

Massachusetts Interfaith Power and Light

Case Study: St. James (Episcopal), Cambridge MA

St James is a large, 19th century facility in Porter Square, Cambridge. There are two building sections, the Church (shown at left) and a Parish Hall. In addition to worship and programs of the congregation, the building provides space for after-school programs, meetings and non-profit organization offices.



In 2003 St James was among the first to have MIP&L complete an Environmental Stewardship Assessment. That study found old, hugely inefficient heating systems (boilers, controls, radiation) and steadily mounting use and even higher rates of increase in costs. (*The old boilers and DHW tanks are shown in the photo at below.*)

Like many congregations, St James did not have the funds to

implement the findings at one time. Inexpensive actions (such as programmable thermostats and upgrade in light bulbs and fixtures) helped. But then the boiler failed for the funeral service of a beloved member. Action became essential both practically and spiritually.



These are the Major Energy Conservation Actions



***Heating** – The old oil-fired and very inefficient boilers were removed. New high efficiency (92%) gas-fired condensing mode hydronic boilers were installed. The entire facility was converted to hot water heat, eliminating steam. Many zones were installed, so that only what needed to be heated would be heated.

***DHW** – Domestic hot water generation converted to indirect fired storage tank using the high efficiency boilers.

The new equipment is seen above.

Results

***Heating & DHW** – CO₂ generated for heating and DHW only about 120,000 lbs compared to over 248,000 lbs if the old oil/steam system were still in place, a reduction of over 50%!

***Electricity** – Electricity use in 2008 only 80% that of 2001.

Total cost in 2008 for all utilities was about \$25,000, compared to an estimated \$47,760 if still on the old system. The CO₂ reduction is the equivalent of taking 14 cars off the road.