLATION COST OR FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OF ANY NATURE IS ASSUMED OR SHALL BE IMPOSED UPON AMERICAN COOLAIR.



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