UNITED ENERGY ASSOCIATES, INC.

A Lighting Conversion Case Study

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G. PIERCE WOOD
Memorial State Hospital, Arcadia, FL

"Our environment is extremely sensitive and our experience with outside contracting has frequently been unacceptable — Happily, all went exceptionally well when we chose UEA to implement this project."

Description:

G. *Pierce Wood Memorial Hospital,* located several miles southwest of Arcadia, Florida, is one of the state's four mental hospitals. It is also the first of these to take advantage of new lighting technologies both to upgrade light quality and to realize substantial operating savings. The hospital is situated on 150 acres and is comprised of 75 separate buildings which either house or support the 500 patient/clients and 1200 staff members. This lighting conversion was conceived in response to the state's making available grant dollars for energy conservation projects. The format for project qualification was very competitive and only those institutions whose projects promised a rapid return on investment (or payback) were selected for funding. *G. Pierce Wood* was the only state owned facility in central Florida that qualified for, and was awarded, grant funding for their proposed project.

Scope & Format:

Fifty-four facilities and 4,250 luminaires were targeted for retrofit. The project specifications called for upgrading all fixtures to 800 series T-8 lamps and parallel-wired, rapid start electronic ballasts. Three and four-lamp fixtures were de-lamped and reflectorized as appropriate. In specific areas, low-wattage electronic ballasts were employed and all exit signs were converted from incandescent to LED sources. Prior to finalizing specifications, an in-depth power quality analysis was conducted by the United Energy Associates, Inc's engineering staff to insure compatibility and enable performance warranties on lamps and ballasts chosen.

Constraints:

The primary area of concern on this project was one of safety – both to the client/patients as well as to installing team members. *G. Pierce Wood* is an "open campus" which places installers in direct contact with the patient-clients, some of whom are violence-prone to themselves as well as others. Control of tools, keys and refuse was clearly prioritized and the installment team completed the project without incident and well within the stringent completion date requirements.

Results:

The reduction of kilowatt demand as a result of this conversion was in excess of 220 KWD which will result in annual KWH savings of over 1,100,000 kilowatt hours. Under most situations additional savings are available by the application of occupancy sensors but, in this facility, lighting is subject to specific regulations controlling burn times. Should utility rates remain stable, *G. Pierce Wood* will save over $80,000 annually in energy costs. The maintenance staff was happy with the generous warranties on lamps and ballasts — plus the parallel-wired ballast feature relieves them of the pressure of emergency maintenance response times. Lighting quality has been dramatically improved with the upgrade from traditional T-12 ES fluorescents to the tri-phosphored 800 series T-8's. Before and after light meter readings revealed that light levels have increased by an average of 21% as a result of the retrofit. An additional upside to this project was its qualification for rebate dollars. *G. Pierce Wood* resides within the rebate district of a major power supplier offering demand side management incentives. The upshot was a $35,000 rebate check which, when applied against cost, helped to create an 18 month payback schedule or a whopping return on investment of 75%.

Environmental Impact:

The *Florida Department of Energy* conversion figures confirms that this lighting retrofit will result in the annual elimination of over 1,800,000 lb. of carbon dioxide from atmospheric pollution.

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