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POWERLINES

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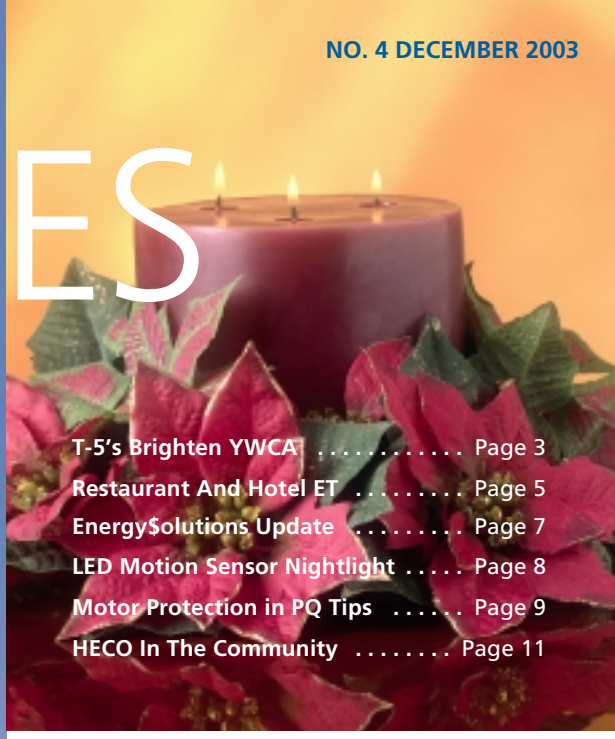


Mid-Pacific's New Technology Complex

A vision of tomorrow's curriculum today.

August 23, 2003 marked the grand opening of the Mike and Sandy Hartley Math/Science/Technology Complex and the Harry and Jeanette Weinberg Technology Plaza, one of only six such technology centers in the nation.

The new 42,332 square foot, three building complex, designed by John Hara Associates, Inc., includes 14 math and science classrooms, digital video studio, distance-learning center, biotechnology lab, meeting rooms wired for video conferencing and zones for engineering, computational science, robotics and design. The complex was built at a cost of $12.5 million.

The goal of the complex is to integrate the school's math, science and technology curriculums while bringing independent, integrated learning to the campus. Students will work with advanced educational equipment from Creative Learning Systems, and explore broadcast-quality video, audio production, DVD production, Web-based applications, distance learning, engineering, animation, publishing, mathematics, material science, aerospace technology, biotechnology, and aquaculture.

Continued on next page

To Our Valued Commercial Customers

ALOHA! Seasons Greetings and Best Wishes. May 2004 be a healthy and prosperous New Year for everyone! In our final 2003 issue, read about:

- Mid-Pacific Institute's second Ice Thermal Energy Storage System.
- T-5 fluorescent lamps lighting up downtown Honolulu's YWCA gymnasium.
- New appliances that Restaurants and Hotels are using to manage costs.
- LED Motion Sensor Nightlight that promises energy savings for hotel bathrooms.
- Motor Protection in PQ Tips.
- HECO people working in the community.

We encourage you to visit the HECO.com website, where you will find all kinds of useful information, and you can download a copy of *Powerlines.* Please call 543-4751, 94-POWER, or your Account Manager if you need information or assistance.

Happy Holidays From The HECO Energy Solutions Team!

Mahalo,

Dr. Karl E. Stahlkopf
Senior Vice President of Energy Solutions
and Chief Technology Officer

T5 HO

Cutting Edge Lighting Technology Brightens Historic YWCA

T5 HO. Sounds like a robot name straight out of a S*tar* W*ars* movie. In fact, T-5's are high output energy-saving, commercial/industrial **fluorescent lamps** with a broad range of applications. The "5" denotes a diameter of 5/12 of an inch. T-5 High Output (HO) lamps are superior to High Intensity Discharge (HID) lamps in terms of energy savings, life, uniformity, color rendering index, and instant on/off capability.

T-5 HO's are great for high bay applications, as they provide great color rendition and fast restrike for use with occupancy sensors. In contrast, the T-5's fatter ("8" denotes a diameter of 8/12 of an inch) cousin, the T-8's are good for low bay use, office or general lighting. T-5's are ideal for use in warehouses, retail stores, show rooms, indirect lighting applications, parking structures with high ceilings, hangars, and gymnasiums to name a few. They are even used in aquarium lighting. The T-5 HO lamps are said to help coral and plant growth.

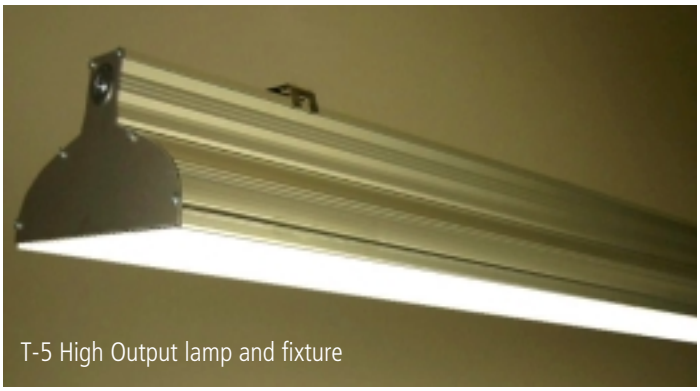
Because T-5's are so bright, it is hard on the eyes when looking directly at a bare T-5 lamp. T-5 and T-8 operate at nearly the same energy efficiency level, but a single four foot T-5 will use more energy than a four foot T-8. With similar efficiencies, this just means that the T-5 generates more light than a T-8.

"T-5 lamps have been around for a very long time, but the longer T-5 lamp versions have not been cost-effective until recently," said Derrick Sonoda, HECO Efficiency Specialist.

HECO Energy$olutions immediately found an application for this technology – the Young Women's Christian Association (YWCA) Laniakea Center gymnasium, right next to HECO's downtown offices. The YWCA has been serving Oahu for over 103 years. The Laniakea Center is an historical building located in the heart of downtown Honolulu and has a wonderful history. Many of us were unaware that the YWCA had a gymnasium. In fact, badminton, basketball, and volleyball, among other activities, are played there – both day and night.

The gymnasium was using mercury vapor lamps. These lamps could not be instantly turned on, and the light intensity in terms of lumens/watt slowly fades over time. Oftentimes, this gradual drop in lumens escapes unnoticed until you realize that the space is poorly lit.

As a technology demonstration, The Light Edge, Inc. provided the T-5 HO fixtures and electronic ballasts through their local distributor, Peter Dawson of Sunburst Designs at a reduced cost. GE Lighting's Glenn Sameshima donated the T-5 HO lamps, Energy Conservation Hawaii's Darren Kimura donated half the cost of the installation, and Bank of Hawaii provided the use of a compact hydraulic high-lift to reach the light fixtures.



T-5 High Output lamp and fixture

The results have been positive according to Clarence Allen, YWCA's Controller: "The basketball school groups like it better. It was difficult to replace the old mercury vapor lights. These new T-5 HO lights are more efficient and because it's a fluorescent, it's easy to change out."

According to Joanne Iha, Director of Sales and Member Services, "The T-5 HO lamps provide a bright, uniform light, and there are less shadows and better illumination. There have been no complaints from our sports enthusiasts because of the bright lights."

The bottom line is that a team effort has resulted in the application of cost effective lighting technology that brightens both Clarence and Joanne's days and provides a 52% savings in energy costs!

What is T-5 HO technology?

T-5 HO (high output) is an energy-saving, 5/8 - inch diameter fluorescent lamp with a broad range of commercial/industrial applications from task lighting to replacement for High Intensity Discharge (HID) high bay lighting.

T-5 HO lamps are superior to HID lamps for the following reasons:

- Up to 55% energy savings compared to mercury vapor lights
- Rated life of over 20,000 hour
- Output of 5,000 lumens
- 95% of initial light output maintained over the entire lamp life
- Uniform light distribution
- "Instant on" – no delay or warm-up period
- Color rendering index (CRI) of 85

T-5 HO lighting sounds interesting to you, please call us at 94-POWER, or contact:

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