

The Engineering Division

Helping You Plan New Labs and Equipment

Engineering Consulting Services:

Civil Engineering

Fire Alarm

Lighting

Utility Planning

Electrical Engineering

Fire Protection

Structural Engineering

Plumbing

Energy Conservation

HVAC Engineering

Sustainability Engineering

Wastewater Engineering

Examples of Recent Projects:



Faculty Club

The Sustainability and Energy Managers are always looking for opportunities to reduce the campus's energy use. The attendees of an energy summit last fall made them aware of the opportunity to replace the incandescent lighting at the

Faculty Club. Unfortunately, the quick fix of using compact fluorescent lamps would not work in this situation, since the lights need to be dimmable and CFLs are not. Instead the engineers saw this as a chance to test the new technology of LEDs, so we first asked ourselves: *What would be the savings if the current lights were replaced with more energy efficient LEDs?* We ran a *life cycle cost analysis* over 25 years as follows:

Incandescent Lighting

First Cost Single Lamp	\$2
Lamp Life	2,000 hours, ~1 year
Annual Net Energy Cost	\$15
Annual Replacement Cost	\$16
Total	\$344

LED Lighting

First Cost Single Lamp	\$100
Lamp Life	50,000 hours, ~25 year
Total	\$100

That is a savings of over \$200 per fixture, or about a 3.4 year payback.



Lab Renovations

As part of a recent lab renovation, the primary investigator purchased a piece of new equipment. When placing the order, the manufacturer gave him a choice between two sizes for its power supply. Unfortunately, when it arrived on campus, he

realized what he had chosen was not available in his lab so he contacted the Department of Facilities. The electrical engineer in the Division figured out a power supply was available in his building, but it was a few floors away. To bring the needed power to the equipment added about \$20,000 and a month to the project. If the Engineering Division had been brought on earlier, we could have helped to save time and money.

Things to consider on any lab or equipment project include:

- » Is the equipment UL listed?
- » What are its electrical needs?
- » Does it need to be cooled?
- » Does it need special ventilation?
- » Will it generate heat and require additional cooling for the room?
- » If the equipment is heavy, will the floor be able to handle the load?

The Engineering Division can help you answer all of these questions. For more information, please contact:

Walter Henry, Director, x2-5060, whenry@mit.edu
Joe Gifun, Asst. Director, x3-4740, jgifun@mit.edu