



## Case Study: Cathedral of St Paul/Episcopal Diocese Offices, Boston MA



The Cathedral of St Paul is a large, early 19<sup>th</sup> century facility is opposite the Boston Common and Park Street Station, in Boston. The original building (pictured at left) provides access via a hall (entered through door at lower right) to two additional mainly office and meeting buildings, at rear and fronting on Temple Street. The offices serve the staff of the Episcopal Diocese of Massachusetts, including 3 bishops.

The age and diverse nature of the spaces and uses presented a challenge for energy conservation. A first step was to reduce electricity use associated with lighting. Some spaces are contemporary offices, with both private and open areas. There are meeting rooms. Finally the main worship space is massive. Each space has different times and patterns of use. Importantly, each space had different types of lighting fixtures and bulbs. The challenge came in figuring out just what to do in each space. The Diocese was able to call on the services of Prof. Bob Schudy of Boston University. Experienced assistance matters!



These are the major **Energy Conservation** actions involving lighting.

- **Easy**– Replace incandescent bulbs with compact florescent light (“CFL”) bulbs. Replace 3-way bulbs with 3-way CFLs.
- **Fairly Easy** – Install *vacancy-sensing* switches. Change the light-use “culture” so that staff and space users use lighting only when really needed.
- **More Difficult** – Replace halogen spot or flood lights with LEDs, including those that are dimmable. Replacing (or adding) dimming controls.

The biggest difficulty is large spaces with high ceilings is getting to the bulbs. The time and cost for labor to do so should be factored in. High-efficiency LEDs last 10 to 25 times longer than bulbs they replace, 50,000 hours or more! So cost savings on the labor side really add up, as do energy savings.

Electricity use in the last quarter of 2008 was only 86% that of the same period in 2007. This resulted in a savings of \$2,927 for the quarter, or nearly \$12k for the year. Total cost for all bulbs was under \$1,000, if purchased at retail and directly. With utility company rebates, direct cost can drop 70% or more. \$s saved can now go to mission and programs of the organization. And the environment is well served. The CO<sub>2</sub> reduction of nearly 20,000 lbs annually is the equivalent of taking about 2 cars off the road, or planting nearly 1,400 trees in about 2 acres! *August 2009 (updated February 2013)*