



## WISCONSIN CONFERENCE

UNITED CHURCH OF CHRIST

### **Sprouting up Green from the Ashes**

*by Rev. David Huber, Creation Care Team member*

The evening after the September 2016 fire that burned down the church building of Plymouth UCC Eau Claire, the Leadership Team of Plymouth came together to discuss what to do in the wake of the tragedy. At that first meeting, we decided that rebuilding as environmentally-friendly as possible was an essential part of whatever plan we came up with, within the capacity of our budget.

Our insurance policy covered us for the replacement cost of the building and the contents. We were also fortunate that our policy had an extra \$50,000 rider for green improvements. That gave some wiggle room for making the new building more efficient than the local code requires.



Without getting too specific, and in a somewhat random order, here are the things that were done to help with energy efficiency, many of which could be used in current buildings or could be considered for anyone doing a remodel or adding an expansion.

We installed only LED lights, and every light (except the ones in the sanctuary) is on a motion detector switch and a dimmer. They automatically turn off after ten minutes of non-use, and can be adjusted to emit less light when full lighting is not needed. We have put many of those lights on manual mode since we found that just walking outside the office would turn on the lights in the hallway, the narthex, the fellowship room, and the kitchen. The sensors are a bit too sensitive! But even in manual mode, they still automatically turn off when no motion has been detected. We also replaced all our driveway and parking lot lights with LED ones.

Our building is on a very well insulated concrete slab, the outside walls are insulated to R-19, the roofs to R-50 with vapor barriers and air sealers, the ductwork is insulated at R-12, and the inside walls are all insulated as well (for both heat and sound), value unknown. We installed high-efficiency furnaces (forced air) and air-conditioning, all with

programmable thermostats, zoned into seven different areas so that we can heat and cool only the specific areas being used. Our sanctuary is an eighth zone, with its own super deluxe (and super huge) furnace/air-conditioner that was required by city code because of the size of the room. This does many things a normal unit doesn't do regarding air exchange, efficiency, and other things the city requires for energy efficiency and for people's health in large gathering spaces, but perhaps the most impressive is that it will balance the outside temperature with the inside temperature needs so that, for example, in the summer it will bring in cold air during the night to lessen the amount of air conditioning needed the next day. It does the same for humidity and does a bunch of other things I haven't had time to read the manual about. It is also on a programmable thermostat, plus with all the fancy things it does, it runs on its own computer as well.

We have low flow toilets and hand sensors on the bathroom sinks. Our refrigerator and freezer are commercial grade high-efficiency units with computerized temperature controls and warnings when the temperature gets out of whack. Our dishwasher is a high-efficiency under-counter commercial unit that has its own heater to get water to the proper temperature for food safety (ca. 190F), which allows us to keep our water heater at a more sensible and efficient temperature. Our main sink's pre-rinse spray valve is rated at a fairly low flow rate of 1.42 gallons per minute, compared to the usual 3-5 gallons per minute for a commercial unit, though it is still above the 1.3 gallons per minute required to be considered a high-efficiency sprayer.

We have little data so far to be able to compare energy cost savings to previous years, but we can do a comparison of the last December of the old building (2015) and the first December of the new building (and which was also the first month since we moved in that we would have had the furnaces running for an entire month). In December of 2015, we used 3120 kWh of power, compared to 2640 kWh in December 2018. In December 2015 we used 235 therms of natural gas, compared to 326 in December 2018. It's not much data to go on, but the average outside temperature in December 2015 was 32F and December 2018 was 23F, so that would lead our 2018 gas usage to be higher). But we can see in regards to the electric usage that even though our new building has more lights in it, and it also has many more computers and other doodads that are on all the time, including the outside lights (security for building, parking lot, and driveway) that are now on whenever it is dark (versus only a few hours in the evening in the last building), we are using a lot less electricity.

This is only one month's worth of data, but it does appear that adding all the efficiencies we did helped reduce the energy load of the building, and thus our carbon footprint. Anecdotally, in the bad weather of February in Wisconsin, many homes and businesses in the Eau Claire area were suffering from ice dams and icicles, but our new building did not see the formation of either.

Through these efficiencies and the equipment/appliances we put into the building, we received a \$2140.53 incentive grant from Focus on Energy, and \$1070.27 from Xcel Energy.

This fall, when our contract with our current garbage company is up, we will be switching over to another waste disposal company that is local, hires a number of people with disabilities, and is the only one in the area that recycles organics (food, paper towels from the bathrooms, cloth, paper plates, pizza boxes, etc.) which they use to create a large compost pile for the community to use. That will also help reduce our carbon footprint and reduce the garbage going to the landfill.

Any of these could be used by a congregation to increase the efficiencies of a current building, though perhaps not as easily as designing them into a new construction project. But we didn't really do anything particularly fancy, cutting-edge, or expensive, mostly because we just didn't have the money for it. So even by doing things that probably any homeowner or church owner would be able to do, we'll be making a difference in our energy usage, and making a difference in our care of creation.

And also, if you haven't done so in the past couple of years, talk to your insurance agent and go over your policy and make sure that you actually have the coverage you think you have; and more importantly, that you have the coverage that you need or might want to have to be able to cover things like greening a building after a disaster.

Rev. David Huber  
Plymouth UCC, Eau Claire, WI