

1. **Basic Organizational Information**

The Society of Environmental Engineers (SEVEN) is an unaffiliated student group centered around, but not limited to, environmental engineers. We do not have paid positions, nor are we a volunteer organization (though we try to participate in volunteer activities as a group throughout the year).

2. **Primary Contacts**

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3. **Project Description**

In order to aid in the process of the campus of the University of Colorado becoming more sustainable, SEVEN would like to propose that the school install several occupancy sensor lighting units. This would allow the school to save money and energy by ensuring that the lights are off when a classroom is empty. To show that occupancy sensor lighting actually saves energy, we propose to install units in a dozen rooms in Hellems building. Hellems was chosen as a good candidate for a demonstration of this technology because building uses in Hellems are simpler than other buildings on campus, simplifying the energy saving audit process as well as the evaluation of user satisfaction. We can compare the average monthly electric bills from before and after installation to show the difference in energy usage and costs. We also plan to evaluate the impact of these installations on the users of the rooms; this will address the long-term sustainability of these installations vis-à-vis building users.

3. **Scope**

SEVEN proposes the installation of 12 ceiling mounted occupancy sensor lighting units. The funds necessary for this include unit and labor costs totaling about \$3,000.

Timeline	
	Date
Proposal Accepted	10/25/2007
Parts Ordered	10/26/2007
Parts Delivered	11/9/2007
Installation Begins	11/12/2007
Installation Complete	11/26/2007
Survey Circulation and Evaluation	3/1/2008-4/1/2008
<u>Life Expectancy</u>	<u>11/26/2017</u>

This proposal and the subsequent analysis can be implemented by SEVEN with the aid of Facilities Management.

5.

Budget		
	Per Unit	Total
Sensor	\$190	\$2,280
10% Safety	\$19	\$228
Labor	\$50	\$600
10% Safety	\$5	\$60
Total		\$3,108

6. **Environmental Impact**

This project will help fulfill “Part I: Energy” of the 2006 Blueprint for a Green Campus. This “Demand-Side” action reduces energy loss from inefficient lighting practices (Please refer to Reference A: Case Study and Reference B: Choose Green Report).

7. **CU Quality of Life**

This proposal will have a positive effect on quality of life for the entire CU community: it will result in a reduction of energy use and therefore a reduction in the amount of carbon released into the atmosphere, reducing climate change. The project will include an educational component by allowing building users to see first-hand the effects of an energy saving technology upgrade. In order to ensure that there are no negative impacts on the quality of life for Hellems building users, SEVEN plans to survey building users to record student, faculty, and staff opinions and feedback on the effectiveness and convenience of the sensors.

8. **Saving Money**

Installation of occupancy sensor lighting units will conserve energy and therefore reduce the expenses of the university, specifically with respect to Hellems building. Lighting accounts for about 30-50% of a building’s energy use, and using occupancy sensors can reduce lighting energy consumption by 45%¹.

9. **Project Longevity**

The lifetime expectancy for occupancy sensors is approximately 10 years, thus the sensors can provide benefits to students for this time period. There is no expected maintenance necessary for the sensors other than removal or reinstallation of new sensors at the end of the sensors’ useful life. If the installation is determined to save money without inconveniencing users, reinstallation of new sensors is simple and convenient and could be expanded to other rooms and buildings on campus.

10. **Social and Environmental Equity and Justice**

The installation of these sensors is equally beneficial to all users of Hellems building, as well the entire campus community: CU can use the money it saves on the energy costs to the benefit of students, faculty, and staff.

1. "Choose Green Report." Green Seal's Choose Green Report. Feb 1997. Green Seal. 15 Oct 2007 <<http://www.green Seal.org/resources/reports/CGR=Sensors.pdf>>.

References

A: Case Study

(<http://www.tomstar.com/getdoc/438>)

B: Choose Green Report

(<http://www.greenseal.org/resources/reports/CGR=Sensors.pdf>)

C: DT-205 Installation Guide

(<http://www.wattstopper.com/getdoc/1202.pdf>)