**Racquetball Court Energy Reduction Project**

**Campus Recreation, Activities and Recreation Center.**

The Racquetball Court Lighting Project was funded by the Student Sustainability Committee through an interest free loan of $75,000. The scope of this project was to retrofit 192 fluorescent and 96 mercury vapor light fixtures in 12 racquetball and 3 squash courts at the ARC. Once completed, occupancy sensors were installed in all 15 courts and connected to the main master lighting switch behind the member services desk. Planning and engineering work for this project began in June of 2009 and construction work began August 20th, 2009.

 The construction phase of this project went smoothly. Ceiling access was a primary concern during the project but most of the old fixtures were easily replaced with minimal labor. Due to this reduction in expected labor expenses the overall project cost less than quoted and finished 2 weeks early. The lighting retrofit and occupancy sensor installation was completed on October 1st and the relay panel for each court was wired on October 2nd. Once the relays were tested the entire system was turned on around 3 pm. Other than a few minor adjustments, the entire system operated as intended with no failures.

 The overall cost of the project came to $61,203.69, a savings of $13,796.31 from the original quote. Campus Recreation has requested that the balance of these funds remain with the division to further fund energy reduction projects within our facilities. An account of the projects funded with this money will be provided to the SSC upon completion. The breakdown of the project costs are as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Facility and Services** | **Labor** | **Labor** | **Stock** | **Purchased** | **Total** |
| **Organization** | **Cost** | **Overhead** | **Material** |
| CONSTRUCTION ORGANIZATION SUPPORT  | $71.61 | $28.65 | $0.00 | $0.00 | $100.26 |
| ENGINEERING SERVICES  | $1,382.33 | $552.95 | $25.00 | $0.00 | $1,960.28 |
| ELECTRICIANS, CONSTRUCTION  | $21,762.59 | $8,704.88 | $2,880.29 | $25,795.39 | $59,143.15 |
| **Total** | **$23,216.53** | **$9,286.48** | **$2,905.29** | **$25,795.39** | **$61,203.69** |

 In an effort to track our actual power consumption in this area we requested use of a HOBO data logger from F&S that was installed on the lighting panel power feed. This device takes current readings at set intervals and logs the information to be downloaded. We used this to log actual current (amps) usage every 5 minutes during the construction phase and for 2 months after project completion. The data gives us a distinct picture of what our actual savings are for this area and have graphed daily averages to determine what our real savings are. As you can see in the following graphs we are seeing a very consistent reduction in power consumption and cost.

Daily Power Average

Daily Average Cost

The total average reduction for this project is 75.7% of previous power consumption or a yearly reduction of 129,226 kWh. This translates to an actual savings of $9,020.00 a year at $.0698 per kWh with a simple payback on the project of 6.78 years. The reasons for this inconsistency with the original proposal are power savings that were based on estimated, not actual, use and an unanticipated drop in electrical rates from $0.0736 to $0.0698 per kWh.

 I would like to convey the thanks of Campus Recreation to the Student Sustainability Committee for funding this project with an interest free loan and supporting our sustainability efforts at the ARC. We are planning a permanent plaque by the ball courts recognizing the SSC’s role.