



OmegaAir

100% Dedicated Outside Air System (DOAS)



- 1 to 15 Tons
- Vertical or Horizontal
- 150 to 3,000 CFM
- Water-Cooled
- Air-Cooled with Indoor Condenser or Optional Outdoor Condenser
- 2 to 70 kW Electric Heat-Single Point Power
- Optional Digital Scroll



Unique Solutions for All-Indoor HVAC Projects

The Final Word in Low CFM Outside Air Systems

Today's commercial buildings are designed and built with energy efficiency in mind. New construction techniques and materials used for the shell of the building minimize heat gains and losses and prevent the unwanted infiltration of moisture-laden outside air from entering the space, thereby decreasing the cost of space conditioning.

To maintain the latest ASHRAE Standard 62.1 ventilation requirements, owners/operators of commercial build-

ings generally have to depend on up-sized packaged rooftop HVAC systems not only to condition the circulating air but to also bring in fresh OA to meet IAQ requirements. This resulted in larger equipment investment and higher operating costs.



The Solution is OmegaAir

A simpler, more effective solution is a 100% dedicated outside air system (DOAS) from United CoolAir Corporation working in conjunction with a space sensible heating/cooling system. United CoolAir Corporation's OmegaAir 100% outside air unit is a stand-alone system designed to meet the OA requirements for today and years to come.

Traditional HVAC systems are designed primarily to handle design sensible loads and are not adequately designed for the high latent loads produced by OA. The OmegaAir is designed to exclusively handle the large latent ventilation load and deliver "neutral" air of 70°F to 72°F @ 50% RH. OmegaAir's supply air dew point design temperature is lower than standard air conditioners to remove the maximum amount of moisture before delivery to the space.

Divide and Conquer

By separating the sensible load from the latent load, the OmegaAir removes the moisture from its primary source--fresh outdoor ventilation air--at the lowest cost. OmegaAir can further assist the main space condi-

tioning unit by handling some of the smaller internally generated amounts of latent and sensible loads that naturally build from occupants and other sources. The result is better IAQ at the lowest cost!

Avoid Requirements that Lead to Extra Expense

Expensive Equipment, Rigging or Permits

- Equipment can be shipped in sections
- Fits easily through standard doors, hallways, and into elevators
- Minimizes the need for crane rentals, rigging crews, and municipal permits

Roofcurbs or Roof Penetration

- Eliminates expensive curb equipment cost
- Reduces installation labor
- Eliminates possible roof water damage

Field Piping, Brazing, Evacuation or Charging

- Factory charged and utilizes
- Resealable Refrigerant Fittings
- Reduces installation labor
- Faster installation and commissioning

Excessive Downtime when Replacing Old Systems

- Sectional shipments accelerate installation
- Can be installed off-hours and on weekends
- Shipment can be made to coincide with installation schedules

Architectural Damage to Building

- Eliminates expenses for code approvals
- Requires no rigging holes through building walls
- Minimizes any type of building alteration

Compromise in Performance With Built-to-Order Design

- Units are built to exact requirements
- Avoids purchase of excess capacity from standard product offerings
- Extensive list of configurations and options

Equipment Damage Due to Weather

- All equipment is installed indoors
- Avoids premature replacement costs due to weather wear and/or damage
- Eliminates downtime due to severe storms

Possibility of Theft or Vandalism

- Eliminates expensive repairs and replacements due to theft and vandalism
- Enhances building security by eliminating interruption to service
- Eliminates extra cost for cages and special alarms

Field Testing of Installed Product

- Minimizes field testing as units are functionally tested prior to shipment
- Reduces labor and speeds installation
- Assures trouble-free start-ups

Outdoor Servicing of Product

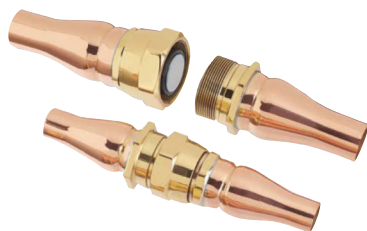
- Outdoor/premium service expense in extreme weather completely eliminated
- Improves reliability
- Eliminates roof safety issues

Major Ductwork or Electrical Modifications

- Units ordered to closely match existing duct and utility locations
- Major installation, labor and time savings

Exterior Condensing System

- Eliminates rooftop and pad installation space and cost
- Water-Cooled and Chilled Water configurations eliminate unsightly equipment outdoors



Resealable Refrigerant Fittings

Most models feature Resealable Refrigerant Fittings. Unit sections can be shipped split or split in the field without losing the factory charge resulting in no field brazing and a total installed cost advantage.

Right-Sized for Your Particular Installation

OmegaAir is designed specifically for small to medium applications requiring **150 – 3,000 CFM** of OA. Now you can adjust your DOAS capacity to meet your specific OA requirements, reducing the size of your HVAC system and related operating cost.

The OmegaAir is also sized for floor-by-floor installation in retrofit, new and existing applications where size and performance are critical.



Requires Little to No Footprint

United CoolAir designed the OmegaAir with installation flexibility in mind. The compact vertical configuration needs little floor space and can be easily adapted to small mechanical rooms and even closets. The horizontal configuration fits neatly in the ceiling plenum, leaving the entire floor free of mechanical equipment. Self-contained units are available in air- and water-cooled models. The unit can be specified with a remote air cooled condenser.

The All-Indoor Concept— A United CoolAir Exclusive

The OmegaAir like all UCA air conditioning equipment is designed for indoor installation! Air handlers and condensers require no exterior mounting space, which is critical in multi-floor, urban applications. Indoor unit mounting preserves the architectural integrity of the building by keeping the roof and perimeter free of obstructions. In addition to eliminating the roof loads, the installation and maintenance costs is lower, the equipment is protected from the elements and security is enhanced because of limited outdoor access.



Robust Refrigeration System

The OmegaAir is designed to bring indoor humidity under control quickly and efficiently. The evaporator coil's 10 fins per inch/6 rows deep design, positioned in the draw-through air flow arrangement, provides the most effective moisture removal efficiency. **The optional modulating digital scroll**

compressors deliver lower dew point air at part load OA conditions for improved space conditions. Modulating hot gas re-heat delivers precise leaving air temperature control for occupant comfort. An integrated electrical heating system is also available for cooler climates.

Cabinet Construction Features

United CoolAir uses high-density **2" thermal/acoustic insulation** along with low air flow to greatly reduce noise for near occupant operation. Critical components are isolated out of the air stream for longer life, and thermal breaks prevent un-

wanted condensate formation. Single point electrical power hookup for components and electric heat. The sheet metal is G90 galvanized steel with powder coated finish for durability and long life.

All OmegaAir Units Custom Built to Specification

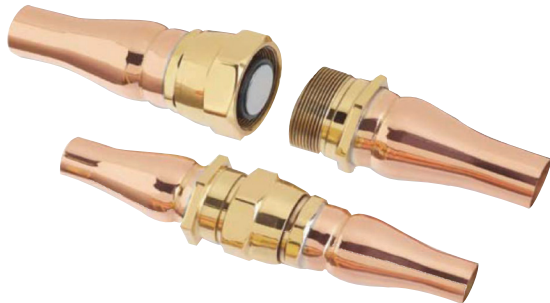
United CoolAir dedicated outside air systems offer choices in cooling capacity, unit style and configuration. And unlike the "one size fits all" approach by some manufacturers, OmegaAir can even have customized air paths, component configuration

and utility placement before leaving the factory. They also offer a comprehensive list of factory-installed options to meet even the most complex installation and cooling requirements.

NOW AVAILABLE

- 2 to 70 kW Electric Heat with Single Power Point
- Optional Digital Scroll
- Optional Double Wall
- Optional 2" Elastomeric Foam Insulation
- Remote Air-Cooled Propeller Condenser

Lowest Cost and Quickest Retrofit Installations



Re-Sealable Refrigerant Fittings

United CoolAir charges and tests each of their outside air units before leaving the factory. All OmegaAir units can be shipped in predetermined modules and reassemble on the job site. Modules fit easily through standard 36" doorways, into elevators and down halls eliminating crane lifts and building modifications. Also included are re-sealable refrigerant couplings between partible sections to preserve the factory refrigerant charge. Refrigerant couplings are reattached during jobsite assembly, and ready for immediate operation. Brazing, evacuation, recharging and testing are eliminated saving additional time and money.

The Smart Controller Maximizes Performance, Comfort and Cost



The OA3 microprocessor reduces operating expense through an occupied/unoccupied feature that eliminates compressor and fan operation during unoccupied times. Smart cooling and heating economizer functions eliminate compressor and auxiliary heat operation as outside conditions permit. It also provides temperature and humidity reset to maintain accurate space control for maximum occupant comfort. The OA3 is a menu-driven controller that provides easy navigation through setup and operation. It works in conjunction with most popular BAS through the use of an optional system interface.



Compatible With All HVAC Systems

The OmegaAir dedicated outdoor air systems integrates seamlessly with many space conditioning system designs, making them perfect for both retrofit and new construction projects.

- Constant air volume (CAV) systems
- Variable-air-volume (VAV) systems
- Fan coil units
- Variable Refrigerant Flow (VRF) systems
- Unit ventilators
- Water-source heat pumps
- Chilled beam systems

Case Study

Holiday Inn Express

Orlando, FL

United CoolAir's OmegaAir Dedicated Outside Air System Solves Steamy Hallway Problem

The United CoolAir OmegaAir dedicated outside air systems are compactly designed to fit in small spaces. The hotel units are installed near an outside wall making it easy to supply OA to the unit while exhausting condenser heat to the outside.



United CoolAir Corporation's OmegaAir dedicated outside air system (DOAS) is designed as a flexible unitary packaged system capable of providing commercial spaces with the correct amounts of outside air (OA) that has been accurately dehumidified for new construction projects, retrofit applications or as an adjunct to an existing system.

OmegaAir's unique design, sizes and configurations offers the installer a multitude of choices to introduce the correct amount of the highest quality OA to the location required regardless of the type of sensible system being used. This is especially important in retrofit and with existing systems where space and accessibility are at a premium!

Running additional ductwork or blending with mixing boxes is not an option for air delivery due to high cost or space limitations. In cases such as this the consulting engineer and/or

contractor need to have installation options to quickly and efficiently get the project installed at the lowest cost.



A hotel facility located in central Florida where sensible and latent loads are at their extreme, received complaints from guests and workers alike of the extreme heat, high humidity and odors throughout the facilities' hall-

ways. When constructed, the 10 story building was specified with packaged terminal air conditioners or PTACs in each room to manage room cooling, ventilation and dehumidification; no air conditioning was specified for the hallways.

In addition to the uncomfortable conditions while entering and exiting the common hallways, the exceptionally warm, moist air would infiltrate the room space thereby increasing the load on the PTAC systems where it had difficulty maintaining desired setpoint conditions.

Initial planning was to install either floor-by-floor or zoned sensible air conditioning units to cover the hallways. However, a better solution was to install a dedicated outside air system on each floor to manage both the latent load as well as the hallway's sensible temperature.

United CoolAir's OmegaAir 15? Ton units were selected for their size and installation options. Laundry rooms on each floor were converted into mechanical rooms, and the vertically configured DOAS units were mounted against outside walls. Each unit was vented to the outside for fresh supply air to the unit's evaporator. Also included were air inlet and exhaust vents for the integrated air-cooled condenser.



To supply the conditioned air to the corridor space, a plenum box with louver was installed at the end of each hallway, adjacent to each converted mechanical room. Ducting was run through the wall and into the plenum from the DOAS for distribution. The DOAS did not include an air return arrangement but rather depended on the conditioned air to infiltrate the hotel guest rooms via existing space openings (under door), or to enter rooms as doors were opened. Excess air would then naturally exhaust the facility using the existing bathroom exhaust fans system, or another pressure relief duct system.

As a result, the hallways were supplied with "neutral" air of 70°F to 72°F @ 50% RH to control the corridor latent and sensible loads, while also increasing additional ventilation to the guest rooms. Space requirements were minimal at best, and expensive ducting was not necessary for air distribution.



Case Study

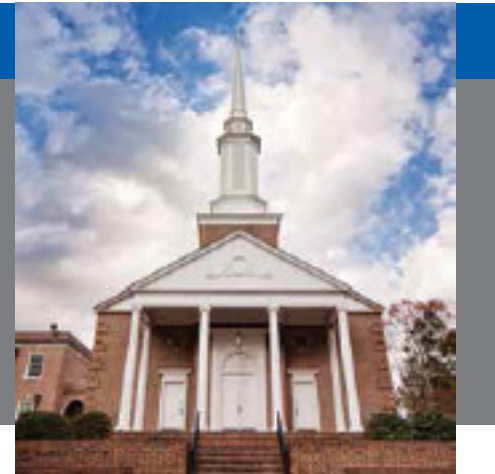
Trenholm Road Methodist Church

Columbia, SC

Church Sings Praises for New HVAC System Installation

The Trenholm Road Methodist Church located in Columbia, SC must cope with typical high heat and high humidity conditions on a daily basis because of the hot, moist South Carolina weather. Conditions within the church become even more challenging during Sunday services or during church events when the number of people and events increase.

When originally constructed, the church facility utilized a chilled water system for cooling and dehumidification. This older system began showing wear, and it was decided to revamp the entire HVAC system to a more efficient design.



The church hired a consulting engineer to analyze the present conditions and offer new suggestions on high performance cooling equipment for their facility. They also wanted to be sure the new HVAC equipment met or exceeded the ASHRAE stand. 62.1 guidelines for proper ventilation. Of all the options available, it was decided to install a variable refrigerant volume or VRV ductless mini split system primarily for its zoning ability.

The contractor for the project was Pierce & Catoe Mechanical HVAC Contractors located in Lexington, SC. Jason Catoe, principle for the firm, said they chose a



VRV system for better zoning control. "The church itself is divided into 7 unique zones that include a three floor main center section, a left and right wing and the sanctuary," noted Catoe. "The church wanted to have better control in each zone, and the VRV seemed to fit the bill nicely."

By selecting ductless mini-split systems, Catoe knew they still had to make allowances for ventilation in each zone since ductless systems have no allowances for OA delivery or dehumidification. They decided to go with United CoolAir Corporation's OmegaAir dedicated outside air systems (DOAS).

Catoe said there's a definite advantage in using this type of arrangement. The VRV units do an excellent job of controlling the sensible temperature in each zone but have limited dehumidification capability. They come in a variety of styles and sizes and are easy to install especially if ducting is not available.

The OmegaAir DOAS on the other hand is designed specifically for OA delivery. It does an excellent job of dehumidification because of its deep coil design, and delivers "neutral" air of 70°F to 72°F @ 50% RH at the volume required to each zone.

"Using an OmegaAir unit allows us to separate the sensible and latent loads for best performance," said Catoe. "In that way you don't have to oversize your HVAC equipment to meet changing space demands."

A total of 7 DOAS units were specified, one for each zone. Sizes ranged from 1-1/2 tons to three tons, and remote condensers were used for waste heat removal. United CoolAir offers their OmegaAir in a compact vertical and hor-

izontal configuration, and the vertical style was used because they fit easily in the available mechanical spaces.



Because the original cooling system was a chilled water type, ducting was not immediately available. The ductless split VRV units are self-contained and do not need ducting installed. The DOAS does however require ducts for the supply air only since no air is returned back to the system.

In situations like this, smaller ducting can be used because of the lower air volumes, saving on installation cost. Additionally, smaller ducting is faster and easier to install in retrofit projects like that of the church.

To tie it all together, the VRV and DOAS units were tied into a BAS for precise control and management. Overall, the cooling requirements for the entire project were 62 tons.

Catoe commented "The project was fairly large, and three years later we have not received one complaint for performance or air quality of the entire system!"



Basic Model Designation

EXAMPLE: $\frac{OS}{1}$ $\frac{W}{2}$ $\frac{V}{3}$ $\frac{3}{4}$ $\frac{G}{5}$ $\frac{3}{6}$ $\frac{ASF}{7}$ $\frac{T}{8}$ $\frac{A}{9}$ $\frac{10}{10}$ - $\frac{T}{11}$ $\frac{X}{12}$ **OmegaAir Section**

1. "OS" Outside Air Type
2. "W" Water-Cooled
"A" Air-Cooled with Remote Condenser
3. "V" Vertical Configuration
"H" Horizontal Configuration
4. "1", "1.5", "2", "2.5", "3", "4", "5", "6", "7", "8", "9", "10", "11", "12", "13.5", "15" Nominal Tons
5. "G" Common to all
6. "1", "2", "3", "4" Indicates Voltage
"1" 208-230V, 1 PH 60 Hz
"2" 208-230V, 3 PH 50 Hz
"3" 208-230V, 3 PH 60 Hz
"4" 460V, 3 PH 60 Hz
7. "ASF", "ASD", "AF", "AD", "ADF", Quantity of Refrigerant Circuits/Compressor Type
"ASF" Indicates 1 Circuit Fixed Speed Compressor
"ASD" Indicates 1 Circuit Digital Compressor
"AF" Indicates 2 Circuits Fixed Speed Compressors
"AD" Indicates 2 Circuits Digital Compressors
"ADF" Indicates 2 Circuits Digital (Lead Circuit), Fixed Speed Compressor (Lag Circuit)
8. "T" Traditional Cabinet
"C" Custom Cabinet
9. "A", "C" Refrigerant Type
"A" Refrigerant R-410a
- 10 "2 thru 70" kW Electric Heat
11. "-T", "-F", "-B" Air Path Configuration
"-T" Top Discharge
"-F" Front Discharge
"-B" Bottom Discharge
12. "X" Special Configuration

Basic Model Designation

Air-Cooled Indoor Condenser

EXAMPLE: $\frac{BC}{1}$ $\frac{3}{2}$ $\frac{G}{3}$ $\frac{3}{4}$ $\frac{AS}{5}$ $\frac{T}{6}$ $\frac{A}{7}$ - $\frac{X}{8}$ **Air-Cooled Centrifugal Condenser**

1. "BCSP" Air-Cooled Condenser Section (1 or 1-1/2 Ton, Centrifugal)
 "BC" Air-Cooled Condenser Section (2 thru 15 Tons, Centrifugal)
2. "1", "1.5", "2", "3", "4", "5", "6", "8", "10", "12", "15" Nominal Tons
3. "G" Common to all
4. "1", "2", "3", "4" Indicates Voltage
 "1" 208-230V, 1 PH 60 Hz
 "2" 208-230V, 3 PH 50 Hz
 "3" 208-230V, 3 PH 60 Hz
 "4" 460V, 3 PH 60 Hz
5. "AS" or "A" Quantity of Refrigerant Circuits
 "AS" Indicates 1 Circuit
 "A" Indicates 2 Circuits
6. "T" Traditional Cabinet
7. "A" Refrigerant Type
 "A" Refrigerant R-410a
8. "X" Special Configuration

Basic Model Designation

Air-Cooled Outdoor Condenser

EXAMPLE: $\frac{\text{PBC}}{1}$ $\frac{3}{2}$ $\frac{\text{G}}{3}$ $\frac{3}{4}$ $\frac{\text{A}}{5}$ $\frac{\text{T}}{6}$ $\frac{\text{A}}{7}$ - $\frac{\text{X}}{8}$ **Air-Cooled Propeller Condenser**

1. "PBC" Air-Cooled Condenser Section with "Inline" Fan Arrangement
2. Nominal Tons of THR @ AHRI Conditions
For PBC "2", "3", "4", "5", "6", "7", "10", "13", "15", "18", "21", "23", "26", "28", "31"
3. "G" Common to all
4. "1", "2", "3", "4" Power Supply
"1" 208-230V, 1 PH 60 Hz
"2" 208-230V, 3 PH 50 Hz
"3" 208-230V, 3 PH 60 Hz
"4" 460V, 3 PH 60 Hz
5. "AS", "A", "B", "D" Quantity of Refrigerant Circuits
"AS" Indicates 1 Circuit
"A" Indicates 2 Circuits
6. "T" Traditional Cabinet
7. "A", "C" Refrigerant Type
"A" Refrigerant R-410a
8. "X" Special Configuration

Unique Solutions for All-Indoor HVAC Projects



VertiCool Classic
Vertical, 3 - 30 Ton



VertiCool Aurora
Vertical, 3 - 35 Tons



VariCool®
VAV, 9 - 70 Tons



VariCool® EZ-Fit
VAV, 12 - 90 Tons



Alpha Aire
100 - 500 CFM



Portable Cooling and Heating Units
3-30 Tons



C13-Series Horizontal
2 - 10 Tons



C-Series Horizontal
1 - 15 Tons
Special Configuration
Engineered to Order



OmegaAir Horizontal and Vertical
100% Outside Air
150 - 3000 CFM

Authorized Distributor:



LIMITED WARRANTY

United CoolAir Units are backed by a 1 year limited warranty on parts and a 5 year limited warranty on the compressor (labor not included). Maintenance items such as filters and belts are excluded under this limited warranty.

FACTORY TESTED

All units are functionally run tested before shipment to ensure a trouble-free start-up and unit commissioning. Industry proven components are used throughout to enhance system reliability and peace of mind.



Scan to learn more
about all of our
products!

 **UNITED
CoolAir**
All-Indoor Solutions

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