



# Chiller/Tower Optimization

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**Efficient cooling  
that goes beyond  
50 degree entering  
condenser water.**



**D**o you manage building construction projects or engineer the mechanical systems that go into them? Maybe you own a facility or you're responsible for its operation. Regardless of which role you play, providing reliable equipment and optimal comfort while managing energy costs contributes to the bottom-line success of your business.

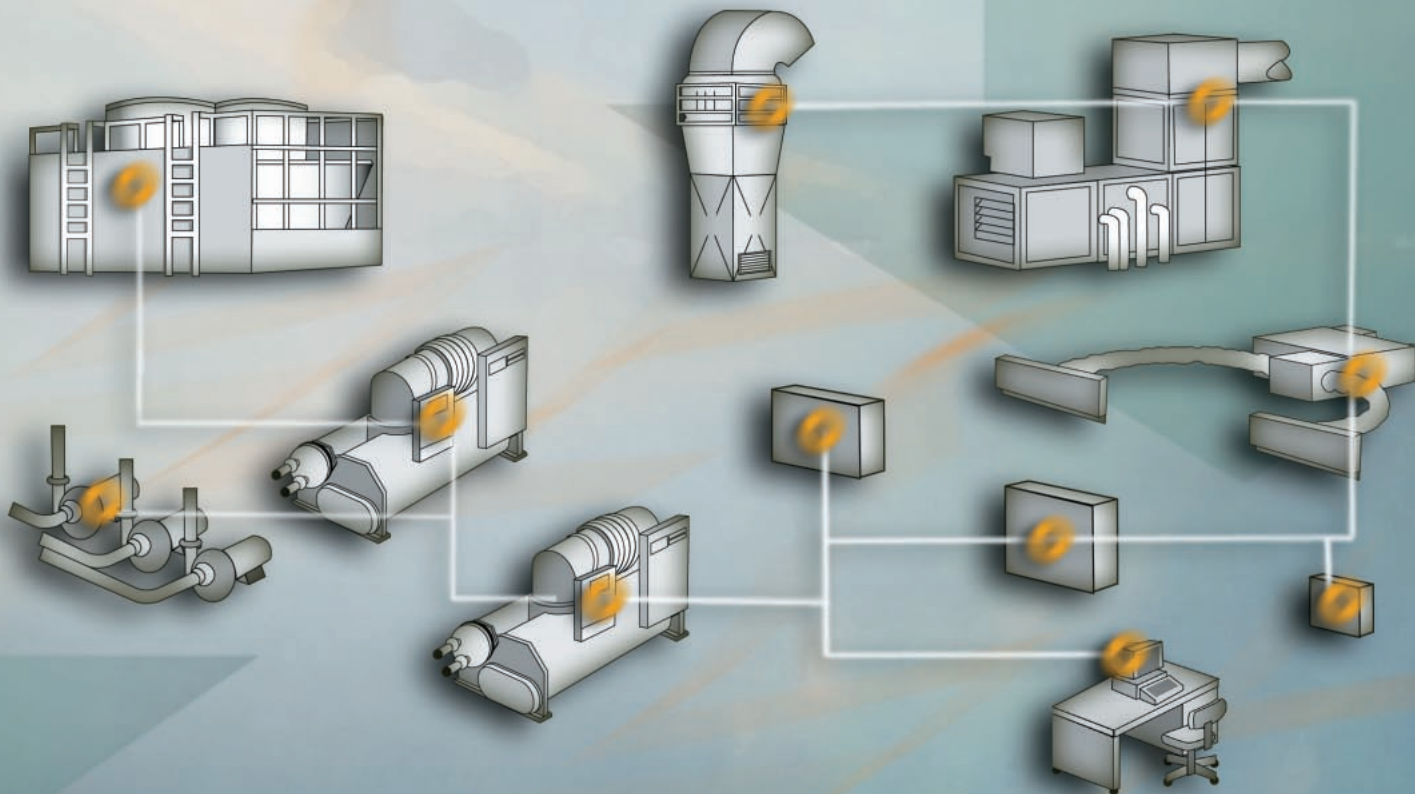
## ...and the right comfort-system design...

### The EarthWise™ system

At Trane, our low flow, low temperature, and high efficiency strategy helps you take money out of the air conditioning infrastructure and invest it in system upgrades that add flexibility, reduce energy consumption, and deliver superior comfort.

	Lower Energy Consumption	Lower Installed Cost
Low Flow	Requires less water and air movement.	Allows smaller pumps, cooling towers, fans and terminal units.
Low Temp	Enables low flow design to meet the building load while reducing the building's energy consumption.	Smaller mechanical rooms, ductwork, piping, valves, etc.
High Efficiency	Takes money out of the HVAC infrastructure: pipes, ductwork, etc., and allows you to put it into energy consuming assets: chillers, pumps, and fans. A smart investment that will further reduce the system's operating costs.	

**Trims** up to **60¢** per square foot from installed costs **and reduces** operating costs by as much as **10¢** or more per square foot!





### *A real life example*

#### **The EarthWise™ approach to comfort works.**

The second largest federal building in the world, the Sam Nunn Atlanta Federal Center, demonstrates the bottom-line benefits of making the right comfort system choices.

The facility houses 5,000 federal employees and occupies 1.87 million square feet in downtown Atlanta. Architectural elements include a historic local retail store, as well as several mid- and high-rise structures. The complex is occupied around the clock, seven days a week.

**Project goals** centered on *complete* comfort. The designers and engineers of the facility specified:

- Humidity control
- Quiet operation that targeted an NC 40 sound level just outside mechanical rooms, NC 35 elsewhere on occupied floors
- Energy-efficient performance in compliance with government requirements
- Good indoor air quality

**The comfort solution** developed to achieve these goals is an EarthWise system design that combines carefully selected equipment and innovative design strategies:

**Colder supply air** lowered the indoor relative humidity, virtually eliminating condensation problems. It also reduced the quantity of circulated air, permitting smaller air-handling equipment and smaller ductwork.

**Colder chilled water** reduced the quantity of water circulated, permitting smaller pumps, smaller piping, and smaller valves.

**Transporting less condenser water** reduced the pressure drop through the piping loop, again allowing smaller pumps, valves, and pipes for *25 stories* of piping.

**Blow-through, double-deck air handlers** reduced sound transmission and simplified cleaning.

**Double filtration** removed microscopic particles, maintaining good indoor air quality.

*Contact your local Trane sales engineer to learn more about how Tower Optimization as part of an overall EarthWise comfort system design is the right choice for you.*

# *Chiller / Tower Optimization: proven strategies that reduce system energy consumption*

Chances are, you've heard that chillers operating at 55 degree entering condenser water provide the most energy efficient cooling.

Not quite.

Minimal entering condenser water might mean the chiller is efficient, but what happens when it has to work with other parts of the cooling system?

Sure, our enhanced EarthWise™ CenTraVac™ chiller can operate at 55 or even 50 degrees, but we know that simply setting the tower to maintain 50 degrees is likely not the most efficient setpoint. The fact is that energy-efficient cooling relies on the chiller working with the cooling tower at the optimal condenser water temperature possible. At Trane we use proven system strategies to minimize energy consumption.

## **It means installing and operating the right equipment...**

### **The enhanced EarthWise CenTraVac chiller**

Without a doubt, it's the most efficient chiller of its type. In fact, it's up to 24 percent more efficient than similar chillers using alternative refrigerants. That means reduced operating costs and a more attractive bottom line. With that kind of superior performance and a "near zero" refrigerant emission design, no wonder the EarthWise CenTraVac chiller is the only unit of its kind to receive the U.S. Environmental Protection Agency Climate Protection Award.

## **...the right controls...**

### **Tracer Summit™ building automation system**

The Trane intelligent *Tracer Summit building automation system* applies pre-engineered control sequences to realize the full savings potential of a true Tower Optimization strategy. This patented *chiller/tower optimization* program trims five to ten percent from the energy consumption needed to operate the chiller and cooling tower. It continuously monitors performance on a minute-by-minute basis, and adjusts operation to maintain the optimal condenser water temperature.



***The EarthWise™ CenTraVac™ the only chiller in the world to have received the prestigious U.S. EPA Climate Protection Award.***



**TRANE®**

***The Trane Company  
An American Standard Company  
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Literature Order Number	CTV-SLB010-EN
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Date	February 2001
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Supersedes	New
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Stocking Location	La Crosse
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*Since The Trane Company has a policy of continuous product and product data improvement, it reserves the right to change design and specifications without notice.*