

## King County, Sabey Data Center Properties, and Chatsworth Products, Inc. — A Flexible and Custom Fit for Energy Efficient Data Center

### King County

With Washington State's King County being the 14th most populated county in the nation and the home to Seattle, it's no surprise that a state-of-the-art data center is in demand. That is where King County IT (KCIT) used the industry's latest data center innovations, including custom made data cabinets, to help them meet rising demand in a fiscally and environmentally responsible manner.



The King County Data Center is the main data center for King County and supports IT-based services such as legal services, property tax appraisals, records, elections, regional parks and facilities, law enforcement information, public transit, online bill pay, pet licensing and hosting the King County website. To begin the project, Rick Gideon, Master Facilities Engineer for King County IT, researched the demands of the community to ensure that the county's new 4,225 sq. ft. data center would be highly efficient and reliable to meet the needs of the public. With over ten years of experience ranging from small local insurance companies to national Internet Service Providers (ISPs), Gideon understands the importance of a dependable data center that can support the online government services that 1.9 million King County residents may use.



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After looking at the options available through the general contractor, KCIT selected Chatsworth Products, Inc. (CPI) for the data cabinets to build a data center that would utilize the latest technologies in thermal management to

provide environmentally sound solutions in creating an energy efficient data center. It was also important that the data center be comprised of solutions that could withstand King County's continuous growth and development. CPI offered flexible solutions which included custom products that were designed specifically for King County so they could effectively meet the needs of the public.

### **Sabey Data Center Properties, an Energy Efficient Location**

The King County Data Center is located in Sabey Data Center Properties' SDC52. SDC52 is a new modular wholesale co-location facility located in Tukwila at the "Intergate East" facility. Sabey Data Center Properties (SDCP) is



the largest and oldest privately owned multi-tenant data center developer and manager on the West Coast and

controls the largest number of sustainable, green, hydro-powered facilities in the United States. To achieve the ultimate in cost-effective cooling, SDPC couples the Pacific Northwest's abundant, renewable hydroelectric power and its famously moderate climate — perfect for air-side economizer or "free cooling" — with an evaporative air handling system. This design bypasses power hungry compressors or chillers, providing the most efficient, cost-effective cooling solution.

The Sabey Data Center Properties' location provides the optimal environment for King County and the use of CPI Passive Cooling® Solutions to create an energy efficient data center. SDPC is designed to take full advantage of the area's natural climate, enabling the use of evaporative economizer cooling which accounts for 50-70 percent energy savings, according to John Ford, Vice President of Sabey Data Center Properties. SDPC's design collaborates well with CPI Passive Cooling Solutions, which successfully manage the airflow through, over, and around equipment cabinets to improve overall cooling effectiveness.



### **Chatsworth Products, Inc.**

*Quality Through Teamwork, Caring and Commitment.*

At CPI there is a commitment to customers and a person behind that commitment — a key concept in effective sales and customer service that succeeds in yielding positive results and building relationships through a partnership. CPI's Casey Scott and Robb Jones worked with KCIT to provide exceptional customer services and ultimately to produce a state-of-the-art facility.

### **King County and Chatsworth Products, Inc.**

King County IT Operations met with CPI's Casey Scott, Regional Sales Manager, Northwest, to discuss the needs and wants of King County's data center. KCIT and CPI then worked cooperatively as a team. Gideon states, "We would work together as a team to come up with solutions and pull in

resources [from CPI] to toss ideas back and forth until we came up with a final solution. I know that CPI is always innovating ... and I appreciate that there's that commitment to the data center industry."

KCIT used CPI's online Product Configurator to pre-construct the design of the King County Data Center cabinets. "They were able to find all of the options, including part numbers, and were able to make a cut sheet, which was really helpful. One of the big selling points was the configurability of the size of the cabinet — the fact that we could go as tall as we needed, more or less.

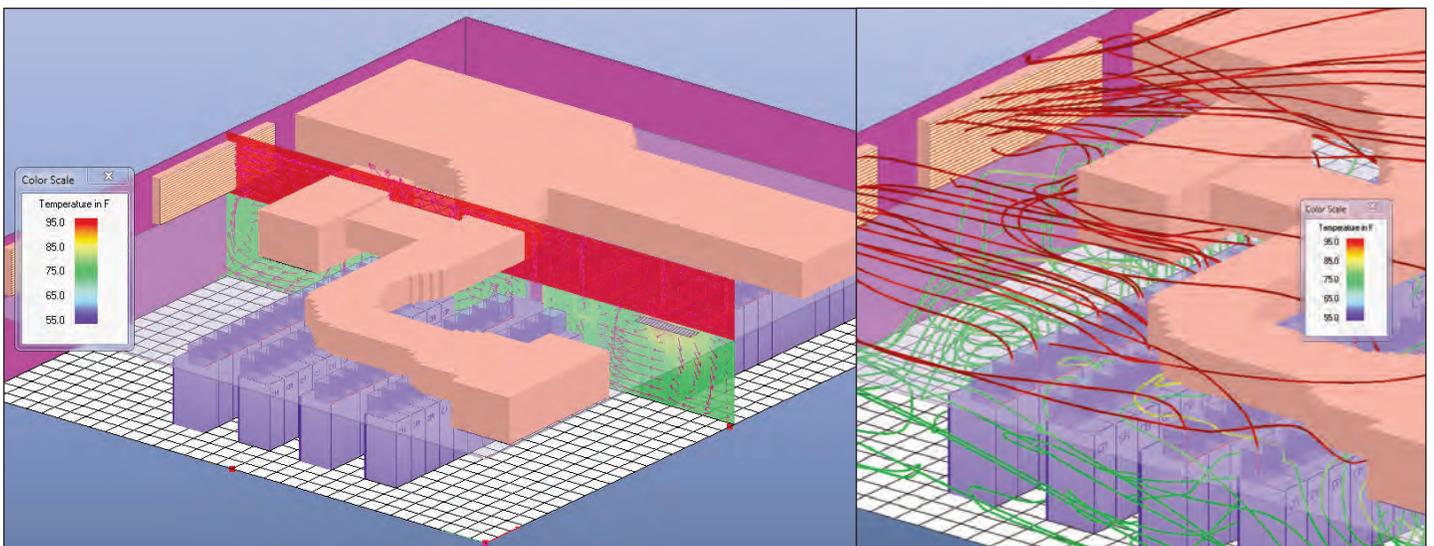
We're using 45U cabinets with a maximum depth of 1200 mm," Gideon noted. After a cut sheet was created, CPI did a CFD analysis for SDCP because the landlord wanted to ensure that the maximum airflow was achieved. The CFD analysis is a service offered by CPI to simulate a data center model and find the most optimal set-up for the room.

With the ultimate goal of making this facility as green as possible, King County decided upon the solution of hot-aisle/cold-aisle separation to utilize SDCP's evaporative economizer cooling. King County turned to CPI's TeraFrame® Cabinet System and Vertical Exhaust Duct to facilitate cold and

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- Rick Gideon**

hot air separation. "Now having [hot and cold air] separated we can run a lot more efficiently with less cooling and overall it makes a better data center," said Gideon.

The CPI TeraFrame Cabinet System allowed King County to cut down on the amount of square footage required per pod and also allowed for easier and faster service of the equipment in the cabinets. According to the Uptime Institute, the typical data center has an average PUE of 2.5, whereas King County has a better than average PUE of 1.5 and it "has been as low as 1.3" according to Gideon.



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## Solutions

When King County received switches that were meant to flow air front-to-rear, and in-turn, blew air the opposite way, it caused hot air to escape into cold aisles, resulting in hot spots. CPI quickly provided fast and flexible solutions to solve the problem. The solid rear doors, along with the Airflow Directors had to be removed so a perforated rear door could be used to accommodate the rear-breathing switches. Through this experience, KCIT realized the importance of sealing off absolutely every area that could allow air to mix. With a TeraFrame® Cabinet, making last minute alterations to accommodate equipment and maintain thermal management was possible with CPI Passive Cooling® accessories and options.

King County also required some custom solutions to optimize their equipment. CPI customized a solution for a structured cabling product that was implemented to save costs on a high-ticket item in the data center—cabling. The holes for the cables needed to be located in a specific place on the cabinet's top panel so the cables entered the cable tray without angles that would cause stress or use more cable than was needed. All of the top panels of CPI's TeraFrame Cabinets were custom made to King County's specifications so they would be able to support their network configuration. In addition to customizing the cabinet's top panels, CPI made King County custom power brackets that would allow unique installation of power strips.

## A Lasting and Flexible Footprint

The King County Data Center was built with the intention of lasting 20 years, and being the County's main data center this is an important number to hit. According to Gideon, "with Chatsworth's solutions and the mechanical systems we have in place, that number is attainable because of the flexibility of the cabinets and the fact that we can retrofit them if we need to. Our options are endless." 



### About Chatsworth Products, Inc.

Chatsworth Products, Inc. (CPI) is a global manufacturer providing voice, data and security products and service solutions that optimize, store and secure technology equipment. CPI Products offer innovation, configurability, quality and value with a breadth of integrated system components, covering virtually all physical layer needs. Unequaled customer service and technical support, as well as a global network of industry-leading distributors, assures customers that CPI is dedicated to delivering products and services designed to meet their needs. Headquartered in the US, CPI operates global offices within the US, Mexico, Canada, China and the United Kingdom. CPI's manufacturing facilities are located in the US, Asia and Europe. ([www.chatsworth.com](http://www.chatsworth.com))