



First Parish in Needham, Needham MA



First Parish in Needham is a Unitarian Universalist church that has made some drastic changes to its property in order to meet its growing membership and size requirements. First Parish is a great example of a house of worship that was able to take advantage of necessary renovations and create a building that would be environmentally friendly. Activity started in 2002, when it became evident that the steeple was in great need of repair. The congregation decided that it would be a good time to overhaul much of the church to increase its size and create a better structure. In 2004, a Strategic Planning Committee submitted a report that outlined the construction of a new church building that would be 25% bigger and much more efficient.

The decision was made to keep a lot of the original building to conserve materials and retain some authenticity. After raising their goal of \$2 million in late 2006, the church began construction in 2007 that carried through to mid-2008. During the construction, the church took advantage of many opportunities to make the building as green as possible. This would save them money in the long run on energy bills as well as save the earth from harmful pollutants. Every part of the building is now fully insulated and all windows are high efficiency thermopane glass. This ensures that the treated air for the building stays in the building.

All spaces are now their own zones, so only rooms that are used are heated or cooled. The church had a high efficiency air conditioning system installed that does not use harmful refrigerants. Their heating system works with heat recovery ventilation to save money on energy bills by employing a counter-flow heat exchanger to reduce heating (or cooling) requirements. The church had a Buderus gas-fired condensing-mode boiler installed rated at 92% efficiency. (See photo at left.)



The church also made sure that even small fixtures and details were environmentally friendly. All construction materials were designed to contain minimal Volatile Organic Compounds (VOCs). The wood floors come from certified forests. All of the light fixtures are high efficiency (mostly fluorescents) and most rooms have motion sensors that automatically turn off lights if the room is not being used. Many of the lights are also dimmable and programmable, so that they may be turned off at certain times according to a space use plan. The building was designed to have windows that let in a lot of sunlight, minimizing the requirements

for light fixtures. Also, many of the appliances in the building are Energy Star products.

NSTAR provided \$13,350 in rebates for the various energy efficient building mechanics it has implemented. The congregation is pleased with its decision to go green and is currently working on obtaining 5KW solar panels on its back roof to continue the trend.



Rendering of the redesigned First Parish buildings.



The congregation is able to share an adjacent parking lot with the town of Needham, so no additional impervious surface was created; site gardens were retained. South-facing windows provide natural heating via solar gain in winter.



4" Icynene foam insulation was used in basement walls. All other parts of the church are insulated with either 6" or 12" blown fiberglass or cellulose fiber. Insulation ensures minimal thermal exchange between the building air and the outdoors.



The roof over the old Parish Hall no longer met building code requirements for structural loads from snow. The new roof has a lower pitch, giving the historic Sanctuary more prominence. Roof has 12" blown fiberglass insulation.



The high-efficiency HVAC (Heating, Ventilating, and Air Conditioning) system is connected to an Energy Management System (EMS) that allows the user to modify the heating schedule remotely via the Internet.



Parish Hall has many large windows providing natural light. Shading is used in summer to reduce cooling needs.