

# EVAPORATIVE COOLING VS. AIR CONDITIONING (refrigerated air)

## DIRECT EVAPORATIVE COOLING

- 1) Operates on 100% pure outdoor air
- 2) Requires only water and 110v of electricity.
- 3) Emits no harmful chemicals. In fact, the water left in the tank can be used to water flower beds. The cool, fresh air can also help to control indoor odors.
- 4) Opening doors and windows enhances the operation and efficiency of evaporative cooling.
- 5) Pads collect dust and particles from the environment, thus producing cool, clean air.
- 6) Fresh air produced by the system eliminates "Sick building syndrome",
- 7) Introduces moisture into the environment which has been proven to be beneficial for health, odor control and keeping wood furniture from drying out.
- 8) Typically cuts cost up to 3/4 the cost of traditional air conditioning, thus saving valuable resources.
- 8) 95% of the water used is recycled by the unit.
- 10) Unlike "swamp coolers", Port-A-Cool® units are virtually unaffected by humidity, operating best when the temperature is above 85°F and below 75% relative humidity. Swamp coolers are typically ineffective above 30% relative humidity.
- 11) The California Energy Commission has instituted Title 24, which are expected to be adopted this year. These standards include a compliance credit for using evaporative cooling in homes. Other states are likely to follow suite.

## AIR CONDITIONING

- 1) Circulates the same indoor air.
- 2) Requires coolant and electricity to operate
- 3) Emits harmful chemicals like CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous acid (N<sub>2</sub>O), hydrofluorocarbons (HFC's), Perfluorocarbons (PFC's), and sulfur hexafluorides (SF<sub>6</sub>). These chemicals cause ozone depletion, greenhouse effect, photo smog and acidification.
- 4) Opening windows and doors causes extra work for the unit and increases cost of cooling and longevity of system.
- 5) Re-circulated air becomes "musty" after time and can cause "sick building syndrome."
- 6) Causes "sick building syndrome" a phenomenon where employees develop blocked sinuses, eye irritation, headaches, dizziness, wheezing dry skin, rash and/or nausea.
- 7) Provides no moisture in the air.
- 8) Costs continue to rise as energy resources become overburdened with consumer demand.
- 9) No element is recycled. Chemicals must be disposed by a professional.
- 10) Not effected by humidity.

**Now you know the facts!**

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## RESOURCES

*"Shifting Patterns of Water Demand: Socio-Demographic Challenges for Water Managers."* Drought Briefing, Phoenix, A SAHRA-CLIMAS Initiative. Gary Woodard, assistant director. Presented March 20, 2003.

*"Environmental Impact of Low-Energy Cooling."* Lawrence Berkley National Laboratory, Environmental Energy Technologies Indoor Environment Department. (<http://epb1.lbl.gov/EPB/thermal/environ.html>)

*"Benefits of Water-Cooled Systems vs. Air-Cooled Systems for Air Conditioning."* Cooling Technology Institute. Written by Michael D. Pugh. (<http://www.cti.org/cgi-bin/download.pl?submit>)

*"Cooling Barbers Point: Methods of In-direct Evaporative Cooling."*

*"Hidden Power Drains: Trends in Residential Heating and Cooling Fan Watt Power Demand."* Written by John Proctor, P.E., President, Proctor Engineering Group and Danny Parker, Principal Research Scientist, Florida Solar Energy Center. (<http://www.fsec.ucf.edu/bldg/pubs/pf361/>)

*"Passive and Low Energy Cooling Survey"* Written by Marc Rosenbaur, P.E. for Environmental Building News. (<http://www.buildinggreen.com/features/mr/cooling.cfm#11.0>)

*"Humidification by Atomization for Energy Savings and Environmental Safety."* Written by D. Scott Herr, President, DGH Systems LLC (1990). (<http://www.carelusa.com/documents/whiteatom.htm>)

*"Some Outstanding Title 24 Issues for the Next Generation Building Energy."* Gary Farber, July 25th, 2001. (for initiation 2003-2005) (<http://www.cabec.org/StandardsIssues.html>)