

Data Center Optimization Services

Maximize Your Data Center



Tate[®]



“Energy savings was definitely the key driver in my decision to use the SmartAire dampers and DirectAire panels.”

- Larry Hood
Senior Construction Manager:
Volusia County Schools, FL

Plan for the future, today.

Call (877) 999-8283 or email
datacenteroptimzation@tateinc.com
to arrange a consultation.



Optimize Your Raised Floor Data Center Today

Why Optimize?

Today's data center environment is dynamic and constantly evolving. Technology, infrastructure and computing systems continually have to adapt to keep pace with our modern way of life.

With rising energy costs and increasing load requirements, data centers are stretched to their limits. Our complimentary data center airflow analysis offers cost-effective energy efficient solutions, allowing for lower operating costs as well as impressive returns on investment. Better the efficiency of your data center by eliminating costly bypass air, which is conditioned air not captured by servers.

Key Benefits

- Optimize use of existing data center assets
- Improve energy efficiency
- Manage diversity and variability
- Measurable improvements in operational and capital costs
- Establishes best practises
- Extend capacity and prolong data center life
- Plan for future technological change



We Understand your Needs

With over 50 years of experience, Tate has a reputation for excellence as an industry leader. Tate invests heavily in research and development in order to create the most innovative solutions to solve the challenges which our customers face around the world.

Tate understands the many issues which data centers experience; from hotspots to wasted capacity. Our dedicated team of data center optimization engineers, along with our strategic partnerships, allow us to offer one of the most comprehensive airflow analysis audits on the market.

Is Your Data Center Ready?

- Is your Data Center built with raised floors?
- Is your facility over 5000 sq ft?
- Does your facility handle over 200kW IT load?
- Are you experiencing problems with airflow management?
- Are you engaged in saving energy or lowering PUE?

If you answered yes to the questions above, your facility is the ideal candidate for a pre-qualified complimentary optimization audit.

**Contact us at (877) 999-8283 or
datacenteroptimization@tateinc.com**

Tate[®]

Discover the Airflow Potential Of Your Data Center



Approximately a one day process, our analysis provides a comprehensive overview of the current state of your data center. With detailed thermal mapping, our team is able to identify 'hotspots' in the environment, and highlight areas of bypass air, which wastes valuable energy. Our team also defines the load of your data center to better understand the energy saving opportunities available.

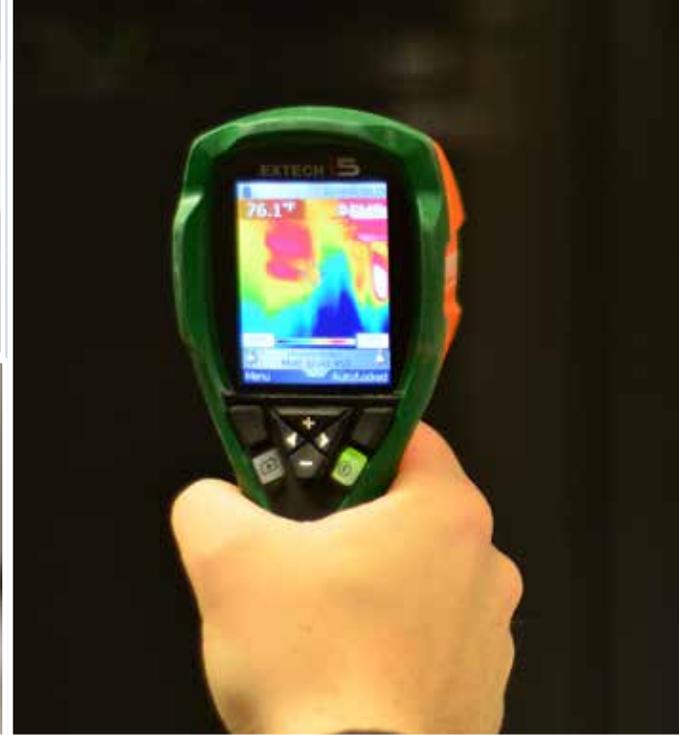
Using advanced tools such as Thermal Imaging cameras and Manometers, our engineers collect important data about your facility to identify areas of wasted capacity and inefficiencies.

By detecting all areas of air loss, Tate develops a system to precisely deliver air to IT equipment, virtually eliminating bypass airflow.

Our goal is to ultimately increase the amount of airflow delivered through the airflow panel which enters the face of the server rack, also know as the Total Air Capture (TAC) rate. This allows for efficient use of existing CRAC units. CRAC units with fixed fan speeds can be set to standby mode; variable fan drives can be adjusted to operate at a lower static pressure, saving energy.

Tate's team will analyze all the data collected and present it to you three weeks later in the form of a detailed report which includes thermal images, static pressure readings, product recommendations and ROI.

Tate has a number of solutions available to cool your data center including directional airflow panels, containment, variable-air-volume dampers and cable sealing grommets.



Step 1: The Meeting

Tate's optimization engineers will arrange a pre-qualification meeting or phone call to discuss the challenges which your data center faces. The analysis can focus on just one particular aisle, or comprise of the entire data center.

Step 2: Data Center Walkthrough

Our team creates an initial map of your data center to create a plan for future change. We note everything from the make and size of CRAH units to the number of airflow panels.

Step 3: Define the Load

Our engineers define the load of your facility at the most granular level possible to better understand the energy savings which are possible.

Step 4: Measurement and Analysis

Thermal images are taken with a FLIR camera (Forward Looking Infrared Red), pressure readings with a manometer, photographs taken with a digital camera and CFM readings with a balometer. Our comprehensive tool set also includes data loggers, amp meters, electricity monitors and flow hoods. We use this data to conduct a thorough power and thermal analysis. If necessary, CFD modelling may take place.

Step 5: Proposal Report

Our detailed proposal and assessment report starts with an outline of your facilities current conditions. It contains an updated site map with suggested solutions implementation data. After analyzing the collected data, which is also presented in the report, our engineers make assessment driven recommendations for improved airflow cooling. The operational benefits enjoyed once recommendations are implemented are clearly laid out, with associated ROI figures included, making for a comprehensive airflow analysis report. ROI can be as quick as 6 months!

Step 6: Solution Implementation

After you have received your proposal report, our trusted optimization engineers are on hand to answer any questions which you might have pertaining to the report. They will discuss with you how to best move forward, including whether or not to phase in the proposed solutions or to implement them all at once.

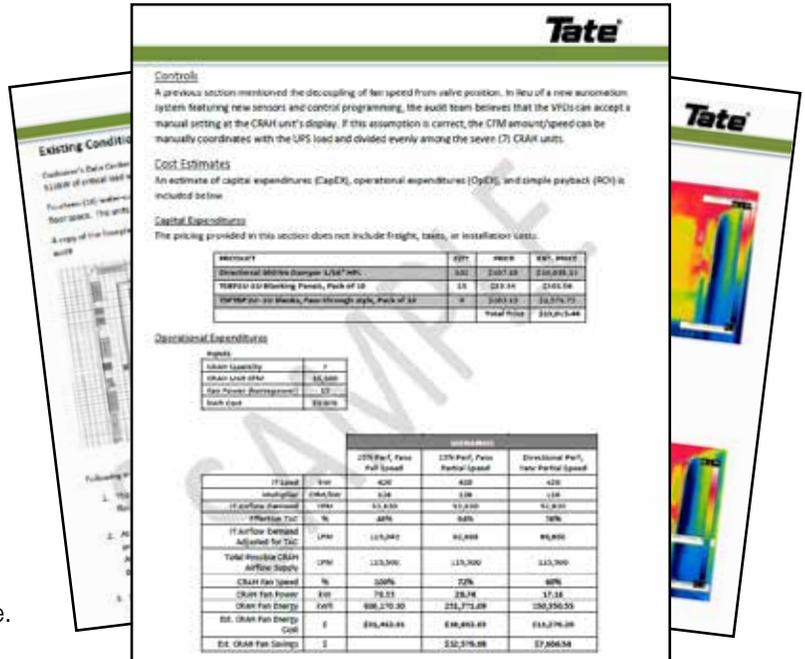
To learn more about how you can improve the efficiency of your facility please contact us at (877) 999-8283 or datacenteroptimization@tateinc.com

The Report

Depending on the scope, your Report may include:

1. A current condition report
2. All temperature data and FLIR images
3. All rack power information
4. All CRAC/CRAH unit records
5. CFD analysis
6. Recommended solutions
7. CFD analysis illustrating effects of proposed solutions
8. Potential energy savings
9. Potential energy rebate opportunities
10. ROI breakdown

Our expert team will discuss the report with you in further detail, and answer any questions which may arise.



The Optimized Data Center: A Case Study

Enough Capacity but Still Inefficiencies

A large co-location provider based in California was experiencing difficulties in lowering server temperatures, improving its energy efficiency and cooling capacity.

The floor plan was split into two zones. The East Zone was very heterogeneous with myriad cages. The West Zone was less populated but very uniform.

Tate's Audit team evaluated the data center's thermal performance and efficiency, collecting temperature and static pressure readings, as well as perforated tile data to determine the cooling and airflow requirements of both zones.

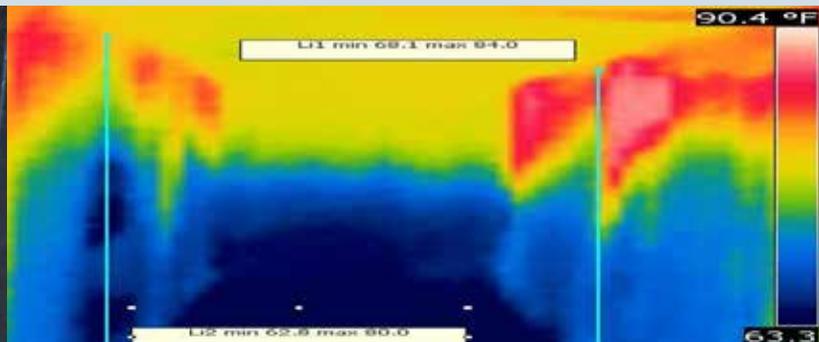
After analyzing the data, the team presented a detailed report to the customer which outlined their recommendations for optimization.



Row in West Zone which was experiencing hotspots

The customer was already planning on retrofitting EC Fans to the CRAH units. The Audit team suggested coupling this retro-fit with directional airflow panels for greater energy and cost savings.

The baseline demand for the East CRAH fan power (kW) was 145.47. When the CRAH units were paired



Overheated Row Illustrated by Thermal Image

with the EC fans and directional airflow panels, the demand dropped to 22.69 kW as the air from the underfloor plenum was getting directed to the correct places.

By incorporating directional airflow panels with the EC fans retrofit, the customer could enjoy **over \$100,000** in savings, which is a **ROI of less than 12 months!**

A New Direction for Airflow Management Solutions

Tate has a full portfolio of products available to efficiently manage your data center's airflow. With the EPA estimating that 40% of a data center's total energy consumption is attributed to cooling, energy efficiency continues to become an increasingly larger concern.

To learn more about these products please visit www.tateinc.com/products/data_centers.aspx



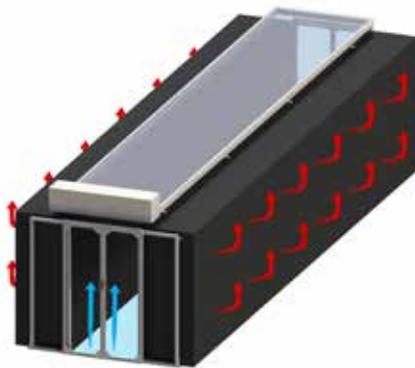
Airflow Panels

We offer a wide range of airflow panels, ranging from 25% to 68% open areas. Standard airflow panels are recommended for use with containment systems whereas our directional airflow panels eliminates the need for full containment systems. By delivering air precisely to IT equipment, they provide effective containment.



Controls

We stock both manual and variable-air-volume (VAV) dampers to suit all desired control options. Our electronically controlled variable air volume damper SmartAire® adjusts the amount of air to meet the specific needs of the rack or aisle it services. Available with an optional BMS interface, SmartAire® can support 0-22kW per DirectAire/SmartAire pair.



Containment

Tate provides a full selection of hot and cold aisle containment products. ContainAire Partition, Strip Doors, Retracting Roofs, Hinged and Sliding Doors all work together to create the perfect containment solution to meet any data center equipment layout. Our systems are designed using fire suppression links that eliminate the need for additional detection and suppression systems allowing for easy incorporation into new and existing facilities.



Airflow Management Accessories

Tate's solutions also include a wide variety of airflow management accessories which includes air sealing grommets, blanking panels, velocity adjusters, return grilles and Tate rack shields. The air sealing grommets and blanking panels come in variety of styles and sizes to suit your potential needs. All of our accessories are designed to reduce or eliminate bypass air, which equates to longer hardware life and significant energy savings.





Tate has been an industry leading global provider of innovative next generation products for data center applications for over 50 years. Our world-class manufacturing plants have the flexibility to create modular solutions quickly with up-front cost optimization and Tate's in-house engineering team has the experience and industry knowledge to design the best solutions from concept to completion.

Our wide range of custom manufactured data center products include raised access floors, structural ceilings, and containment, as well as, airflow panels and controls which work together to maximize your data center's performance. Tate is your single source solution builder for your data centre.

Corporate Headquarters:

7510 Montevideo Road,
 Jessup, MD 20794
 Tate Hotline: 1-800-231-7788
 Tel: +1 410 799 4200 Fax: +1 410 799 4207

Production Facilities:

7510 Montevideo Road,
 Jessup, MD 20794
 52 Springvale Road,
 Red Lion, PA 17356
 Tel: +1 717 244 4071 Fax: +1 717 246 3437

Canadian Sales & Support Office:

880 Equestrian Court, Oakville,
 ON L6L 6L7 Canada
 Tate Hotline: 1-800-231-7788
 Tel: +1 905 847 0138 Fax: +1 905 847 0141

Australian Sales & Support Office:

28 Biloela Street, Villawood NSW 2163
 Tel: +61 02 9728 4111 Fax: +61 02 9728 3088

Asia Sales & Support Office:

19 Cecil Street
 #05-15, 5th Floor, The Quadrant
 Singapore 049704
 Tel: +65 6653 5358

Central and South American Sales & Support:

Tel: +1 443 995 1808

European Sales & Support:

B16 Ballymount Corporate Park,
 Ballymount Avenue,
 Ballymount, Dublin 12, Ireland
 Tel: +353 (0) 87 1238383

Middle East Sales & Support:

Jebel Ali-Lahbab Road (E 77 Road)
 Dubai Investment Park
 United Arab Emirates
 Tel: +971 56 199 8368

tateinc.com

A Kingspan Group Company



Tate components are proudly made in the U.S.A.