

Statement of Qualifications:
Mission Critical Facilities



ELLERBE BECKET



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Ellerbe Becket Profile



LaSalle Plaza
Minneapolis, Minnesota
[houses Ellerbe Becket's corporate headquarters]



Ronald Reagan Building and International Trade Center
Washington, D.C.

Introduction to Ellerbe Becket

Founded in 1909, Ellerbe Becket is one of the oldest and largest architecture, interior design, engineering and construction services firms in the United States. We have experience in virtually every building type, have worked all over the United States and in more than 20 countries. We employ nearly 400 professionals in six locations around the world, including more than 150 in our Twin Cities headquarters office.

Our vision is to create a design process that provides for client satisfaction, employee fulfillment and financial performance. We are team oriented. We see ourselves and our clients as a single mind in developing the environments that we design. To meet this goal we are in continuous development of our employees, specialized expertise, creativity, project management and leadership skills.

To this end, we have structured our firm to be responsive, flexible and personalized in the design services we provide. Seeking to recruit and retain talented professionals, we are dedicated to providing excellent communication and project performance to our clients.

We value our new and long-term clients—some of whom have been with us for as long as our firm has been in existence. Our vision and willingness to continually improve is at the center of our values. We embrace the challenge to prove ourselves as the premier full-service firm providing creative design solutions worldwide.

“...it is in its capacity to deal evenhandedly with both the restoration of the past and the lightning stabs of the future that a firm like Ellerbe Becket not only survives and prospers but remains in the vanguard of the struggle to make architecture both eternal and ephemeral.”

—World Architecture



Kingdom Centre
Riyadh, Saudi Arabia



Mayo Clinic
Leslie and Susan Gonda Building
Rochester, Minnesota

Ellerbe Becket Mission Statement and Values

Our mission is “to work for our clients success in an environment that *demand*s creativity, collaboration, and innovation.”

Every project starts with the client’s vision. It is Ellerbe Becket’s mission to help our clients realize that vision through values of creativity, collaboration and innovation. The design team must then never lose sight of the vision in working to craft a solution unique to each client’s needs and goals. We believe that the skill, knowledge and craft we apply to all aspects of design—from initial ideas through the final built environment—produce exceptional design quality.

- **Creativity:** Our passion for design excellence drives our aspiration to be the best that we can be.
- **Collaboration:** This is fundamental to the way we work and design. We believe that a collaborative process is rooted in trust, respect and integrity. True collaboration occurs through the mutual sharing of ideas resulting in a shared way of thinking. The result is an innovative solution formed through a common understanding.
- **Innovation:** This requires that the design team not be afraid to explore and discover new ideas and solutions. Innovative design requires that the design team act with courage of conviction, as well as diligence, research, analysis and reflection to produce great ideas and solutions.

Ellerbe Becket’s Areas of Expertise

An innovator since our founding in 1909, we have focused our practice on the following areas of expertise:

Mission Critical Facilities
Office Environments
Teaching and Learning Environments
Stadiums and Arenas
Hospitals and Clinics
Commercial and Mixed-Use Development
Hospitality
District Heating and Cooling



Target Corporation Headquarters
Minneapolis, Minnesota



ERCOT I.S.O.
Primary Control Center
Taylor, Texas

Services provided by Ellerbe Becket

Our clients receive value from the fact that an extremely broad range of services is provided by in-house staff. With experts in all aspects of facility design and construction, an unparalleled level of service is part of each building project. The result is a consistent, coordinated response to customer needs and a long track record of delivering projects on time and within budget. The following services are strongly represented within Ellerbe Becket:

- Master Planning and Site Evaluation
- Urban Design and Planning
- Facility Programming
- Architecture
- Mechanical Engineering
- Electrical Engineering
- Structural and Seismic Engineering
- Interior Architecture
- Construction Management
- Cost Estimating
- Scheduling



Mission Critical Facility Design

Building Mission Critical Confidence

Ellerbe Becket has been designing and building mission critical facilities for the last 28 of our 93 years of practice, with over 3 million square feet and over \$775 million of raised floor construction in the last five years alone. Our approach to mission critical facility design is characterized by flexibility, reliability and integrity.

Flexibility

Technology is constantly changing, evolving and creating new opportunities for organizations and their facilities. Building design and construction must be able to adapt to these forces of change. Our staff is experienced in helping organizations ask the right questions in order to foster the critical thinking that goes into the planning and design of mission critical facilities. Future change and growth cannot occur if measures are not taken during initial construction to allow for seamless, uninterrupted transitions. Flexibility means that resources are available to a variety of consumers, whether cooling of mainframes and server farms, network backbones to remote offices, or uninterrupted, high quality power to communication controllers and modems.

Reliability

Too often, the engineering approach to a mission critical facility results in under-design, with unacceptable levels of downtime risk; or over-design which results in wasted funds and difficult-to-maintain building systems. The correct level of reliability and redundancy results in a proper match between the probability and cost of downtime, and a facility that “runs” itself through appropriate automation and controls. Our Critical Facility Consultants are sought by many Fortune 500 businesses to help with strategic planning, continuous reliability improvement, and risk-based management initiatives. They add value to our mission critical facility design teams by providing conceptual design services, resulting in reliable power and cooling systems.

Integrity

Integrity means a secure facility with appropriate protection from weather and natural catastrophes, as well as man-made hazards. Our site selection process can help reduce the risks associated with these elements. Security system design is integrated with the building systems to provide complete access control to the facility. Additionally, integrity means assuring that the building envelope maintains its seal to prevent problems which may arise from humidity or temperature.



Major Insurance Company
Insurance Support Center—West
Phoenix, Arizona



OptiGlobe Telecommunications
Data Center
Rio de Janeiro, Brazil



Target Corporation
Technology Center
Minneapolis, Minnesota



Select Mission Critical Facility Experience



E*TRADE Regional Operations Center
Atlanta, Georgia



ERCOT Backup Control Center
Austin, Texas



Lower Colorado River Authority
System Operations Control Center
Austin, Texas

3M Company
St. Paul, Minnesota

Amtrak Consolidated National Operations Center
Wilmington, Delaware

Archon Group Corporate Data Center
Irving, Texas

Brasil Telecom
Brasilia, Brazil

Caterpillar Tractor Company
Peoria, Illinois

City of San Antonio Energy Control Center
San Antonio, Texas

Con Agra IT Operations Facility
Omaha, Nebraska

Diageo Global Data Center
Minneapolis, Minnesota

Dow Chemical Company Global Data Center
Midland, Michigan

E*TRADE Regional Operations Center
Atlanta, Georgia

Electric Reliability Council of Texas (ERCOT) Control Centers
Taylor, Texas
Austin, Texas

Fairfax County Public Safety Operations Center
Fairfax, Virginia

Fortis Companies Automated Stand-by Power System
Woodbury, Minnesota

FMC Corporation
Minneapolis, Minnesota

General Mills, Inc. James Ford Bell Technical Center
Minneapolis, Minnesota

General Motors Data Center Requirements Guide
Nationwide

GMAC Data Center
Bloomington, Minnesota

Great American Insurance Data Center
Cincinnati, Ohio

Honeywell, Inc. Operations Center
Minneapolis, Minnesota

IBM Brazil Data Center
Campinas, Brazil

Level(3) Communications
Cleveland, Ohio • Dexter, Michigan • Nashville, Tennessee • Ogden, Utah • Stockton, California • Stratford, Texas

Lower Colorado River Authority Systems Operation Control Center
Austin, Texas

Minnesota Mutual Insurance Company
St. Paul, Minnesota

Northwestern Bell Telephone
Minneapolis, Minnesota

Northwestern National Bank
Minneapolis, Minnesota

OptiGlobe Telecommunications Internet Data Centers
Rio de Janeiro, Brazil
Sao Paulo, Brazil
Buenos Aires, Argentina
Santiago, Chile
Mexico City, Mexico



OptiGlobe Telecommunications
Rio de Janeiro, Brazil



Major Insurance Company
Insurance Support Center—East
Atlanta, Georgia



Xcel Energy Company
World Class Control Room
Minneapolis, Minnesota

**Petroleum Refining Company
Control Room**
Upper Midwest

**Phillip Morris
Information Technology Center**
Richmond, Virginia

PSINet Generator Upgrades
Loudoun County, Virginia

**RagingWire
Telecommunications
Western Regional Operations
Center**
Sacramento, California

St. Paul Companies, Inc.
St. Paul, Minnesota

**SWIFT
Data Center**
Culpepper, Virginia

**Target Corporation
Technology Center**
Minneapolis, Minnesota

**TidePoint Corporation
Data Center and Corporate
Headquarters**
Baltimore, Maryland

**University of Minnesota
NASA Space Laboratory**
Minneapolis, Minnesota

**University of Minnesota
Supercomputer Center**
Minneapolis, Minnesota

WAM!NET
Minneapolis, Minnesota

**Xcel Energy Company
World Class Control Room**
Minneapolis, Minnesota

E*TRADE Regional Operations Center

ATLANTA, GEORGIA



The Regional Operations Center is a 165,000 square foot computer command center for E*Trade's financial and stock trading operations. This single facility is actually comprised of two identical, but joined, buildings. The A and B buildings are linked by a common lobby and employee support area containing a break room, conference rooms, cyber-café and recreation room with secured courtyard. Each computer room is ringed by a series of mezzanine-level command centers. These areas, plus management offices and presentation rooms, have a panoramic view of the computer area and a jumbo-tron technical display.

The redundancy of mechanical, electrical, operations and utility systems, combined with a 200 mph rated exterior skin, creates a computer environment that will remain 'on-line' through virtually any circumstance. Two raised access floor computer rooms provide redundancy of server power, as well as ample space for computer equipment expansion.

As a critical facility for E*TRADE, the extremely aggressive design and construction schedule dictated that the project be released in a series of early bid and purchasing packages. The seven month design and construction schedule was completed on time in December 1999.

Project Details

Services Provided

- Architecture
- Interior design
- Lighting design
- Landscape architecture
- Civil engineering
- Electrical engineering
- Mechanical engineering
- Structural engineering

Completion date 1999

Raised Floor 65,000 square feet

Size 165,000 square feet

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OptiGlobe Telecommunications Internet Data Centers

FIVE SITES THROUGHOUT CENTRAL
AND SOUTH AMERICA



Ellerbe Becket provided architecture, engineering and technology consulting for a multiple site program in Central and South America. Reinforcing the OptiGlobe business plan, the design conveys the excitement of e-commerce through an open, energetic and high-tech atmosphere. Each facility portrays a clear, physical representation of OptiGlobe's brand in color and image. By design, the data centers feel welcoming to employees and guests; yet, carefully planned security systems guarantee maximum security to customers.

The data center program provides OptiGlobe with over 300,000 square feet of high availability data center space, accommodating renovated structures and new construction. The template program includes raised floor in each facility and is master planned for two subsequent expansions. The power and cooling distribution systems are designed for concurrent maintenance and flexibility to react to technology and market demands.

Ellerbe Becket prepared Internet connectivity and system architecture design including backbone interconnections with service providers, passive and active electronics, cable infrastructure, telecommunications and LAN/WAN design. The design team participated in the negotiation and recruitment of technology partners to obtain the best value for the funds available. The data center layout was prepared in Aperture for use in the on-going asset management of the technology infrastructure.

All projects were completed on schedule.



Project Details

Services Provided

- Architecture
- Programming
- Electrical engineering
- Mechanical engineering

Completion date 2000 (1st site)
2001 (final site)

Raised Floor 60,000 square feet
(each)

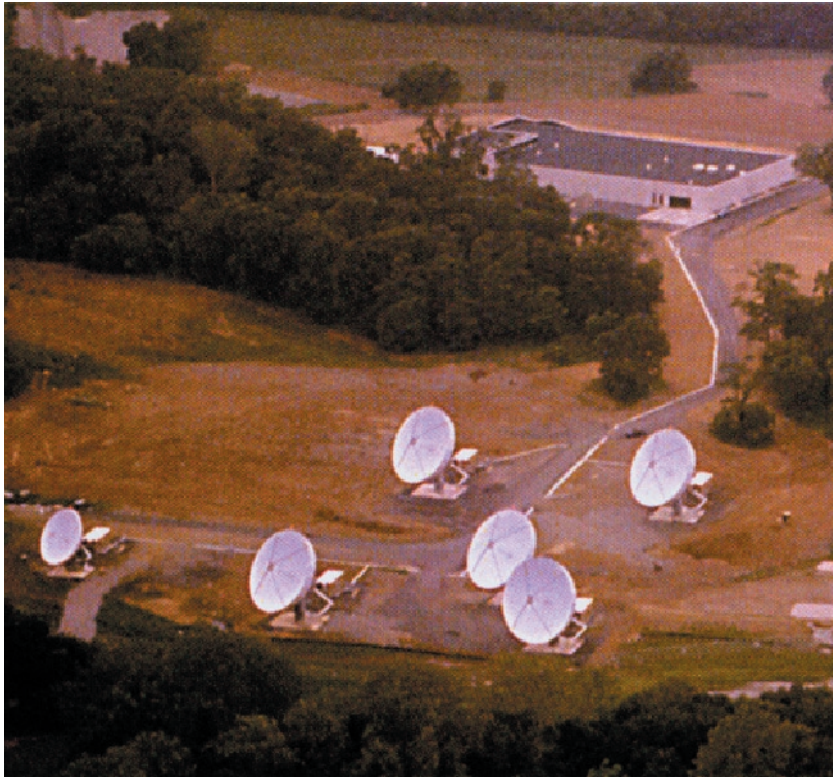
Size 300,000 square feet

ELLERBE BECKET



Intelsat Mountainside Teleport Data Center

HAGERSTOWN, MARYLAND



Ellerbe Becket provided full architecture and engineering services for a new 40,000-square-foot data center. The one-story precast structure provides computing resources for global satellite service, supporting 13.5- and 16-meter satellite dishes. Included in the program is 8,000 square feet of raised floor and 5,000 square feet of office space. The balance is mechanical and electrical support area (MESA). Designed and constructed within a six month period, the project was operational in September 2003.



Project Details

Services Provided

- Architecture
- Interior design
- Electrical engineering
- Mechanical engineering
- Structural engineering

Completion date 2003

Raised Floor 8,000 square feet

Size 40,000 square feet

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Confidential Major Insurance Company Insurance Support Data Centers

ATLANTA, GEORGIA
PHOENIX, ARIZONA
IRVING, TEXAS



Ellerbe Becket provided integrated architecture and engineering services for three large state-of-the-art insurance support centers. Each is composed of a 50,000 square foot raised floor mainframe and client server equipment rooms, a command and control center, various support areas, general office space, and electrical and mechanical equipment rooms. Each 250,000 square feet facility had its own design team who completed the design on an aggressive fast track schedule with separate phased document issues. Ellerbe Becket delivered the first of the centers in just eleven months.

The ISC features a robust concrete structure capable of withstanding both zone three seismic events and severe weather. Site utilities included dual fed electrical and telecommunication services, a one million gallon on-site thermal storage tank to provide backup cooling, cooling tower make-up water, and fire protection service. The electrical backup systems included six 2,000KVA standby diesel generators, and two separate parallel redundant UPS systems, each of which is capable of serving the entire critical load. The facility was designed to permit concurrent maintenance without suffering higher risks of downtime. A Supervisory Control and Data Acquisition System (SCADA) was provided to automate the transition between alternative sources of energy, and to minimize the opportunities for human error.



Project Details

Services Provided

- Architecture
- Programming
- Electrical engineering
- Mechanical engineering
- Structural engineering
- Civil engineering
- Planning
- Programming

Completion date 1997

Raised Floor 50,000 square feet (each)

Size 250,000 square feet (each)

Target Corporation Technology Center

MINNEAPOLIS, MINNESOTA



As the newest building on Target Corporation's northern campus, the Technology Center and its back-up facility complement the existing campus design and support Target's growing needs in the area of credit card processing and e-commerce. As a leading retailer, Target depends on accurate and reliable data processing at all times. This building assures security, reliability, flexibility and integrity for their technological needs.

The 115,000 square foot Technology Center features a Network Operations Center (NOC) that supports up to five staff at any one time. The facility comprises 45,000 square feet of raised floor and an office component to support the NOC. This building is a 7x24 facility designed to withstand 200 mile per hour winds and other regional natural disasters. The facility ultimately will house eleven generators, with move-in requirement of five generators.

Project Details

Services Provided

- Architecture
- Electrical engineering
- Mechanical engineering
- Landscape architecture
- Civil engineering
- Programming

Completion date	2001
Raised Floor	45,000 square feet
Size	115,000 square feet

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Dow Chemical Company Global Data Center

MIDLAND, MICHIGAN



Ellerbe Becket provided integrated architecture engineering and commissioning services for this 60,000 square foot facility on the Dow USA corporate campus. The facility consolidates six domestic and international data centers into one facility. The design features a clearly marked entry, providing a secure access point for visitors and employees. Once inside, the facility features a courtyard, which functions as another layer of security and provides an employee amenity. Additional attention was given to site security and physical protection with security cameras, access control, and vehicular barriers. The data center achieves its goal to be a secure and low profile facility.

The operations center contains a 30,000 square feet densely-packed computer room. Two redundant mainframe systems operate together, and are capable of instantly maintaining operations should one fail. Backup power and cooling systems include standby generators and UPS systems for 7 x 24 operations. The center is designed for future expansion in 15,000 square foot modules. The customer support center comprises 20,000 square feet of raised floor office area for 24-hour call center operations.

Project Details

Services Provided

- Architecture
- Interior design
- Electrical engineering
- Mechanical engineering
- Landscape architecture
- Structural engineering
- Programming
- Space planning
- Utilities study/design

Completion date	1992
Raised Floor	30,000 square feet
Size	66,183 square feet

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Confidential Major Insurance Company Corporate South Campus, Building "G" Data Center

BLOOMINGTON, ILLINOIS



Ellerbe Becket provided integrated architecture, engineering, and construction administration services for over 2 million square feet of a new operations center campus for this national insurance company. The project consisted of two central plants and six buildings. Building G comprises a 250,000 square foot data center with raised floor area on four levels. The Building G data center houses the organization's research and development functions, including actuarial, and weather modeling. The complex is served by two separate power plants jointly developed by Illinois Power Co. and our client. The power plants have separate 138kv primary utility feeds, 15kv distribution systems and diesel generator backup. The facility is designed to be flexible and reliable with multiple paired power risers. Dual power supply equipment can be connected to both pairs of the riser, providing continuous power even if an entire distribution system fails.

Cooling is provided by the central plant chilled water plant via dual loops to the building. Within the facility, large HVAC galleries at the periphery are provided to supply air from penthouse-mounted built-up air handling units into the raised floor plenums.

Project Details

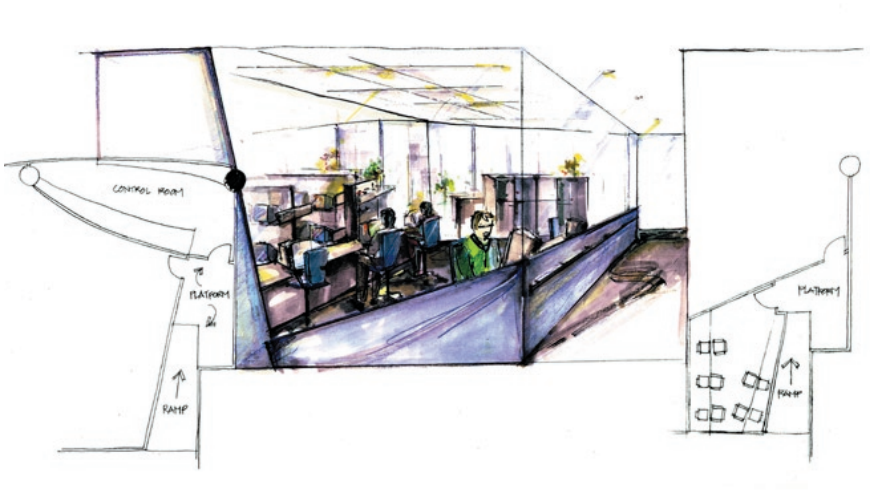
Services Provided

- Architecture
- Electrical engineering
- Mechanical engineering
- Structural engineering
- Civil engineering
- Commissioning Services

Completion date	1992
Raised Floor	200,000 square feet
Size	250,000 square feet

Archon Group LP Corporate Data Center

IRVING, TEXAS



Ellerbe Becket provided architectural and engineering services to Archon Group LP for the design of a new 2,500 square foot data center in their corporate headquarters facility. The organization is a real estate investment management firm specializing in the acquisition, management and financing of quality real estate investments for its majority parent firm, The Goldman Sachs Group LP.

The data center provides consolidation space for all mission critical equipment, including network servers, communications and data storage equipment. The size and space requirements are based on a five-year growth plan and provide adequate expansion space to ensure an orderly, uninterrupted installation of future equipment and capacity. This data center is composed of a stand-alone power and environmental control system that can be controlled and monitored from within a Network Operations Center. The power system provides high quality power to the equipment and sustains power to the loads served during an extended electrical utility outage with a UPS system and standby generator.

The environmental control system provides cooling, humidification and dehumidification to the space to ensure the proper operation of the equipment and the integrity of the data. Redundant power and cooling components allow normal maintenance activities without increasing the risk of downtime due to mechanical or electrical failure.

Project Details

Services Provided

- Architecture
- Electrical engineering
- Mechanical engineering
- Structural engineering

Completion date 2001

Size 2,500 square feet

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ERCOT I.S.O. Primary Control Center

TAYLOR, TEXAS



The 70,000 square foot control center has been designed from the inside out with critical and non-critical components organized to maximize functionality, reliability, and synergistic adjacencies while minimizing cost and retaining flexibility. It is a stand-alone building comprised of two primary components: a two-story, non-hardened or conventional office component for non-critical business operations, and a two-story hardened area housing critical real-time operations and equipment.

As with all mission critical facilities, uninterrupted real time operations are primary. For this reason, the critical functions are protected within a cast-in-place concrete building shell. The openings for daylight are strategically located to ensure a pleasant interior environment for people, without compromising the hardened nature of this component.

In contrast, the non-critical business support functions are grouped together and organized to maximize the flexibility between individual staff, work-groups and departments. By locating open workstations along the perimeter and the closed offices in the center, daylight and views are shared equally, while maintaining individual privacy in each workspace. This layout also allows flexibility for the future, with minimal cost to reconfigure as business changes occur.

Project Details

Services Provided

- Interior design
- Architecture
- Programming
- Landscape architecture
- Civil engineering
- Electrical engineering
- Mechanical engineering
- Structural engineering

Completion date 2002

Raised Floor 15,200 square feet

Size 70,000 square feet

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ERCOT I.S.O. Backup Control Center

AUSTIN, TEXAS



This 45,000 square foot facility within a multi-tenant office building houses ERCOT's executive offices, administrative and training facilities, as well as a system control center. Special reinforced masonry walls were installed to protect the control room and equipment areas. Structural modifications were made to accommodate a diesel generator within the building while maintaining vibration and acoustical isolation. Building systems were re-engineered utilizing parallel redundant power sources and system + system backup power in the event of primary power outages. Increased cooling needs demanded creative HVAC revisions to rooftop equipment.



The location and design of distinct functions within the facility were determined through a balanced, and cost considerate, approach to critical building systems design. The design team embraced the need to balance operational considerations, ergonomic issues or human factors, and social engineering issues related to personal workspace and team related synergy's. Office, conference, critical and non-critical functions are strategically organized around a daylit central atrium and single, secured point of entry. Access to the facility is controlled actively by the ERCOT security staff. Employee access is provided through state-of-the-art identity recognition systems, while visitors are not allowed unless escorted by ERCOT staff.

Project Details

Services Provided

- Architecture
- Interior design
- Electrical engineering
- Mechanical engineering
- Programming
- Technology consulting

Completion date 2001

Raised Floor 10,000 square feet

Size 45,000 square feet

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City Public Service Primary Control Center

SAN ANTONIO, TEXAS



The main operational goal of the new office and primary control center is to meet the evolving high-technology requirements for City Public Services (CPS) in the transmission and distribution of electric and gas systems throughout the San Antonio region. The second operational goal is to provide backup control of generation systems. In the design of this facility, the goals are to be functional, efficient, reliable and secure, while remaining adaptable to future changes within CPS.

The facility will be approximately 72,000 square feet, housing a control room and support spaces; disaster recovery coordination; operations offices and technical support staff; computer and communications rooms; conference and media support, as well as mechanical and electrical support systems. While programmed to accommodate approximately five years growth, the building design, support systems and facility siting will also allow for a doubling of functions in the future. The project is under construction, with occupancy scheduled for Fall 2004.



Project Details

Services Provided

- Architecture
- Interior design
- Electrical engineering
- Mechanical engineering
- Structural engineering

Completion date 2004

Raised Floor 5,000 square feet

Size 72,000 square feet

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Lower Colorado River Authority Systems Operation Control Center

AUSTIN, TEXAS



The Lower Colorado River Authority (LCRA) System Operations Control Center houses the control center for the central Texas power generation and transmission utility. The facility accommodates 50 employees and contains the latest telemetry, communications and audio/visual technology to position LCRA as a major transmission services provider in the State of Texas.

The control room features a large screen projection system that displays LCRA's electrical service grid, and is capable of zeroing in on a particular location in the event of a service problem or outage. Special backlighting in this area simulates daylight to add to a positive and healthy work atmosphere.

Control rooms and data centers require uninterruptible power systems in order to store, process and protect data 24-hours a day, every day of the year, regardless of power fluctuations and outages, water line breaks, faulty valves, defective sensors, severe weather—whatever potentially damaging situations occur. To optimize reliability in the SOCC, designers have incorporated redundant components and power systems.

Other features include public meeting areas, offices and additional support areas. The control center contains a state-of-the-art simulation and training room to educate and prepare employees for routine and emergency situations. The conference room features wiring for laptop computers, phones and the technical capacity to reproduce the large-screen monitoring images inside the observation room.



Project Details

Services Provided

- Architecture
- Interior design
- Landscape architecture
- Civil engineering
- Electrical engineering
- Mechanical engineering
- Structural engineering

Completion Date	2000
Raised Floor	7,500 square feet
Size	35,000 square feet

ELLERBE BECKETT



Amtrak Consolidated National Operations Center

WILMINGTON, DELAWARE



Ellerbe Becket provided interior design services for Amtrak's new Consolidated National Operations Center (CNOC). The project was designed to improve Amtrak's efficiency, communications, productivity and employee satisfaction.

The design transforms a 52,000 square foot, two story plumbing supply warehouse into a state-of-the-art operations center. The environment fosters teamwork, creativity and open communication through open office planning and glass fronts on all offices. Amenities include a conference center, break rooms, an exercise room, and an outdoor patio on the river.



Project Details

Services Provided

Interior design

Completion date 1998

Size 52,000 square feet

ELLERBE BECKET



XCEL Energy (formerly Northern States Power) World Class Control Room

MINNEAPOLIS, MINNESOTA



Northern States Power Company (NSP) wanted to create a theater and support facility for the command and control of electrical generation, transmission and distribution. This new control center was built to achieve two goals: cut costs and improve customer service. It consolidates five former operational groups into one unified center. NSP was the largest company in the country which incorporated all of these electrical utility processes into one centralized facility; the renovation of the 14,000 square foot office floor included complete demolition and new construction which resulted in the 24-hour, high security, black-box theater on access flooring.

The control center includes the control theater, a 20-person observation room with gallery, a complete training simulation facility, hoteling space for trainees, and breakroom, exercise, restroom and shower facilities. Prime consideration was placed on the integration of ergonomic design with sophisticated technology. This project won the 1996 International Illumination Design Award, Award of Merit from the Illuminating Engineering Society of North America.

Project Details

Services Provided	
Interior design	
Electrical engineering	
Mechanical engineering	
Control room design	
Completion date	1995
Raised Floor	3,500 square feet
Size	14,000 square feet

