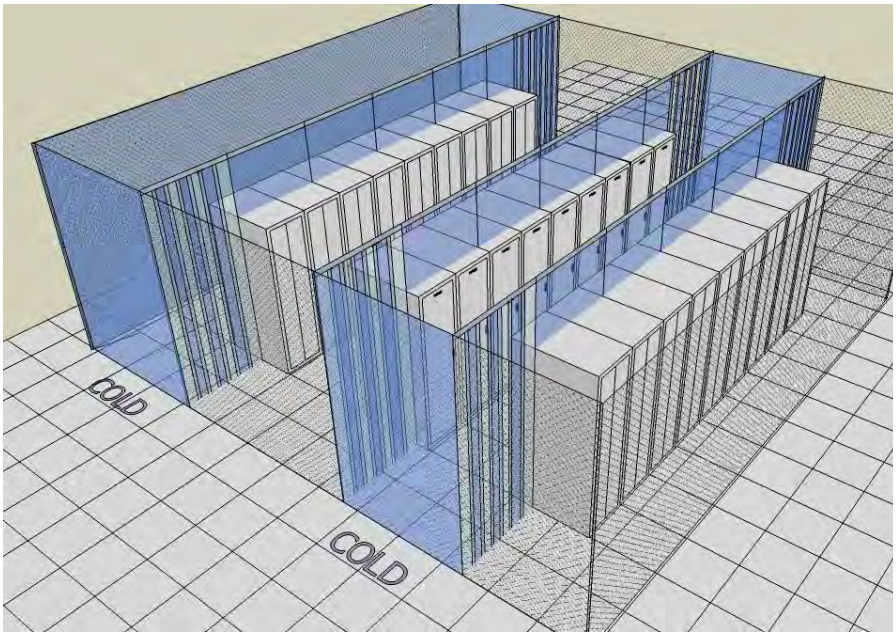
Case Study: Co-location Provider Cold Aisle Containment 80,000 Data Center

Polargy Containment System Reduces Energy Usage for Colocation Provider by 20%

Company and Data Center Background

Reducing greenhouse gas emissions and utilizing new, energy-saving practices were principal objectives for the company. In 2009, the company continued with its energy savings efforts through an Airflow Improvement Initiative. As part of that effort, the company investigated cooling efficiency measures for one of its large California data centers. The company commissioned a cooling energy assessment which determined that significant energy savings could be achieved through cold aisle containment and under floor isolation.



Appeal of Air Flow Management

The company sought to achieve rapid efficiency gains with little disruption to its site operations and with minimal demand on its facilities staff. The air flow improvement measures achieved this because the isolation systems install with no need to shut off computing equipment and no need to make engineering changes to the cooling plant.

Annual Energy Savings	$391,306
Energy Savings	3,768,441 kWh
Implementation Costs	$261,800
Payback	8 Months

Data Center At-a-Glance

- 80,000 square feet
- 750kW IT Load
- 86 floor CRAC units at 30 tons each
- Customer cages and 22’ ceilings

Project Drivers

- Meet corporate goals to reduce greenhouse gas emissions
- Increase data center efficiency
- Improve customer satisfaction and better meet air flow service level agreements
- Maintain cooling redundancy while shutting down excess CARC units

Recommended Solutions

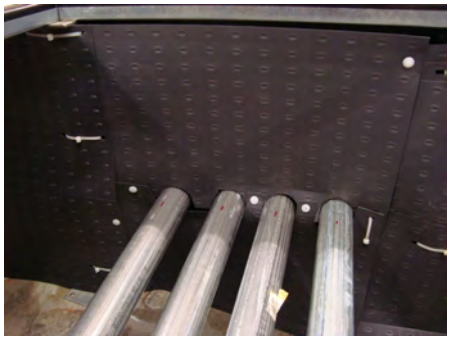
- Deploy cold aisle containment
- Blank off empty rack units
- Isolate empty floor space with under floor baffles
- Seal various gaps between racks

Case Study: Co-location Provider

Air Flow Containment Solution

The air flow containment solution included:

1. Open top containment of the cold aisles using the PolarPlex™ Containment Panels and Doors.
2. Under floor baffles to isolate unoccupied zones.
3. Blanking sheets to block off empty rack units.
4. PolarDAM Air Dam Foam to block gaps between racks and seal under racks.
5. PolarDAM CRAC Covers to prevent back draft through idle CRAC units.



Under Floor Baffles

Blanking Panels and
Between Rack Air Dam Kit

Shutting Off CRAC Units

After installing the air flow isolation systems the process of shutting off excess CRACs began. Ultimately, 28 CRAC units where shut down. Since idle CRAC units can allow between 4000 and 6000 cfm of back draft air, CRAC covers where installed on the idle units.

PolarDAM CRAC Cover

Results

28 CRAC units were shut off as a result of the containment project with an annual energy savings of $390,000. The energy savings came from fan, compressor, and humidification reductions. Some of those reductions were offset by heavier loads on the remaining CRAC units and the net savings were measured at 430kW.

Compelling ROI

- Payback in only 8 months
- Cut annual energy bill by almost $400K
- Turned off 28 CRAC units
- Reduced variance is supply air temperature to servers
- Reduced CRAC maintenance costs
- Improved airflow to customer cages

About the Client Company

A premium colocation and managed services provider with large data centers in major markets domestically and internationally.

About Polargy

Polargy is an energy efficiency company that provides airflow management solutions for mission critical data centers. Polargy's product portfolio includes PolarPlex™ Containment Systems, PolarRack™ server cabinets, and consulting services. Polargy's emphasis on cooling performance helps data center operators and facilities managers achieve energy efficiency gains and extend the life of their data centers.