

# central utility buildings



Central Utility Buildings (CUBs) are the central nervous system for facilities and entire campuses. SSOE's team of multi-discipline engineers and architects understands the critical nature of these essential utility functions and strives to meet rigorous quality standards to ensure these systems are reliable and operate at peak performance levels.

Whether housing the central utility systems within the facility or encompassed in a standalone building, the location of the CUB is often pivotal in the success of the project. By providing compact solutions that optimize space constraints, while also allowing access for regular maintenance and service, we've been successful at strategically locating CUBs to provide the best overall systems efficiency, delivery, and distribution path throughout the building and entire site.

Our depth of experience with electrical power supply and distribution systems, and facility mechanical systems including boiler, central steam heating, chilled water, compressed air cooling towers, and water / waste water treatment allows us to design efficient delivery systems to meet the most demanding requirements. Chilled and hot water production systems have unique design parameters that often include seismic and structural elements. Our structural engineers are experts at designing support trestles and structural towers that provide a framework for the distribution of large and small bore piping.



# central utility buildings

**SSOE's understanding of your operations allows us to deliver a CUB that accommodates existing system demand without costly overcapacity. We build in the appropriate flexibility to cost-effectively meet the demands of growing operations without interruption of services.**

## Project Experience

### **National Nuclear Security Administration, National Security Campus, Kansas City, MO**

SSOE's role included MEP and structural design for all campus buildings, including a CUB, utilizing innovative Revit 3D/BIM design methods. The CUB included a chilled water system, cooling tower system, hot water boiler system, and a compressed air system. SSOE's scope also included electrical design of medium and low voltage power, lighting, auxiliary, grounding, and out building systems. This CUB serves a 1.5 million SF, 186-acre site which manufactures non-nuclear mechanical, electronic, and engineered materials for national defense systems. Along with its design partners, SSOE created more than \$100 million in annual savings through the use of sustainable features.

### **Confidential Automotive Manufacturer**

SSOE provided full design for the first LEED® Gold certified CUB in the United States. This 15,000 SF plant, which supplements an existing CUB, serves a 200-acre R&D campus and utilizes many energy efficient features. These include an ice storage fueled chilled water system which utilizes recycled water, off-peak energy demand, and an HCFC-free refrigerant; a biodiesel fueled emergency generator; a reflective roofing system to decrease solar heat absorption; and rainwater collection and recycling for flushing toilets. SSOE incorporates energy efficient and sustainable strategies into every facility we design.

### **Confidential Solar Client, Hillsboro, Oregon**

This 32,000 SF CUB was designed to support the increased facility requirements for a site expansion including electrical, deionized water plant, boiler plant, air compressors, waste water treatment, bulk gas tanks, and maintenance functions. The building houses standard manufacturing HVAC, and 3 MW electrical facility loads.

[www.ssoe.com](http://www.ssoe.com)

## Services We Provide

- 3D modeling and BIM
- Analysis and recommendations of system options
- Design of new facilities
- Evaluations of existing facilities for expansion or upgrade
- Lifecycle analysis
- Pipe stress analysis
- System capacity analysis and upgrades
- Seismic analysis and structural support systems

## Representative Clients

- Chrysler
- Community Hospitals and Wellness Centers (CHWC)
- Confidential chemical client
- Confidential semiconductor manufacturer
- Continental
- Ford
- Honda
- Nissan
- National Nuclear Safety Administration
- Toyota
- U.S. Army Corps of Engineers
- Volkswagen

