

SIU Sustainability Council Project  
Final Report

Project title: *LED Theatrical Lighting Fixtures Phase III*

Project I.D. #: 14SP110

Award date: 4/22/2014

Completion date:

Funds used (if different from award amount): \$7,000

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Brief write up of project/project experience (not to exceed 250 words):

This project provided for purchase of 3 LED automated (moving light) lighting fixtures to be used in Department of Theater productions. These fixtures have been utilized in 2 departmental production since their purchase in January of this year and they are being prepared to use in our final show of the season. Both of the productions were designed by students and all productions utilized students exclusively in the hanging, circuiting, and programming of the fixtures. The purchase for these fixtures was delayed until January so we could do more thorough research on the fixtures available in this fast changing technology. This included a short term demo during the fall semester of one of the fixtures we eventually chose so that we could prototype the fixture in our spaces and verify we were making a wise choice. As they are moving lights, each of the fixtures has been utilized in lighting plots as theatrical "specials". This allows each fixture to do the work of multiple conventional fixtures thereby reducing the number of higher wattage conventional fixtures needed for the given production and yielding a significant savings in energy consumption. Also as they are color changing LED fixtures they eliminate the need for disposable color media and replacement lamps.

Best things learned/produced from project:

It has been only recently that technology to effectively dim LED sources has been perfected to a level appropriate for Theatrical usage. There are still some low level dimming anomalies with some LED fixtures on the market, however, fixtures purchased with this phase of the project have far superior dimming curves than those purchased previously. Balancing color temperature with LED and conventional incandescent fixtures can be challenging. At the recent USITT national conference a number of the conference sessions in the lighting area were devoted to this very issue. With the increasing number of LED theatrical lighting fixtures being developed by manufacturers, it is clear that this technology has become a permanent part of the entertainment industry.

How do you define sustainability?

Anything that reduces the burden on our environment either through more efficient use of resources or reducing waste materials is contributing to sustainability. This project has confirmed this notion in both regards through measurable energy consumption reduction and reduction in the usage of disposable materials, i.e. color media and replacement projection lamps.

Has this changed over the course of your project? If so, how?

What do you see as the next step for the project?

Clearly the additional opportunities to integrate this technology are numerous. There are LED fixtures available on the market to replace virtually every type of fixture in the Department of Theater's inventory. While in some cases the LED alternatives could be considered cost prohibitive, the long term saving suggest it is the appropriate path to pursue. The next logical place in our inventory to consider for replacement would be our conventional ellipsoidal reflector spotlights. This fixture makes up the bulk of our inventory and typically will be 70 to 80% of any given lighting plot. The best fixtures available on the market for this application market for approximately \$2,400 per unit. With over 200 such fixtures in our inventory total replacement would be a costly endeavor. Perhaps we could consider phasing in fixtures over time. Also, hopefully as the technology develops and more comparable alternatives reach the marketplace price points will come down.

Optional: Do you have any suggestions for the SIU Sustainability Council to improve the Green Fund award process?

\*Attach a minimum of five images – these will be used to promote interest in Sustainability Council projects. These can be photographs of the progress of the project, the completed project, or promotional materials.\*

Attached are the following:

1. Purchase invoice for the above mentioned lighting fixtures
2. Photo of a student testing one of the fixtures before installation into our latest production.
3. 2 Photos showing looks created utilizing these new fixtures in *The Whipping Man*, Lighting Design by Delaney McKenzie graduate design student.
4. 2 Photos showing looks created utilizing these new fixtures in *Last Seen Alice*, Lighting Design by Stephanie Chavez undergraduate theater major.