

LOW DEWPOINT

HUMIDITY CONTROL



PINNACLE®

PRIMARY VENTILATION SYSTEM

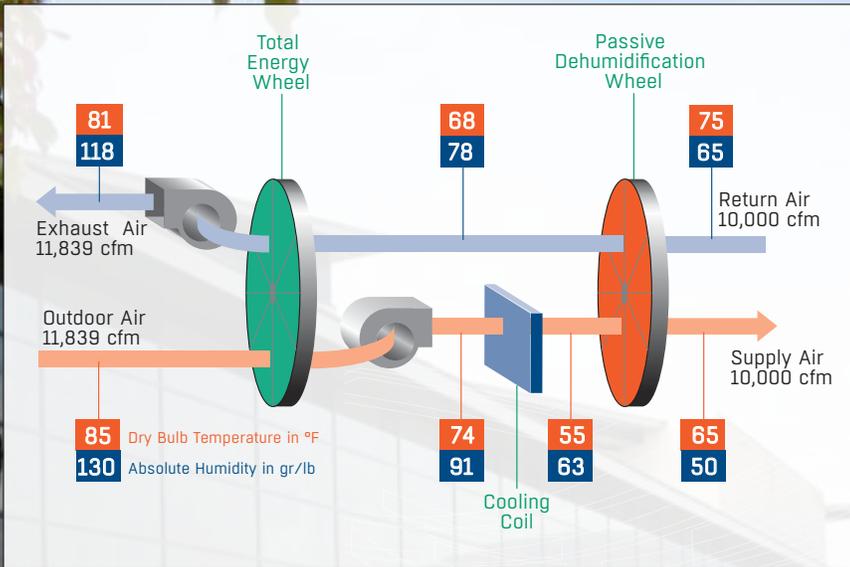
PINNACLE KEY BENEFITS

- Provides a very high degree of latent cooling using only a minimal amount of conventional cooling input
- Constant stream of optimally conditioned ventilation air comes into the space while stale polluted air is exhausted out
- Substantial energy savings over traditional over-cooling and reheat systems
- Lower installation costs due to reduced demand for overall heating and cooling capacity

The Pinnacle manages 100% of a building's ventilation and indoor humidity load in a single package, responding to varying conditions on demand. It cools, heats, or dehumidifies as required, providing a steady stream of optimally pre-conditioned, high quality, comfortable air.

The Pinnacle economically provides high quantities of outdoor air while simultaneously controlling indoor humidity levels. It accomplishes this by dehumidifying the supply air to very low dew points in an energy-efficient manner, without the use of a regeneration heating source. Outdoor air is continuously delivered to the occupied space while simultaneously controlling humidity levels at the conditions recommended by ASHRAE, even at part-load conditions.

Utilizing the strengths of total energy recovery, conventional cooling technology, and a new class of desiccant product, the passive dehumidification wheel, the Pinnacle provides the best possible outdoor air preconditioning system.



Schematic of the Pinnacle system operating at peak space latent load providing 89.5 tons of total cooling at a Sensible Heat Ratio (SHR) of 0.27 using only 51.4 tons of refrigeration input. The dew point delivered to space is 48.15°F. A conventional system with the same leaving coil temperature will NOT deliver the same dewpoint. It would require 97.4 tons of refrigeration and 226 MBtuh to achieve the same leaving coil condition.

THE PRINCIPLE BEHIND PINNACLE®

The two most significant advantages offered by the Pinnacle, when compared with the traditional over-cooling and reheat systems, are that (1) the dehumidification or latent capacity (e.g., dryness of the air provided to the controlled space) is significantly increased and (2) the energy efficiency is greatly improved.

The Pinnacle has more latent capacity and higher energy efficiency than a desiccant-based cooling (DBC) or a dual-wheel energy recovery system (DWERS.)

The Pinnacle can provide outdoor air at a humidity content of 40 gr/lb using standard cooling equipment. This results in a 90 gr/lb reduction at the typical outdoor design condition of 130 gr/lb. Providing very dry air using conventional cooling equipment has many advantages including a significant reduction of energy consumption and, therefore, cost. With very dry air, lower air flow quantities can handle far more latent load.

“[The Pinnacle] was the only system that could provide the humidity control we desired without any active regeneration of desiccant material.”

- Steve Daiute, Assistant Vice President, Greenman-Pedersen



At SEMCO, we design products that fit together to maximize indoor air quality and energy efficiency. When specified with a SEMCO active chilled beam system and efficient NEUTON pump modules, the Pinnacle series can produce even greater savings.

Acknowledged as one of the **Top 10 Green Building Products** for 2018 by Building Green, 3fficiency has been receiving industry recognition for providing an energy-efficient, easy-to-specify integrated system. 3fficiency improves upon a traditional chilled beam design by reducing piping and simplifying building controls.

3fficiency is a safe and effective alternative to Variable Refrigerant Flow (VRF) and provides even more savings through the use of a water to water chiller and using the condenser water as the hot water for the system. No more concerns with ASHRAE 15, refrigerant leaks, or large electrical wire runs. A whole building **Variable WATER Flow System!**

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WE BRING AIR TO LIFE