

SENSIBLE EQUIPMENT COMPANY

TRICOIL®

The Sensible Solution

AIR HANDLING UNITS (AHU)

TRICOIL® – BEST METHOD FOR ENHANCED INDOOR AIR QUALITY (IAQ)

NEW AND RETROFIT

TRICOIL® Air Handling Units have been in operation for over 30 years. TRICOIL® is a recuperative precool/reheat system similar to a Heat Pipe system, however, we use water instead of refrigerant as the heat exchange medium. This makes TRICOIL® Method easier to install, flexible in application, cost effective and energy efficient.

Some of the recent TRICOIL projects include:

- 37,200 cfm AHU for Indoor Tactical Training Shooting Range in Palm Beach, Florida having 25% outside air, chilled water cooling and natural gas heat. Picture at right
- Seven 3,400 cfm AHU's; one for each of seven Sorority Chapters on the Stetson University Campus in Deland, Florida. The units provided the entire cooling for the chapter rooms and ventilation air for the bedroom wings. Picture bottom right.
- 18900 cfm AHU for classroom bldg at Stetson University. Unit was provided with duct mounted reheat coils for "per floor" zoning.

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Call Kenn Eiermann at
(407) 579-1841

or email to kle@tricoil.com

SENSIBLE EQUIPMENT COMPANY
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Orlando, Florida 32804



HOW TRICOIL AHU SYSTEMS IMPROVE IAQ

- Convert sensible cooling to latent cooling for precise indoor temperature and humidity control.
- Increase ventilation air flow rate for purging and pressurizing, 100% outside air can be provided using the same cooling as 25% outside air systems.
- Control supply air relative humidity to 70% RH to improve duct cleanliness.
- Coat AHU Surfaces with anti-microbial coatings
- Increase air filtration to MERV 13 or 14
- Ample space in unit and between coils for cleaning
- Ionized Hydro-peroxide plasma with fast kill rate on microbes in the air and on surfaces. Also effective for destroying viruses.

INDOOR SHOOTING RANGE TRICOIL UNIT: ENERGY SAVED; 48 TONS OF COOLING



This unit (above) is used to purge pollutants from the indoor shooting range. 37400 cfm provides a laminar air flow containing 25% outside air. The air is filtered with MERV 14 filters. The TRICOIL systems saves 48 tons of cooling at peak performance.

This unit (right) is used to air condition a Chapter Room and provide ventilation air for the bedroom wing of a Stetson University Sorority Chapter. The unit was provided in modules sized a maximum of 34" to allow entry through a standard door. The TRICOIL pump and valve assembly was installed under the unit to conserve space in the room.



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TRICOIL® AHU units feature the TRICOIL wrap-around recuperative precool/reheat process which provides reheat for humidity control and a proportional precooling effect. In other words, the reheat is provided from the heat content in the chilled water return.

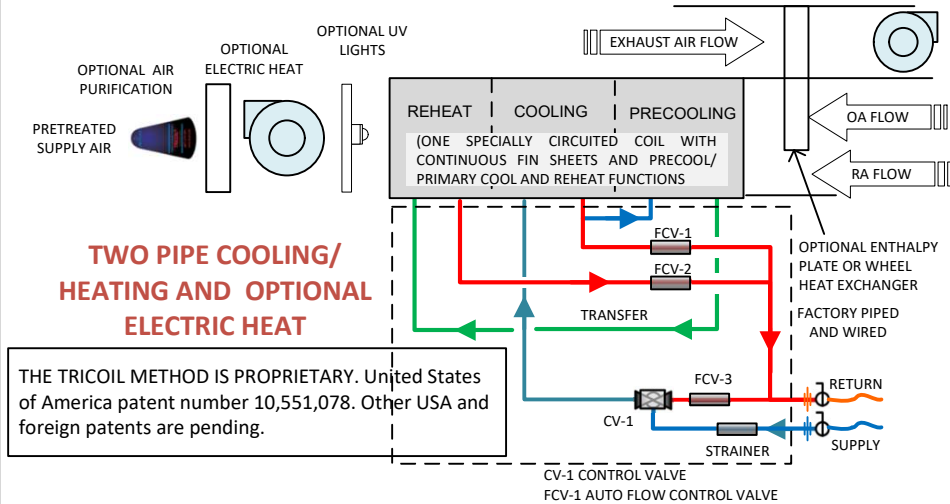
Two general TRICOIL® methods are available;

- 1) With a heat transfer pump (pumped) or
- 2) Without a heat transfer pump (pumpless) (pictured at right)

The efficiency of the heat transfer of the pumped method is greater than the pumpless method, however the pumpless method is not burdened by the operating and maintenance expense of the pump.

The three coil functions; precooling, primary cooling and reheat, can be in separate coils or can be in a single, specially circuited coil containing all three functions. The special circuited coil is contained in continuous fin sheets. So, instead of three coils, only one single coil is required. This is particularly important when space for installation is at a premium.

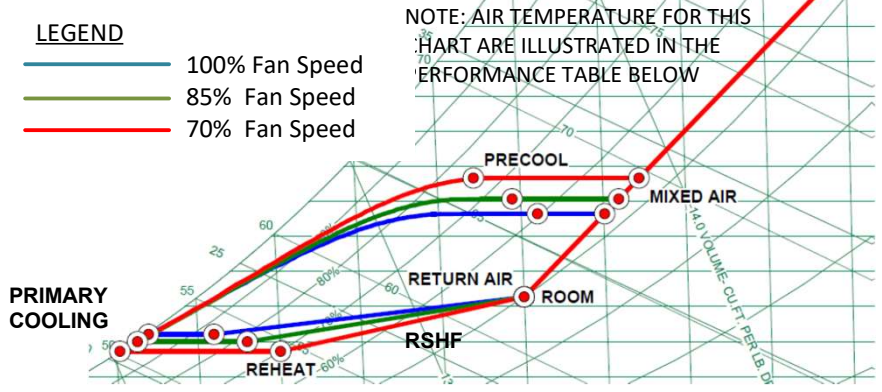
The TRICOIL system can be furnished with exhaust air heat recovery which may be either: 1) Sensible heat transfer as with a wrap-around loop or sensible plate; 2) Total enthalpy heat recovery as with an enthalpy wheel or enthalpy plate



TWO PIPE COOLING/ HEATING AND OPTIONAL ELECTRIC HEAT

THE TRICOIL METHOD IS PROPRIETARY. United States of America patent number 10,551,078. Other USA and foreign patents are pending.

PARTIAL PSYCHROMETRIC CHART



TRICOIL PERFORMANCE; VARIABLE AIR VOLUME APPLICATION

	AIR VOLUME		UNIT COOLING				SUPPLY AIR			ROOM COOLING		
	SUPPLY AIR CFM	OUTSIDE AIR CFM	TOTAL COOLING	PRE-COOLING	NET COOLING	UNIT NET TONS REQ'D	DB	%RH	DP	SENSIBLE MBH	LATENT MBH	RSHF
100% AIR FLOW	10000	2500	477.8	43.9	433.9	36.2	56	85.0	51.8	208	52.3	0.80
85% AIR FLOW	8500	2500	447.4	62.4	385.0	32.1	58	77.5	51.1	159	53.4	0.74
70% AIR FLOW	7000	2500	416.7	75.1	341.6	28.5	60	70.0	50.2	115	53.3	0.68

- The table shows TRICOIL with Variable Air Volume (VAV) performance. As the the supply air volume reduces to satisfy the room cooling demand we reduce the supply air dew point (DP). This compensates for the loss of part load latent cooling associated with standard VAV systems.
- Notice under ROOM COOLING that the latent cooling provided by the TRICOIL system remains constant even when the room sensible cooling is reduced.



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