Building Statistics

General Building Statistics

- **Building Name:** UCSD Cal IT² California Institute for Telecommunications and Information Technology
- **Location and Site:** University of California, San Diego, CA ,Jacobs College of Engineering
- **Building Occupant Name:** UCSD Facilities Design and Construction
- **Occupancy or Function Types:** Cal IT² contains many research labs for 3D scanning, processing, metrology, and laser research. Two unique features of the building are a 200 seat black box theater and a 2000 sq ft exhibit gallery.
- **Size:** 234,492 sq ft
- **Number of Stories:**
  - **Above Grade:** 7 Stories
  - **Total Levels:** 8 Levels
- **Primary Project Team:**
  - **Owner**: UCSD Facilities Design and Construction
    Website: www.ucsd.edu
  - **General Contractor:** Gilbane
    Website: www.gilbaneco.com
  - **Architect:** NBBJ Architects
    Website: www.nbbj.com
  - **Landscape Architect:** Spurlock, Poirier
    Website: www.sp-land.com
  - **Civil Engineer:** Pountney Consulting Group
    Website: www.psomas.com
  - **Structural Engineer:** Rutherford & Chekene Consulting Engineering
    Website: www.ruthchek.com
  - **MEP Engineer:** Flack & Kurtz Consulting Engineering
    Website: www.flackandkurtz.com
  - **Lighting Designer:** HLB Lighting Design
    Website: www.hlblighting.com
- **Dates of Construction (Start to Finish):** Jan 2003 – Sept 2005
- **Cost:** $61,200,000
- **Project Delivery Method:** Design-Bid-Build

Building Envelope

As one stares at the exterior of UCSD Cal IT^2, one can see the design itself showing through its architecture. On the North side facing the street, the entire façade is tinted glass. Once you stare through it, the steel design can be seen as a criss-cross pattern of HSS8 x 10 5/8 steel beams and horizontal W21 x 68 steel beams for each floor. On the East, South and West sides, a combination of resin wall panels, aluminum cladding for the mullions, and various types of clear vision glass panels for the windows spanning vertically and horizontally are used.

Construction

The project was constructed as a design-bid-build project. Design began in mid 2001 with the designers and the UCSD facilities office. Construction began as planned in January 2003 with a cost of roughly $54 million. UCSD Cal IT^2 was planned to open in January 2005, but was delayed until September 2005. Construction costs grew to about $61 million averaging about $261/ sq ft with more square footage as originally planned.

Electrical

UCSD Cal IT^2 uses both 480/277V and 208/120V standard power distributions for the 12kV service provided by East campus. A 6-way switchboard is connected to distribute the power to three substations with one spare switch. A 750kW standby diesel generator is connected in case of a black-out for elevators, emergency lighting, mechanical equipment, data back-up, and other necessities. From the substations, many distribution panels and boards provide power to the three sections of Cal IT^2 accordingly.
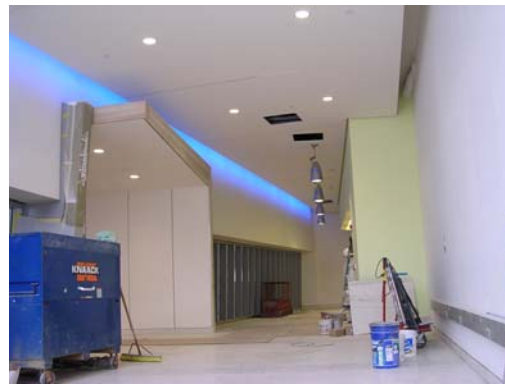
Lighting

UCSD Cal IT^2 uses many different lighting systems through the building because of the various functions this building has. Most of the lighting is fed off the 277V power; however there are some fed off the 120V power. Because of Title 24 requirements in

California, energy efficient lamps, controls and luminaries are used to decrease any power possible to the building. All open-office areas have automatic lighting shut-off, occupancy sensors are used for private offices and override the automatic shut-off, tandem wiring is used, and daylight area control is used for the larger open spaces where lighting may not be required during daylight hours.

On the exterior of the building, a variety of in-grade metal halide up-lights, compact fluorescent step lights, metal halide PAR flood lights, HID sconces, low pressure sodium pole lights, and compact fluorescent bollards are used to highlight the building and walkways to the building for safety purposes and aesthetics.

For the interior, the amount of light fixtures used is immense. In the East Lobby and many surrounding corridors, large decorative compact fluorescent pendants are hung from the ceiling emphasizing the height of the space. The North Lobby uses blue cove lights surrounding the cove ceiling with compact fluorescent downlights for ambient lighting. More fluorescent wall-washers are used throughout the building on corridors and decorative colored walls. Suspended fluorescent T8 fixtures are used for open office areas along with recessed strip lights in private offices and some corridors. As can be seen, because of the variety of spaces for this building, the lighting was designed to coordinate with each separate space while also integrating each space into the next with similar lamps, feels, and ambience.

Mechanical

UCSD Cal IT^2 utilizes 16 air handling units (AHU). The clean room has its own AHU with a 16,000 cfm supply and 11 AHU for re-circulation. It contains a hydronic cooling coil, heating coil, and a preheating coil. The two big AHU located on the roof of section B are supplying air at 86,000 cfm to the 7 floors below. All systems are using a VAV system with air-recirculation in emphasis for the clean room.

Structural

A steel structural system is used for UCSD Cal IT2. The beams support 16 and 18 gauge metal decking with a concrete slab per floor. The steel columns surrounding the building vary in size and support the building from wind load. Trusses support the metal decking and loads for the upper floors in Section B. Along the North side, the steel bracing creates a truss pattern with W21 x 68 girders. Because of the location, the building was built with seismic connections and standards.

Fire Protection

Fire protection is an important issue within higher education buildings. All primary steel members are sprayed with a 3 hour rating while secondary members are sprayed with 2 hour ratings. As for fire warning systems, the whole building is equipped with hand-pull fire stations, fire extinguishers, horns, smoke/heat detectors, and strobes. A sprinkler system, compatible with UCSD fire marshal standards, is installed throughout the building.

Plumbing

UCSD Cal IT^2 uses 2 oil powered double wall water heaters from manufacturer P-K Compact Series with a domestic flow rate of 44 gpm. The thermal expansion tank has a capacity of 77 gallons. The oil tank underground is leak monitored by a panel underground as well. Pumps are used to get the water from the mechanical room to the upper floors. Emergency power is supplied to the pumps for safety showers in the labs and the sprinkler system. Seismic restraints are also in place in case of earthquake activity.

Transportation

Cal IT^2 houses four passenger elevators located in sections B and C for transportation to the above floors with only one going to the penthouse on level 7. Elevators #1, #2, and #3 are all traction type elevators. Elevators #1 and #2 have capacities of 3500 lbs and move at a speed of 350 ft per minute while elevator #3 (to the Penthouse) has a capacity of 4000 lbs moving at the same speed. Elevator #4 is located in section C outside the Black-Box Theater. It is a hydraulic type elevator with a capacity of 2500 lbs and moves at a speed of 125 ft per minute. Emergency power is provided to these elevators during a black-out.

Telecommunications

Every space in the UCSD Cal IT^2 building is equipped with basic voice and data jacks wired with CAT-6 cable throughout the entire building as well as wireless communication in many spaces. Being a state of the art technological building with laboratories, research facilities and offices, it is expected that the building be as up-to-date as possible.