

EXECUTIVE SUMMARY

The University of California, San Diego Cal IT² building combines technology, architecture, and function into an impressive statement on the UCSD campus. The 7 story tall sleek gray building encloses a courtyard to join the engineering buildings into a significant part of the campus. The new California Institute for Telecommunications and Information Technology (Cal IT²) brings high-end laboratories, clean rooms, a black box theater, and many other important entities that make this building a staple in the school. Of the many disciplines integrated into this building, lighting is a very important aspect for this design.

This report will include an in-depth study on a proposed lighting redesign for five major spaces in the building. This will include luminaire selection, ballast and lamp information, fixture placement, and conceptual design. Integrating my design into an already well designed space was quite a challenge in the beginning. By bringing new concepts to many of the spaces, I was able to work around the existing conditions to provide a very different approach to some rather typical spaces.

This report will also be including an electrical depth analysis. This will include the circuiting and wiring of my new lighting redesign. A complex control system is being implemented to provide flexibility in the lighting controls for easier maintenance. Since this will be a redesign for the building, I have also checked the branch circuiting for protection purposes. An emergency power study was also done to verify the generator that was provided by the engineers with my new design.

Because the building industry thrives on economics, a cost analysis was conducted for my construction management breadth. I compared the cost of the existing lighting system compared to my new redesign to show how a good lighting design can be implemented without a major price. I have also shown the labor and installation costs involved with my redesign for economic purposes. This gives insight to how much lighting alone can cost to an owner.

The last topic my report will cover is an acoustical analysis for the black-box theater. The theater is a major aspect of the building, and needs to be designed properly for its many uses. I performed a reverberation time study to show the existing conditions and my new redesign for sound. The study shows how a very tiny detail can go a long way in the transmission of sound.

Cal IT² is really an intriguing building. Through all of my topics of study, I have really learned a great deal about Cal IT² and the building industry in general. This project showed the integration of architecture, energy efficiency, and aesthetic appeal to the University of California, San Diego campus and can be used as a great example of integration for the future.