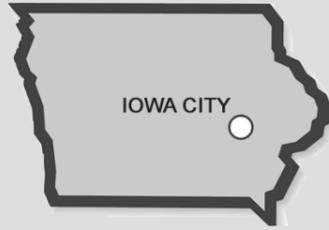


Facilities Management, University Of Iowa

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The University of Iowa (U of I) is a major national research university located on a 1,900-acre campus in Iowa City. The university is comprised of more than 29,000 students, 1,700 faculty and 120 buildings. The annual operating budget for the university is more than \$2.1 billion.

Project Background

Engineers for a Sustainable World (ESW) is a campus organization comprised of students from all engineering disciplines who apply their technical abilities to promote environmental improvements throughout the world. The group has organized outreach activities in Mexico and other countries, including the presentation of an environmental education seminar at two universities in Xicotepetec, Mexico. The U of I chapter of ESW, in conjunction with the Pollution Prevention Intern Program, received funding from the EPA to introduce an international exchange program entitled, "People, Prosperity and the Planet," or P3X.

Through this program, two international exchange students were selected to work with the University of Iowa's Facilities Management team on energy conservation projects. Training materials from the Pollution Prevention Intern Program were translated into Spanish by ESW members to serve as a resource for this and future international intern projects.

Incentives to Change

The goal for this project was to conduct an energy audit of the Seamans Center for Engineering Arts and Sciences. The Center consists of two buildings with a combined square footage of 247,116. The original building was constructed in 1905 and in 2000, the Seamans Center was added.

Utilities in the form of electricity, steam and chilled water are supplied by the University of Iowa at an annual cost in excess of \$637,000.

Results

Chilled Water System

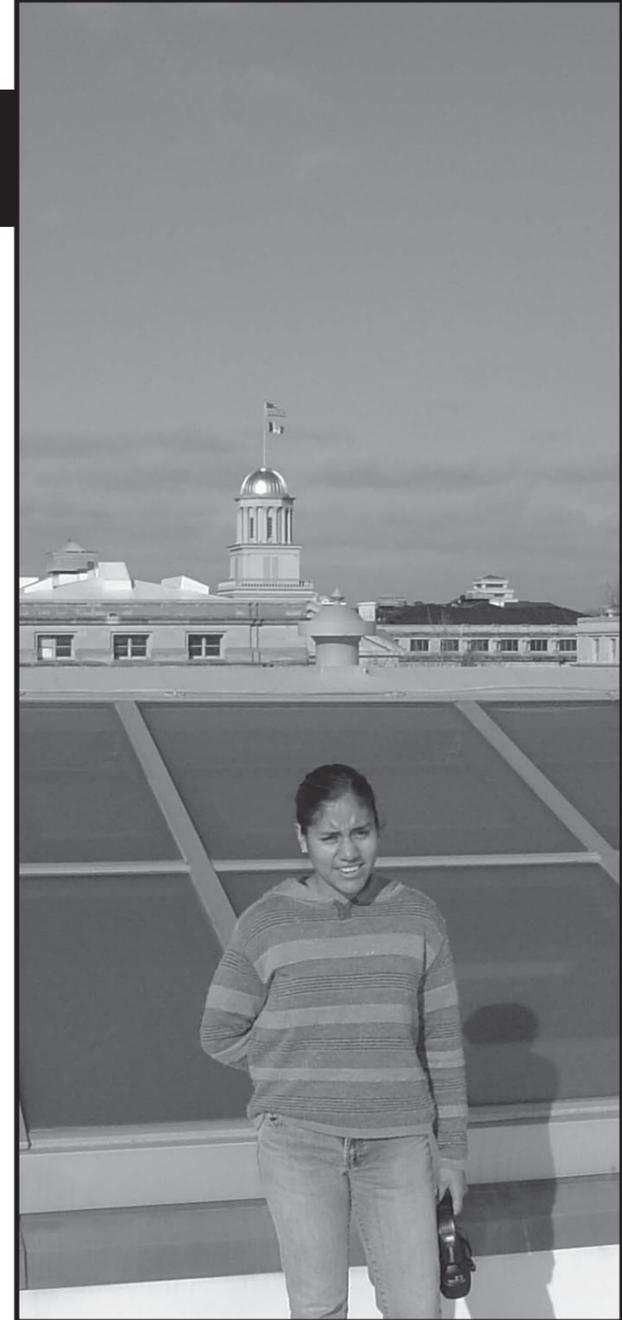
The chilled water system includes pumps with a variable frequency drive (VFD). Reducing the pump speed to 60-65 percent will improve system performance, with savings in pump operating costs as well as chilled water costs.

Lighting and Plug Loads

Results of a building audit indicated that some spaces were overlit, the use of natural light was underutilized, and there was a lack of system controls. Recommendations include the use of occupancy sensors in classrooms, offices, restrooms and breakrooms.

The lighting system accounts for 20 percent of the system electrical demand, while plug loads account for an additional 19 percent of the total. These are two areas that can be impacted by the behavior of building occupants. Reducing lighting and plug loads by 5 percent will have a significant impact on building operating costs. Students have initiated a campaign to increase awareness regarding energy efficiency in the Seamans Center.

Upon return to Mexico, the intern will use her new skills to conduct an energy audit of her university.



	Project	Annual Cost Savings	Environmental Results	Status
Chilled Water System	PUMP SAVINGS	\$1,250	18,900 kWh	Recommended
	COOLING SAVINGS	\$4,400	68,200 kWh 8,200 therms	Recommended
Lighting and Plug loads	OCCUPANCY SENSORS	\$7,600	120,000 kWh	Recommended
	LIGHTING REDUCE BY 5%	\$2,900	44,750 kWh	Recommended
	PLUG LOADS REDUCE BY 5%	\$2,800	42,950	Recommended

Air Pollutants Diverted in Tons

	Total for all sectors
SO2	1.11
CO	0.11
NOX	0.53
VOC	0.02
LEAD	0.0
PM	0.03

Green House Gases Diverted in Tons (CO2 Equivalent)

	Total for all sectors
CO2	206.61
CH4	6.81
N2O	2.25
CFCS	2.50+