



# EarthWise Systems

EarthWise™ Systems engineering maximize the benefits

**Responsible buildings.** Environmental policy-makers want HVAC systems that reduce emissions and conserve natural resources. Building owners desire spaces where people can live and work in comfort—and demand operational efficiencies that benefit the financial bottom line.

Trane has eliminated the need for tradeoffs. You don't need to choose one or the other: Trane has you covered on both sides of the wall.

## Responsible for the long run

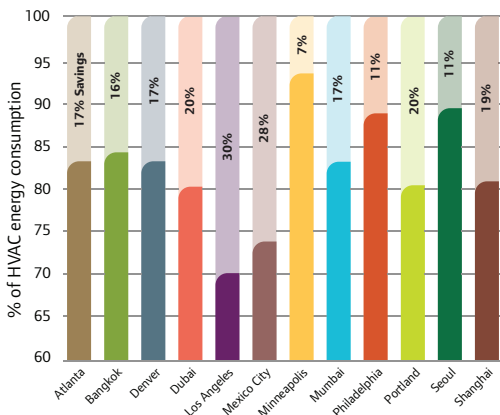
In addition to reducing emissions and raising energy efficiency, the U.S. Environmental Protection Agency (EPA) suggests that system designers must be able to sustain performance...and prove it.

EarthWise™ Systems reflect this EPA definition of responsible use. Through the integration of Trane superior services and optimized controls, the philosophy of EarthWise continues throughout the entire lifecycle of the system.



## It's easy to do the right thing

Cooling without compromises. That is the philosophy behind EarthWise Systems. Our comprehensive approach to HVAC system design makes it easy to do what is best for your building, right for the environment and good for your bottom line. For more information about EarthWise Systems, please visit <http://www.trane.com/commercial/equipment>.



## EarthWise Systems provide cooling without compromises

Trane EarthWise™ System design addresses the full continuum of expectations to deliver cooling that everyone can agree offers the best all-around benefits. It can reduce first cost, lower operating costs, and is sustainable - maintaining consistent temperature and humidity levels more reliably throughout the life of the system than conventional designs.

EarthWise Systems are delivering proven energy efficiencies in climates all over the world.

<sup>1</sup>EarthWise Systems: Waterside: 12°F ΔT across evaporator, 15°F ΔT across condenser, high-efficiency chiller. Airside: 48°F design supply-air temperature, 76°F zone cooling setpoint (due to lower indoor RH driven by lower supply air-temperatures, per ASHRAE Cold Air System Design Guide defining indoor comfort), supply-air-temperature reset (from 48°F up to 60°F) at mild outdoor conditions, comparative enthalpy economizer, parallel fan-powered VAV terminals, optimized supply duct static pressure control (fan-pressure optimization).

Conventional Systems: Waterside: 10°F ΔT across evaporator, 10°F ΔT across condenser, minimum 90.1 chiller efficiency. Airside: 55°F design supply-air temperature, 75°F zone cooling setpoint, fixed dry-bulb economizer, VAV with reheat terminals, fixed supply duct static pressure control.

An EarthWise System savings as compared to conventional systems.<sup>1</sup>

## EarthWise Chilled Water System

A shining example of an EarthWise™ System includes a central plant built around a CenTraVac® centrifugal chiller, which drives emissions of all kinds to their lowest level while raising energy efficiency to new heights.

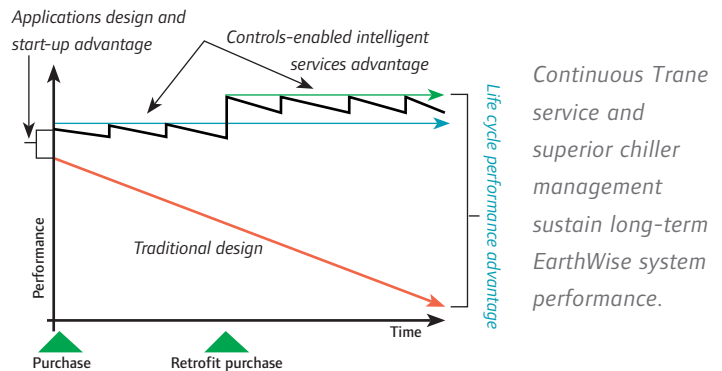
Sustainable low operating temperatures, plus the use of a low-pressure refrigerant, contribute to the chiller's unique ability to support a "low flow-low temp" system design—a key to superior environmental performance and cost advantages.

- EarthWise CenTraVac chillers offer efficiencies as low as 0.45 kW/ton at full-load conditions and IPLVs as low as 0.305 kW/ton at AHRI ratings—a 15 percent improvement over the best competitive chillers in the 0.55 kW/ton range using alternative refrigerants
- Low chilled water temperature enable system design using cold air for smaller fans and ductwork, and smaller pumps and piping, reducing both initial materials costs and long-term operational costs while delivering better space humidity control
- Semi-hermetic compressors, along with low-pressure refrigerant, produce the industry's lowest real-life, document refrigerant emissions rate—less than 0.5 percent annually. The closest competitor claims a distant 2.0 percent.
- A patented EarthWise™ purge system doubles as an early-warning emissions detector. Even a slight increase in run time indicates that a leak may be present. The CenTraVac auto-regeneration cycle reclaims lost refrigerant and returns it to the chiller.

## Services sustain EarthWise Systems benefits

Without proactive attention, HVAC systems will inevitably experience a slow and steady performance decline. It doesn't have to happen. EarthWise Systems rely on the full lifecycle services offered by Trane to sustain the energy-saving, cost-effective performance they are designed to deliver.

From systems start-up support, to extended warranties and service agreements, Trane services ensure optimum performance as long as the system exists. We even train in-house facilities staff to maintain its efficiencies on a daily basis.



## Controls maintain and document performance

Tracer AdaptiView™ chiller controls provide the system intelligence required to manage performance and document the benefits. With a full-color touch-screen display and interactive animated dashboard graphics, you can view, access and control chiller operations and functions and gain insight into the operating patterns, energy use and system performance.

Adding the Tracer™ SC controller to a system enables you to manage multiple chillers from any location via the Web. Providing proven, configurable applications allows for a host of optimized HVAC systems with a prime example being chiller plant and VAV airside control.



Tracer dashboards use an easy-to-interpret graphical display to report current operating conditions and energy usage.



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