

# Energy-Efficient Fluorescent Lighting Retrofit Project

## Illinois Sustainable Technology Center

### Introduction

The Student Sustainability Committee funded this project through a grant of \$23,450. As a result, all 212 fluorescent fixtures in offices and lab areas have been retrofitted to improve energy efficiency. Before retrofit, each of these fixtures contained 4 F40T12 lamps and required 150 Watts of electricity input. After retrofit, the office fixtures contained 2 F32T8 lamps with reflector kits, requiring 64 Watts of electricity input; and the lab fixtures contained 3 F32T8 lamps with reflector kits, requiring 96 Watts of electricity input. Installation began in April 2009 and was completed in October 2009.

Installation went smoothly, though with interruptions. The project was subject to some long delays that impacted project timing and reduced the project scope from what was originally proposed. The delays were 1) approximately 9 months time between notice of award and availability of funding; 2) negotiating with F&S on project price and scope; 3) installation scheduling amidst a flurry of lighting retrofit activity on campus in 2009. Despite these challenges, the project ended with improved light levels, energy efficiency, and high quality of installation.

### Project Costs

The overall cost of the project came to \$22,642.80, leaving a balance of \$807.20. ISTC is returning the balance of these funds to the Student Sustainability Committee. The breakdown of the project costs are as follows:

Purchased Materials	=	\$ 14,568.80
Labor and Disposal	=	\$ 8,047.00
Total Project Costs	=	\$ 22,615.80

### Project Impacts

Project impacts are based on projections and summarized below:

Energy Savings	=	31,000 kWh/yr
Cost Savings	=	\$2,500/yr
Emissions Savings	=	27 MTCO <sub>2</sub> e

### Basis for Project Impact Projections

The basis for projected savings is summarized below:

	Previous Lighting (T12)					Upgraded Lighting (T8)				
	Fixture Type	Qty	W/fixture	Avg hrs/yr	kWh/yr	Fixture Type	Qty	W/fixture	Avg hrs/yr	kWh/yr
Offices	4 x F40T12	83	150	2080	25,896	2 x F32T8	83	64	2080	11,049
Labs	4 x F40T12	129	150	2340	45,279	3 x F32T8	129	96	2340	28,979

ISTC average electricity cost (December 2009 – November 2010) = \$0.08/kWh

0.878 MTCO<sub>2</sub>e per 1,000 kWh

### Conclusion

ISTC thanks the Student Sustainability Committee for funding this project with a grant and supporting sustainability efforts at our building. ISTC is in the process of developing a poster for prominent placement within the building. ISTC also recognized the Student Sustainability Committee in the 2010 Governor's Sustainability Awards.