



# Trane® Dedicated Outdoor Air Systems



# Trane dedicated outdoor air systems:

Improving indoor air quality and lowering HVAC costs



*High indoor occupancy levels, busy kitchens and shower facilities can significantly increase indoor humidity levels—which can make occupants uncomfortable.*

Achieving acceptable indoor air quality can be difficult—especially when using some traditional packaged rooftop HVAC systems. Many of these systems don't have the latent capacity to effectively manage high humidity levels, which can result in uncomfortable conditions for building occupants—even when packaged rooftop HVAC systems are operating at full capacity and consuming high amounts of energy.

Adding a Trane® dedicated outdoor air system can not only improve indoor air quality, but also reduce HVAC operating costs. By cooling and filtering outdoor air before directing an optimal amount of it into a building, a Trane dedicated outdoor air system can not only help maintain compliance with ASHRAE 62.1 ventilation standards, but also can decrease indoor humidity and reduce the load on HVAC systems. The result is improved occupant comfort and lower utility bills.

## **Breathe easier with lower energy bills**

Trane dedicated outdoor air systems can be an energy-saving partner for your heating and cooling system, allowing it to work more efficiently. When incorporated as part of an HVAC system's total design, a Trane dedicated outdoor air system can mean smaller, less-expensive, more energy-efficient local or zone terminal devices can be specified, saving money on first costs. A Trane dedicated outdoor air system can pay for itself in a short amount of time, saving you money on first costs and utility bills. And with a life span of up to 20 years or more, you can expect a Trane dedicated outdoor air system to save money on utility bills for a long time to come.



## **Code compliance:**

### **Following regulations with proper ventilation**

Trane dedicated outdoor air systems are an ideal way to ensure full compliance with ASHRAE 62.1 ventilation standards. Integrated with Trane controls, Trane dedicated outdoor air systems can precisely deliver the right amount of outdoor air into your building, not only ensuring full compliance with applicable building codes that reference ASHRAE 62.1, but also meeting or exceeding the air pressure specifications of your building's design. The benefits include:

- Avoiding monetary building code penalties and/or mandated corrective action
- Mitigating the infiltration of high-humidity outside air
- Having the capacity for increased ventilation rates to meet future requirements

### **Indoor air quality: Improving the life of your building, improving the life of its occupants**

Various factors can influence a building's indoor air quality (IAQ), including humidity, the presence of contaminants and more. Good IAQ contributes to occupant comfort—and comfortable building occupants are less likely to have work absences, can be more productive, and are more likely to remain building tenants longer. Additionally, a building with superior IAQ can deliver higher rental income.

The benchmark method for improving a building's IAQ is the introduction of fresh outdoor air—but unless that outdoor air is properly conditioned, it can bring with it undesirable temperatures, humidity and contaminants. Trane dedicated outdoor air systems can be the single best way to quickly and economically improve your building's IAQ by properly conditioning outdoor air, controlling its humidity and filtering out contaminants.

**Humidity control**—Trane dedicated outdoor air systems contain a specially designed six-row evaporator coil that can quickly dehumidify incoming outdoor air—and is optimally engineered to maximize both moisture removal and energy savings.

**Contaminant removal**—Multiple types of air filters are compatible with Trane dedicated outdoor air systems to keep pollen, dust and other outdoor air contaminants from entering your building.

**Microorganism control**—Trane dedicated outdoor air systems are available with a UV-C band irradiation light to inhibit the growth of microorganisms that otherwise could thrive on the wet surface of an evaporator coil, keeping them out of the air that passes through the evaporator coil and into your building's interior.



*Comfortable building occupants are less likely to have work absences, can be more productive, and are more likely to remain building tenants longer.*

## Humidity control: Key to comfort. Key to cost savings.



When outdoor air is excessively humid, an HVAC system is immediately challenged to reduce that humidity. The problem only gets worse when additional sources of indoor humidity are added—which occurs when occupancy levels are high, or when buildings incorporate rooms that naturally produce humidity, like large kitchens and shower facilities. The result can be an overworked HVAC system that consumes a lot of energy while still failing to bring humidity levels within the ASHRAE 55/Berglund recommended comfort zone.

Trane® dedicated outdoor air systems are specifically designed to cool and dehumidify 100 percent outdoor air. Compared to a system using a traditional packaged rooftop HVAC unit, a system that incorporates a Trane dedicated outdoor air system into its design not only can maintain required indoor ventilation levels, but also can use significantly less energy. That can be an enormous cost savings, since an HVAC system can represent up to 60 percent of the energy use in a typical occupied building.

### **Here's how a Trane dedicated outdoor air system can give your building higher indoor air quality (IAQ) and lower utility costs.**

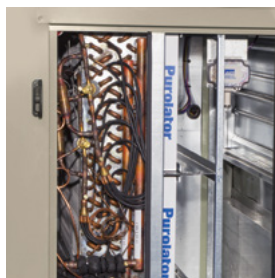
- When outside air is humid, Trane dedicated outdoor air systems use a chilled evaporator coil to dry that air to a lower dew point before bringing it inside the building.
- Bringing outdoor air with a lower dew point inside a building means significantly less air is needed for dehumidification and to maintain optimum indoor comfort—and smaller motors, compressors and ductwork can be used.
  - Smaller HVAC systems cost less to purchase, saving money on the initial equipment investment.
  - Smaller HVAC systems consume less energy, for lower operating costs throughout the life of the system.
- By bringing 100 percent outdoor air into the building, a Trane dedicated outdoor air system can easily meet or exceed typical minimum ventilation requirements for maximum IAQ.
- With their combination of high energy savings and high IAQ, Trane dedicated outdoor air systems can earn buildings LEED® credits.



**Dehumidification by design:  
high-performance humidity control**

Air conditioning units are designed to cool air; their dehumidification abilities aren't optimized for maximum effectiveness and efficiency. A Trane dedicated outdoor air system can quickly bring indoor humidity under control with components specifically designed to handle the process.

- **Six-row evaporator coil**—This 12-fins-per-inch evaporator coil is precisely engineered to manage the dehumidification process. When activated, it maintains a temperature of 38° F—an optimal temperature for quickly removing moisture from air while avoiding coil icing.



- **Hot-gas reheat coil**—After dehumidifying, outdoor air can be uncomfortably cold. The hot-gas reheat coil raises its temperature to a more-comfortable—but still cool—temperature. The cool, dehumidified air is then ducted to the building's interior or to terminal devices.

- To maximize energy efficiency, the hot-gas reheat coil is warmed with heat energy captured from the operation of the compressor that chills the evaporator coil—an effective energy-conserving strategy.

- The hot gas reheat coil is located a minimum of 6 inches away from the chilled evaporator coil, both to avoid affecting the chilling performance of the evaporator coil, as well as to avoid re-evaporating the condensed water back into the air. Strategic distancing of the hot gas reheat coil from the evaporator coil makes the overall dehumidification process more efficient.



← 6" →

**Trane dedicated outdoor air systems:  
a perfect match for nearly any HVAC system**

Trane dedicated outdoor air systems can be designed to integrate seamlessly into many HVAC system designs, making them perfect for both retrofit and new construction projects. In some cases, Trane dedicated outdoor air systems can even serve as standalone devices.

All commercial HVAC designs require a certain amount of outdoor air to be introduced to the system. Due to their versatility, Trane dedicated outdoor air systems can play a key role in nearly any HVAC design, including:

- Constant-air systems
- Variable-air-volume (VAV) systems
- Fan coil units
- Unit ventilators
- Water-source heat pumps
- Variable refrigerant flow (VRF) systems



# Comfort and cost savings:

## How Trane dedicated outdoor air systems benefit people and budgets

Trane® dedicated outdoor air systems include numerous advanced features that help deliver efficient, effective performance. Engineered to integrate with nearly any kind of HVAC design, a Trane dedicated outdoor air system can give your building more indoor comfort and lower energy bills.



### **Energy recovery cassette**

This optional energy-saving device recovers thermal energy from exhaust air, reducing utility costs.



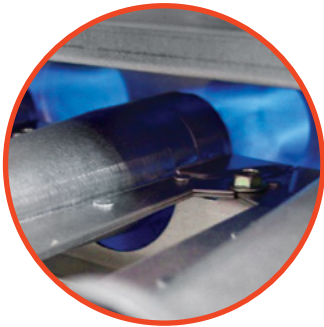
### **Six-row evaporator coil**

Efficiently and economically cools and dehumidifies outdoor air.



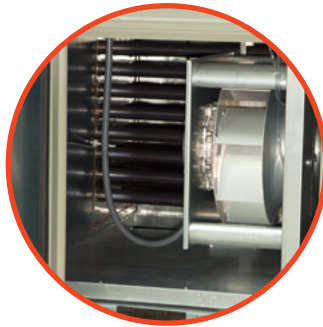
### **Digital scroll compressors**

By operating at constant speed and digitally controlling position of the orbital scroll in relation to the fixed scroll, very precise capacity matching at part load conditions can be achieved.



### **Fully modulating indirect-fired gas burner**

Delivers the precise amount of heat called for by demand levels, saving energy and utility costs.

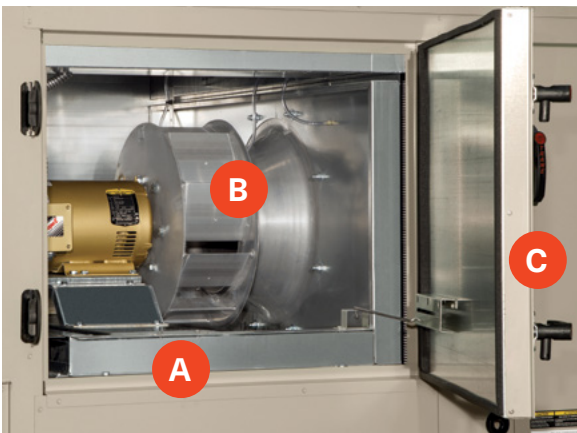


### **High-efficiency plenum fan**

Premium-efficiency direct-drive motor with a variable-speed drive powers backward-curved blades to efficiently move air.

## Carefully designed with less maintenance in mind

Trane dedicated outdoor air systems are engineered not only to be easy to maintain, but also to need less maintenance altogether. Thoughtful design features and durable components help make Trane dedicated outdoor air systems easier to keep running at peak efficiency longer—and more affordably, too.



- A Easy slide-out access**  
Makes servicing the plenum fan/motor combination and optional energy recovery cassette fast and easy.
- B Beltless fan motor**  
Direct-drive design means no belts to break or change.
- C No-tool, reversible access doors**  
The access doors on Trane dedicated outdoor air systems don't require tools to open, and their reversible hinges and handles make opening easier in tight-fit installations.



- D Easy-change air filter holder**  
Allows fast, tool-less filter changes — and quick adjustment for switching between 2-, 4- and 6-inch filters.

### **25-year warranted heat exchanger (not shown)**

Long-life type 409 stainless steel construction for superior oxidation and corrosion resistance.

### **Optional electro-fin coating (not shown)**

Protects coils from environmental corrosion for longer service life.

## More benefits for your building — and you

**Reduced-size HVAC components** — HVAC components can be smaller in size, due to the Trane dedicated outdoor air system's ability to precondition outdoor air. Smaller equipment can have a lower first cost—and use less energy for reduced operating costs.

**Smaller ductwork** — The Trane dedicated outdoor air system helps the HVAC system provide all the indoor comfort required using less air—and using smaller ductwork, which costs less.

**Lower-power electrical riser** — An HVAC system enhanced with a Trane dedicated outdoor air system uses less electricity, so it requires a lower-power electrical riser — another first-cost saving.

# Trane solutions: Making buildings better for life

## Performance

Trane® products are designed, engineered, built and tested to provide exceptional performance. Trane dedicated outdoor air systems efficiently provide conditioned 100 percent outdoor air to a building's interior, improving IAQ and reducing energy costs—an HVAC solution that honors a long legacy of indoor comfort solutions developed by Trane.

## Innovation

Trane was built on the belief that innovative leadership can address virtually any challenge. Trane dedicated outdoor air systems help efficiently solve IAQ challenges, and have earned their place in a century of Trane technological breakthroughs in the science of HVAC solutions.

## Commitment

Our commitment to customer satisfaction is what has kept Trane an industry leader for more than a century. Carefully listening to our customers and truly understanding their needs is the surest way for us to

recommend the right indoor comfort solution that will provide years of service and satisfaction. Because Trane offers a wide variety of products—including Trane dedicated outdoor air systems—we are uniquely able to match every customer with a system or combination of systems that's right for them.

## Knowledge

To become and remain an industry leader requires a full understanding of existing knowledge and a never-ending quest for new discoveries. For one hundred years, Trane has built and maintained its leadership status in the HVAC industry by employing the brightest and most inquisitive scientists, engineers and design experts—all of whom share a singular passion to know and explore the ever-evolving technology that improves the lives of our customers.

Visit [Trane.com/OAU](https://Trane.com/OAU) for more information on Trane dedicated outdoor air systems, or contact your local Trane account manager to learn more.



Trane – by Trane Technologies (NYSE: TT), a global climate innovator – creates comfortable, energy efficient indoor environments through a broad portfolio of heating, ventilating and air conditioning systems and controls, services, parts and supply. For more information, please visit [trane.com](https://trane.com) or [tranetechnologies.com](https://tranetechnologies.com).

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