



University – National Laboratory Service-Learning Partnership: Intern Team Saves Energy and Money

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Abstract

Students participating in the Interior Design/Facility Management faculty and student internship team earned credit required by their college’s summer internship program. The team lived and worked at a National Laboratory; collaborated with facility managers, engineers, laboratory scientists; surveyed existing lighting systems; and made recommendations saving federal government money and energy.

INTRODUCTION

This service-learning internship project was planned and proposed by University faculty and students located in the South Central U.S. and was accepted by U.S. National Laboratory in the Mid-Western U.S. The team’s participation was funded by the National Science Foundation (NSF), U.S. Department of Energy (DOE) and a U. S. National Laboratory through a competitive national program. Interior Design/Facility Management students earned the four hours credit required by their college’s summer internship course and both students and faculty were paid summer salaries and travel expenses. Faculty applied approach-avoidance theory to this research.

OBJECTIVES

- Apply lighting design course information to interior and exterior lighting field studies;
- Save National Laboratory energy and money by performing lighting inventory and making recommendations;
- Respond to Presidential M Order 13514 on Sustainability for National Labs to lead the country in saving energy. (The White House , 2010)

METHODOLOGY

- The faculty and student internship team lived for ten weeks on or near the National Laboratory campus.
- The team worked in the lab’s Facility Services Department, where they collaborated with facility managers, engineers, laboratory scientists and support staff to survey existing lighting systems and make recommendations.
- The team developed a new inventory spreadsheet instrument.
- The team utilized hand-held light meters to measure existing light levels contributions in lux from both natural and artificial light sources.
- In situ lux levels were compared to Illuminating Engineering Society industry standards and needs and waste were examined.
- The team calculated anticipated energy and dollar savings for de-lamping fixtures and installing occupancy sensors.

RESULTS

- The students applied skills learned in previous courses to a real-world laboratory lighting problems.
- Students reflected on their experiences in their internship course-required diaries and communicated their reflections and findings via a verbal and visual presentation at the National Lab and a research poster required by NSF.
- Students, faculty and lab community attended an end-of-internship celebration dinner and enjoyed their success.
- Students and faculty evaluated their service-learning experiences by responding to college and laboratory questionnaires.
- Students’ supervisors also evaluated their contributions and provided feedback.
- The internship team benefited the laboratory community and served their country.
- Payback for recommendations were anticipated to be less than 2 years for both de-lamping fixtures and installing occupancy sensors.
- Findings from the project were published in a peer-reviewed facility management journal.

REFERENCES

The White House, Office of the Press Secretary (2010), “President Obama sets greenhouse gas emissions reduction target for federal operations: target to drive energy cost reductions in federal operations, creating clean energy jobs”, available at <http://www.whitehouse.gov/the-press-office/president-obama-sets-greenhouse-gas-emissions-reduction-target-federal-operations> (accessed 10 June 2010).

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