



ASHRAE CHENNAI CHAPTER

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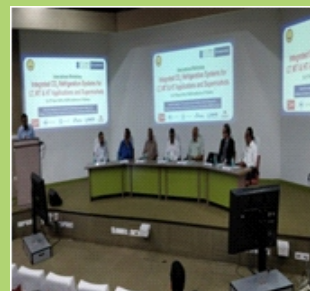
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ASHRAE CHENNAI CHAPTER ACTIVITIES



Technology Trends Reshaping the HVAC Industry.

HVAC can be one of the biggest energy consumers in your facility. Current HVAC trends are geared toward lowering the amount of energy used to heat and cool your facility, while also making the process more environmentally friendly. Engineers and scientists are looking for new and different ways to enhance the HVAC landscape. Many answers are lying in enhanced technologies, renewable energy sources or even a complete reimagining of how an HVAC system should work.



Smart HVAC

The Internet of Things is growing, enabling the systems and appliances we use most to communicate with us in new ways. HVAC trends are beginning to incorporate these capabilities. Imagine your HVAC system alerting you when it needs a repair or routine maintenance check—even scheduling the appointment on its own. Remote capabilities are available to control your facility's HVAC system from anywhere. New or added sensors in the thermostat, compressor or other areas can help regulate how the system should run, when it is really needed and where. All technologies aimed at running the system more efficiently and saving money.

DeVAP HVAC

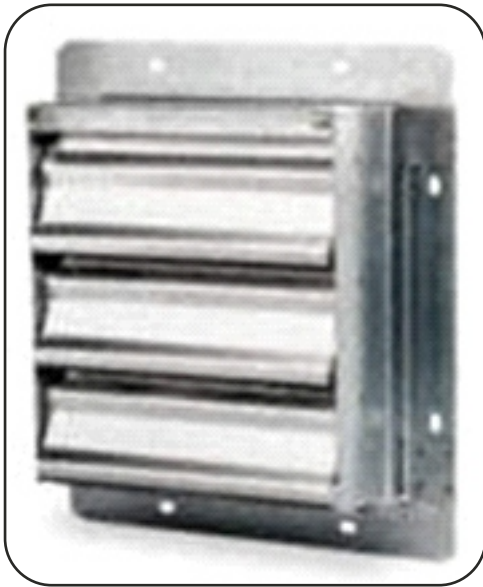
DeVAP stands for “Desiccant Enhanced Evaporative.” A desiccant is a substance that absorbs water from its surroundings. DeVAP HVAC systems cool the air by employing an evaporative cooling system. Water is run into a honeycomb media, like absorbing it into a sponge. A fan then blows water through the honeycomb media, causing the water to evaporate. As the water evaporates, the air becomes cooled and is released into your system. DeVAP systems then use a desiccant to absorb the humidity from the air. This provides you with the same kind of cool, dry air the current air conditioners offer. DeVAP systems use less energy to operate and use no harmful refrigerant.



Green Technologies that are changing hvac

ON COMMAND WATER RECIRCULATOR

This product, saves money, energy and water while delivering hot water in a timely manner. It involves installation of the "On Command" pump that attaches to the hot and cold water lines under a kitchen or bath fixture in a home. When activated, it allows the cool water being drained to circulate back to the water heater through the cold water line, allowing hot water to be delivered at any time 24 hours a day functions.



Sustainable Building Design

New buildings are now being designed with sustainability in mind. This is a new movement referred to as green building design, green construction or sustainable building design. The building's HVAC system is a major component in sustainable building design, as heating and cooling systems are a major source of building energy consumption. Sustainable design has caused architects to rethink ventilation systems, using more natural airflow to reduce energy costs. It might also choose different building materials that keep the building at a more constant temperature to start with, reducing the need for high-powered HVAC. HVAC systems in green buildings are likely to have alternative power sources as well.



T H E R M A L L Y D R I V E N **A I R C O N D I T I O N I N G**

Thermally-driven chiller that provides a low-cost alternative to conventional air-conditioning units, which are electrically driven. That sounds like a mouthful, but essentially these chillers make use of solar energy that, when running short, can be supplemented by natural gas. The company makes its own solar panels that generate a high enough temperature to drive a double-effect chiller, which it describes as its most effective system. The company's double-chiller system is said to provide more cooling than comparative photovoltaic systems, and eliminates electricity costs.

T H E I C E P O W E R E D A I R **C O N D I T I O N E R**

An ice-powered air-conditioning unit ,reduce a building's total net energy consumption. In a very abbreviated description, the Ice Bear works by freezing 450 gallons of water in a tank overnight and making that available for cooling the next day. When the Ice Bear is switched from its Ice Charging to Ice Cooling mode, it provides cooling for up to six hours. After its ice has melted, the job of cooling reverts back to the building's conventional commercial A/C unit, which is why the Ice Bear works in conjunction with a conventional unit. The company describes the product as the first effectively loss-less energy solution.

Geothermal HVAC

Geothermal HVAC systems consist of a system of pipes buried underground, called an earth loop. While the ambient air temperatures outside rise and fall with the changing seasons, ground temperatures remain pretty constant when you're more than about six feet below the surface. Geothermal heating and cooling systems take advantage of this consistency to heat and cool your building. Water is run through the underground pipes. As the water travels through the ground, it is heated (or cooled, depending on the time of year) by the ground's constant temperature. An indoor unit uses a fan, compressor and pump to deliver the temperate air through the building.



Solar HVAC

Solar HVAC systems can be installed in new construction or retrofitted to existing buildings. These systems use solar paneling to absorb both heat (thermal energy) and light energy from the sun. For heating applications, the thermal energy is used to heat a fluid, usually a mixture of water and antifreeze, which then runs through a heat exchanger. This creates the heated air that warms the building. If your building has an existing air conditioning system it can be refitted to be solar powered that is, solar power is used to generate the electricity needed to run the system. New applications might opt for a solar cooling system. These systems employ an evaporative cooling method, where the air is cooled simply by the evaporation of contained water.

The Dual Fuel Heat Pump

The combination of a gas furnace and electric heat pump can provide the most comfortable and efficient type of heating for various temperatures. Above 35 degrees, the dual pump makes use of electricity to heat the home, providing warmth that is not too dry. At lower temperatures, the pump utilizes gas heat to provide better efficiency. Although the cost of a dual fuel heat pump can cost \$600 to \$1,000 more than a conventional system up front, this can be recouped over the next several years in energy costs, the company notes.

THE GEOTHERMAL HEAT PUMP

HVAC products, including the geothermal heat pump, have been growing in popularity and use only recently due to the current green movement. A geothermal heat pump makes use of heat from the Earth by way of looped piping that is placed into the ground. During cold months, the fluid in this piping loops underground and absorbs the heat, which is carried back indoors to provide heating. Geothermal systems like these are said to be four times more efficient than traditional HVAC systems, and can also be used to supply cooling, too.