U.S. Army Cold Regions Research and Engineering Laboratory Create Next-Generation Data Center

AT A GLANCE

U.S. Army CRREL
Hanover, NH
www.crrel.usace.army.mil

Industry
Government

PROJECT

Next Generation Data Center

"We recognized that our requirements and our timeframe for completion of the new data center were extremely aggressive. We were fortunate to work with the team at Leading Edge Design Group, who's ability to convert our former SCIF into a fully operational data center in less than 6 months was truly remarkable. LEDG collaborated closely with us throughout the entire design and construction process, ensuring that our requirements were met while advising us about critical decision making paths and dependencies to the construction timeline. The results were better than we had expected."

- David C. Finnegan

Background

The U.S. Army Cold Regions Research and Engineering Laboratory's (CRREL) mission is to solve interdisciplinary, strategically important problems of the U.S. Army Corp of Engineers, Army, Department of Defense, and the Nation by advancing and applying science and engineering to complex environments, materials, and processes in all seasons and climates, with unique core competencies related to the Earth's cold regions. CRREL is part of the Army Corps of Engineers' Engineer Research and Development Center and the history of CRREL goes back to long before its inception in 1961. In the 124 years since Alaska was purchased from Russia, the U.S. Army Corps of Engineers has been involved in cold regions research and development. During World War II, organizations were created which, in 1961, were brought together to form the Cold Regions Research and Engineering Laboratory at Hanover, New Hampshire. At no time in that long history have the forces of change been stronger than they are today.

With increased research demands from across the globe, The U.S. Army Corps of Engineers needed to implement a next-generation data center to support their engineering and research operations and external partnerships with organizations like NOAA. The new data center needed to be highly redundant, scalable, and energy-efficient and be designed and built using existing real estate on the CRREL campus.

Challenge

The design and construction of the next-generation data center for CRREL needed to be completed within six months and create a Tier III level facility which includes N+1 redundancy, multiple independent distribution paths serving the dual-powered IT equipment, and a concurrently maintainable site infrastructure guaranteeing 99.982% availability. The U.S. Army Corps of Engineers team chose to repurpose the Sensitive Compartmented Information Facility (SCIF) - a sensitive compartmented information facility that meets official government requirements for a secure area where classified information is handled and typically enclosed in special panels to prevent information from leaking and where jamming is used to prevent surveillance. A tightly managed, integrated approach and the right partner were needed for this important project to succeed for the U.S. Army Corps of Engineers.

LEADING EDGE DESIGN GROUP

US Army Corps of Engineers®

Solution

The US Army Corps of Engineers chose Leading Edge Design Group (LEDG) to design and build their next-generation data center. LEDG integrated design, budgeting, and construction management processes to streamline the transition between design approvals and the commencement of construction. As soon as a conceptual design was approved, LEDG understood that the construction process would have to be mobilized. Extensive design meetings were conducted to ensure all customer requirements for redundancy, scalability, and energy efficiency were met, and all design work was fast-tracked to meet strict time deadlines. In addition, LEDG's experience helped to indentify long-lead time items that could potentially impact the schedule and worked with CRREL to obtain approval and release of outlined equipment to ensure on-time, on-budget site arrival.

A detailed site-specific safety plan was developed and construction teams were trained to ensure that amidst the aggressive schedule, that safety was always a priority. Project plans were significantly condensed with LEDG leading and coordinating tasks like demolition, excavation, and rough in to all occur simultaneously. LEDG worked closely with all contractor teams to precisely track schedules, requirements, dependencies, and risks and developed a sequencing plan to ensure the space was effectively utilized and critical tasks were not delayed. Once the Tier III facility was near completion, LEDG coordinated the system shut downs necessary to implement the new, required electrical services and switch from the existing utility transformers to the new data center without impacting CRREL operations.

Ultimately LEDG was able to convert the former SCIF into a fully operational Tier III, scalable, energy-efficient data center in less than six month.

CONTACT

LED Headquarters
86 Chosen Vale Lane
Suite 201
Enfield, NH 03748

Phone: 603.632.4507
Fax: 603.632.4559

www.ledesigngroup.com

About

Leading Edge Design Group is a leading national provider of energy optimization services that delivers significant energy savings to the public and private marketplaces through efficient data center designs and emerging LED lighting and wireless lighting control technologies. Founded in 2007 with the goal of pursuing, promoting, and providing the finest energy optimization solutions available, we help our customers minimize the environmental impact of their businesses while improving operational reliability and reducing costs. Leading Edge Design Group is dedicated to encouraging, challenging, and contributing to energy industry innovation with an ongoing commitment to our community and our environment. Visit us at www.ledesigngroup.com and connect with us on Twitter @ledesigngroup.