



MW/Davis Dumas & Associates, Inc.
Consulting Engineers

Airflow and Temperature Simulation for Data Centers

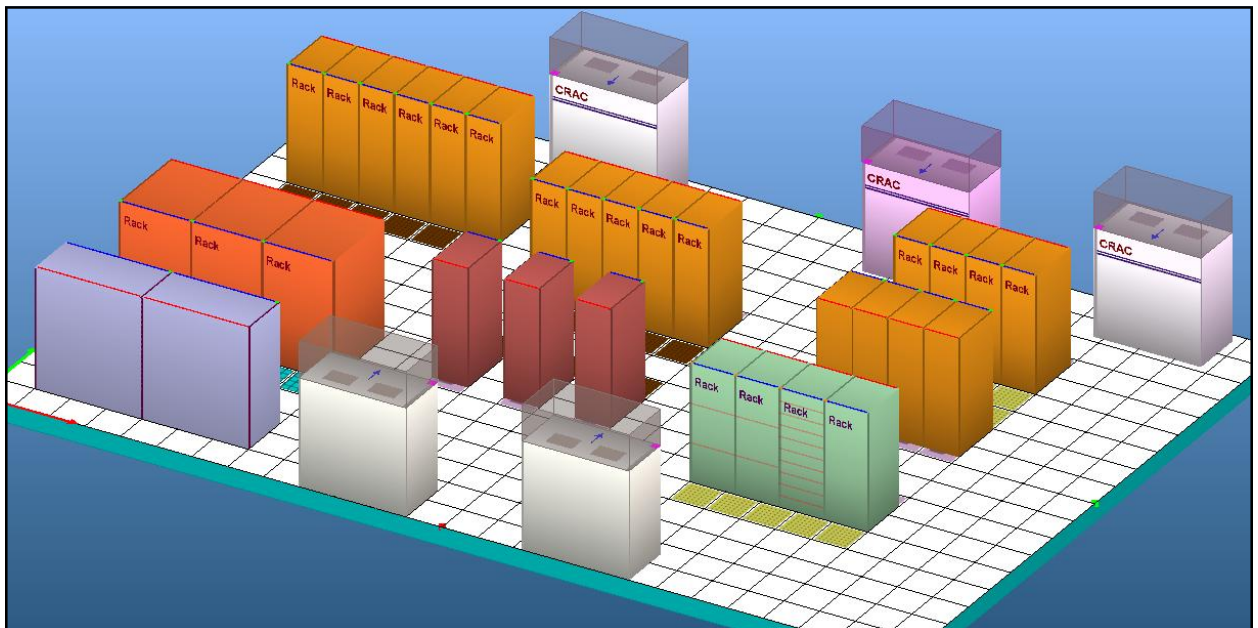
The Cooling Challenge

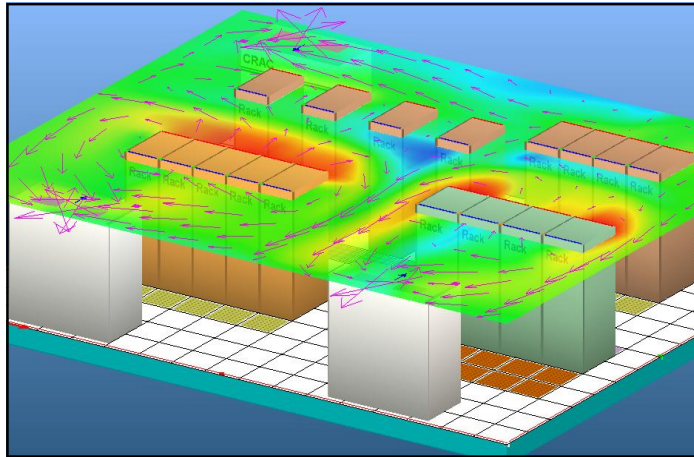
The key to reliable cooling in a data center environment is to meet the cooling air requirements of each server rack, in order to maintain an acceptable inlet temperature. A computer model simulation of your exact data center can calculate the distribution of cooling air through perforated tiles, the airflow pattern above the raised floor as well as the pressure profile beneath the raised floor. This model enables you to devise the best cooling solution for your data center. No matter how large or small your data center MWDDA can help you implement a design that can best optimize your data center space and also planning for future growth.

A Scientific Approach

By utilizing Tileflow™ by Innovative Research, Inc. we can offer you a scientific, comprehensive, and cost-effective simulation of your data center, including the effects of:

- Plenum and ceiling heights
- Location and flow rate of CRAC units
- Arrangement of perforated tiles
- Cable openings in the floor
- Obstructions in the plenum (chilled water piping, cabling, etc.)
- Layout and heat load of server racks





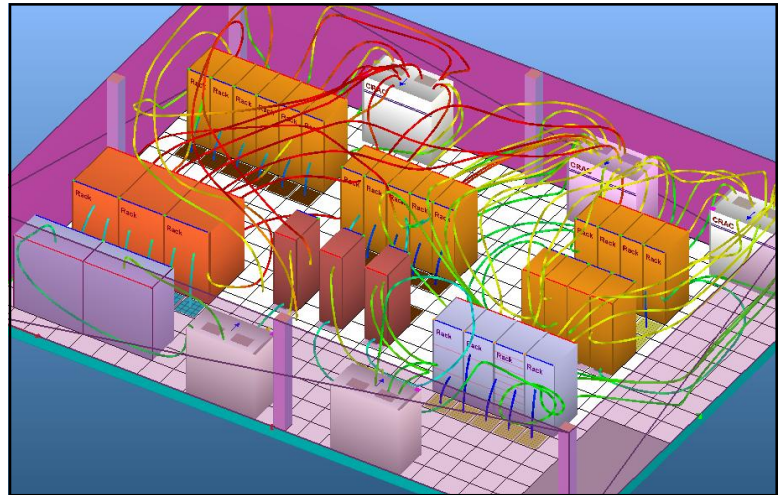
Temperature and Airflow Patterns Above Raised Floor

Under-Floor Analysis

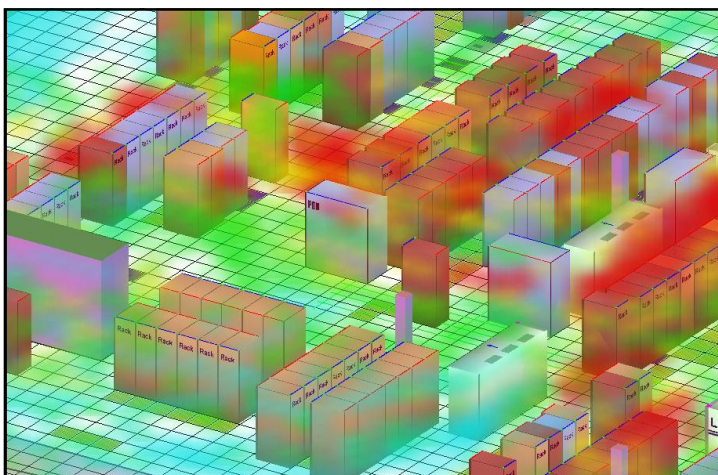
Using Tileflow™ we can calculate the airflow pattern and pressure distribution under the raised floor, and the resulting cooling airflow rates through the perforated tiles. We can compare alternate floor plans, rack layouts, and failure scenarios in order to optimize your data center design.

Above Floor Analysis

After obtaining the airflow distribution through the perforated tiles we can calculate the airflow and temperature patterns above the raised floor. Thus you can determine the inlet temperatures of racks, the locations of hot spots, and the return air temperature for CRAC units.



Airflow Animation



Temperature Fog

Fully Validated Tool

Tileflow™ results have been compared with measurements in real life data centers and proven to be very accurate.

Experience

Current and past customers include Regions/AmSouth Bank, AT&T, Southern Progress, and Blue Cross & Blue Shield



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2720 3rd Ave So. • Birmingham, AL 35233
 (205) 252-0246 • www.mwdda.com