

CoolSense® Integrated Outdoor Air System



As buildings are designed for lower energy use, the resulting reduction in cooling loads presents an economically-feasible opportunity for systems that use zone-level, sensible-only cooling equipment. The Trane® CoolSense™ system combines a dedicated outdoor-air system (DOAS) with chilled-water, sensible-cooling terminal units to deliver a flexible, energy-efficient solution to provide comfortable spaces and simplify maintenance.

Efficient operation

CoolSense™ integrates variable-speed fan control in both the terminal units and DOAS to minimize fan energy. Decoupling dehumidification from zone sensible cooling allows for higher-efficiency cooling with warmer chilled water. The airflow-measuring damper in each terminal unit maintains the outdoor airflow required in each zone at any given time. Plus, demand-controlled ventilation (DCV) sequences (using either a CO₂ sensor or occupancy sensor) are pre-engineered into the factory-mounted unit controller. All of these features lead to efficient operation.

Comfortable spaces

Each terminal unit is controlled by a zone temperature sensor, and contains a chilled-water coil that can also be used for hot-water heating (shared coil), or the unit can be equipped with a separate hot-water coil or electric heater, allowing each zone to receive cooling or heating as needed. Dehumidification is provided by the centralized DOAS; and when equipped with a zone humidity sensor, the terminal unit adjusts dehumidified airflow from the DOAS to actively control humidity in the space, ensuring a comfortable environment.

Flexibility in design and remodel

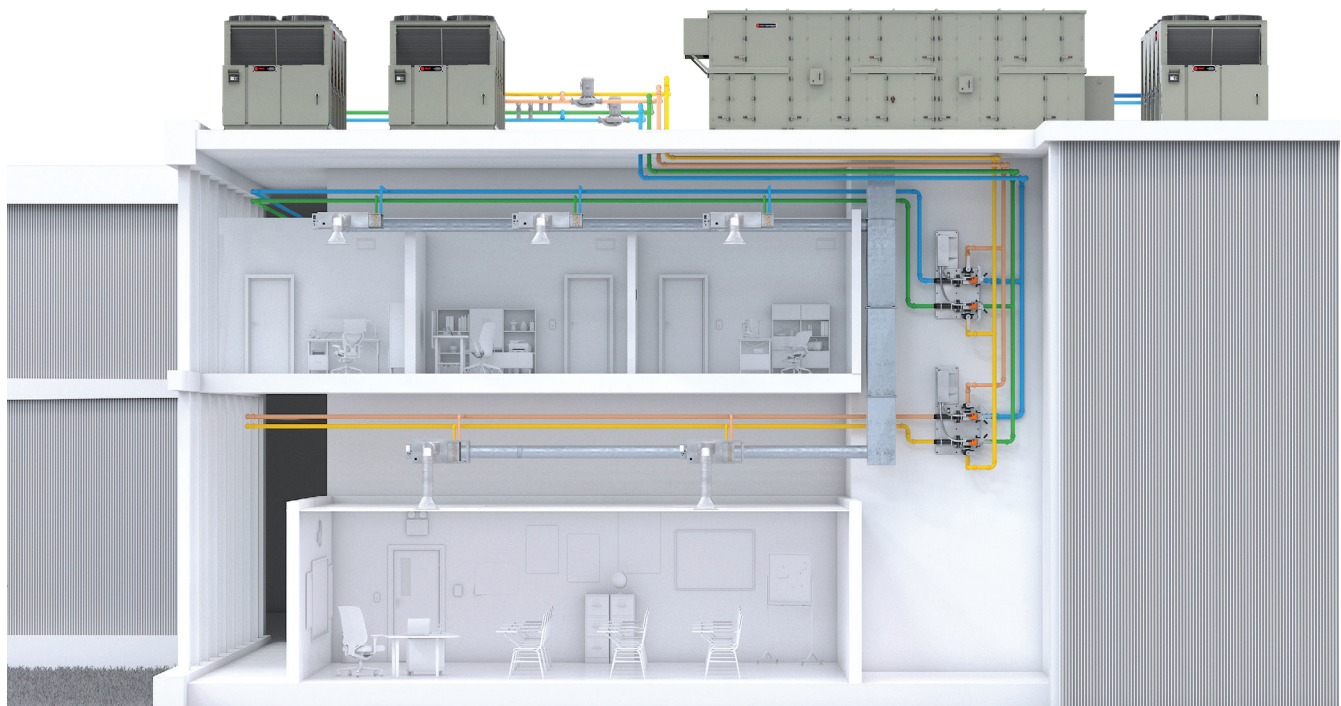
The DOAS is typically sized for only the minimum ventilation airflow required, in turn requiring less ceiling plenum height and allowing for more usable space inside the building. Reconfiguring a zone often requires moving only the downstream flex duct and supply-air diffusers; the sensible-cooling terminal units and water piping often do not need to move. And the sensible-cooling terminal units can be equipped with a separate hot-water coil or electric heater, if necessary, or the chilled-water coil can be used for heating in a "changeover" system.

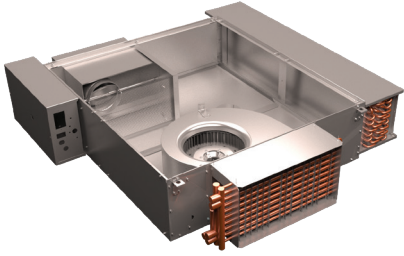
Engineered for repeatable performance

Trane factory-installed and -commissioned Symbio® controllers and Air-Fi® Wireless controls allow for fast project completion. Pre-engineered applications in the Tracer® system-level controller ensure coordinated control of the chiller plant, DOAS, and terminal units.

Low maintenance

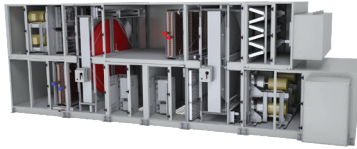
No condensation occurs at the zone-level terminal units, meaning no drain pans to clean and no condensate traps and piping to install and maintain. And since the cooling coil in each terminal unit operates dry, an upstream filter is optional.





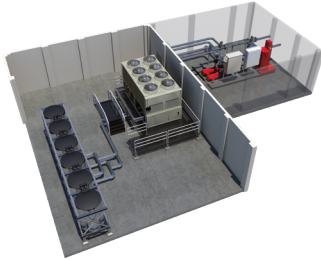
Sensible-cooling (and heating) terminal units

- Up to 2200 nominal cfm
- Variable-speed fan with EC motor adjusts airflow as the zone load changes
- 4- or 6-row sensible-cooling coil mounted at inlet from ceiling plenum; modulating control valve; drip pan with factory-installed moisture sensor
- Options for no heat, modulating hot-water valve, staged electric heater, or modulating (SCR) electric heater
- Conditioned outdoor air from DOAS unit enters through a pressure-independent, airflow-measuring ventilation damper
- Pre-engineered, factory-commissioned Symbio® 500 controller with demand-controlled ventilation, active humidity control, and condensate avoidance sequences



Chilled-water dedicated outdoor-air units

- Indoor or outdoor models
- Options for exhaust-air energy recovery: total-energy wheel, fixed-plate heat exchanger, sensible-assisted membrane, coil runaround loop
- Trane CDQ® desiccant dehumidification wheel delivers lower leaving-air dew point without requiring colder chilled water
- Optional second (upstream) cooling coil allows a portion of DOAS cooling load to use “warmer” chilled water from a dual-temperature plant
- Pre-programmed, factory-commissioned Symbio® 500 controls



Air-cooled or water-cooled central plants

- Single- or multiple-chiller plant configurations available
- Electrified system with a heat-pump chiller central plant
- Options for thermal energy storage, waterside economizing (free cooling), and heat recovery
- Factory-commissioned DDC controls and Tracer® chiller plant control application
- Hydronic Branch Conductor available to reduce piping costs and enable use of a shared coil in each terminal unit for cooling or heating



Tracer® system-level controller

- Standard, pre-engineered applications, along with pre-packaged solutions, optimize the operation of terminal units, DOAS, and chiller plant
- Mobile apps allow access from anywhere you have internet service
- Interfaces are intuitive and easy to use and translate seamlessly across all web-enabled devices.
- Wired or Air-Fi® Wireless communications available
- Points lists, sequences of operation, and control drawings available from www.TraneDesignAssist.com

→ **Contact your local Trane sales office**
or **visit trane.com/CoolSense to learn more.**



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