

Final Report of the Cool Campaign August 2007

The Cool Campaign Committee was appointed in 2004 to oversee expenditure of the \$126,000 raised by the April 2005 capital campaign of the Davenport Unitarian Church. Principal among the plans for the campaign were the following goals: air condition and provide new chairs and carpeting for the sanctuary, paint the exterior of the church, renovate the Social Hall and extend the life of the current surface of the parking lot. Below is a summary of what was accomplished, specifying vendors, materials, workers and costs; and outlining the needs that remain to be addressed.

1. **Heating and Air Conditioning:** The goal of air conditioning the sanctuary, estimated to cost \$40,000, plus an additional \$1,500 in operating costs, grew to include retrofitting the entire heating, air conditioning and hot water system of the church with geothermal wells and high efficiency pumps, the final cost of which was \$136,000, plus \$2,000 for a detailed energy efficiency study. At the time of the project, this is thought to have been the largest retrofit geothermal project in the Quad Cities. The vendor, chosen from three bidders, was Bill's Heating of Moline, led by Ron Gulley; the principal company contact was Dick Hartvigen. The 26 150-foot wells were drilled in level ground east of Eastern Avenue by a subcontractor, Arnold's Geothermal Drilling. Phil Kester and Jack Wiley planned and spearheaded the major task of filling the geothermal trench leading up the hill to the church, adding two additional spigots for water connected to the exterior water supply at the church, and grading and reseeding the area. (The trench and well area are marked with a buried ferrous wire.) Henry Becker was the primary contact with Bill's Heating for the interior portion of the project.

Geothermal Efficiency Analysis

How much has geothermal saved the Unitarian Church of Davenport in terms of utility costs? We now have enough data to attempt an answer. We have geothermal costs for a full year, from April 2006-March 2007, which we will call *G*. The geothermal system was entirely operational during this period. For comparative purposes, we have electric and gas bills for three prior years, November 2001 through October 2004, called *H*, compiled by Blaise Stoltenberg of Midwest Sustainable Resources. Data for *G* and *H* are in Excel files forwarded with this report.

First, how do the two periods compare?

H: Average electrical usage was 34,812 KWH/year, for an average annual cost of \$3,394, including taxes. The average cost per kilowatt hour, including all charges, was 9.75 cents. Gas usage averaged 5,996 therms per year, with an average annual cost of \$5,037, and an average cost per therm of 84.006 cents. Total average annual costs for *H*, then, were \$8,431.

In addition, if the church had conventional air conditioning in the sanctuary, the estimated additional annual cost would have been \$1,300, for a total average annual cost for *H* of \$9,731. (This estimate was provided by Bill's Heating *before* the church began considering the possibility of geothermal.)

G: For the period April 2006-March 2007, gas usage dropped to 296 therms for a total cost of \$411.45, with a cost per therm of \$1.39. This decrease of 95.05 percent reflects the fact that the only gas appliance now in use is the kitchen stove. On the other hand, total electric KWH use rose to 106,498, for a total including taxes of \$9,269.93 for electricity and a cost per KWH of .08704 cents. (This assumes that tax rates and lighting charges were the same for both study periods.) Of the total electric usage, 32,270 KWH times .08704 = \$2,926.89 were attributable to geothermal, as measured by last-minus-first 12-month readings of the meters attached to the six geothermal units.

There are several adjustments necessary here to compare pomegranates to pomegranates. First, the total rate per KWH for G is 11.2% *lower* than that for H, so total electric costs should be adjusted accordingly to reflect this deflation. The rate for gas went up slightly. So, adjusting for these differences, gas costs for G are \$248.66 (296 times .84006), and electric costs are 106,498 times .0975 = 10,383.56, for an adjusted total of \$10,632.22.

Using the KWH rate for H, .0975, the number of kilowatt hours for air conditioning the sanctuary would have been \$1300 divided by .0975 = 13,333. If other electrical usage had remained constant per the 2002-2004 study period H, total electric usage would have been 67,082 plus 13,333 = 80,415 average annual KWH, contrasted with the total of 106,498 KWH for G. The extra 26,083 KWH likely reflects increased use of lighting at the church, plus installation of a fan to prevent stagnant air in a storage area in the basement.

The adjusted cost of heating during H, then, was \$5,037 for gas, plus the estimate of \$1,300 for air conditioning the sanctuary, and an indeterminate amount for heating and (especially) cooling from electricity, which was not separately metered, for a total of at least \$6,337. The adjusted cost of heating and air conditioning during G was 32,270 KWH X .0907 = \$2,926.89, a decrease of 53.8 percent. This is not equal to the 75 percent reduction promised in the geothermal contract. However, lacking separate metering, particularly for air conditioning during H, the exact figure cannot be determined.

2. **Exterior painting** was done by Scott Patchin's firm, Creative Decorating, of Rock Island, for the bid price of \$17,600, including two coats of Sherwin Williams latex paint, plus preparation and resealing the grooved soffit areas with high gloss spar varnish. The paint was tinted to match the existing finish on the building.
3. **Sanctuary.** The exterior color tint was used to repaint the interior window frames and painted trim in the sanctuary. The work was done by church volunteers, and took four Saturdays to complete.

The plastic chairs in the sanctuary were replaced with 200 Uniflex Apex chairs (with wooden legs). These chairs, including 20 with arms, are upholstered in Willow Green. Jack Wiley spent a great deal of time coordinating this part of the project; previous adventures with other chair vendors involved Len Adams and Henry Becker, together with the other members of the committee.

Hudson Floor Covering of Rock Island installed new carpeting in the sanctuary using Aladdin by Mohawk style 7141 overlay color 529 Glen Shadow. Judy Stengel coordinated this part of the project. The initial installation had to be replaced at the manufacturer's cost because of a flaw in the pattern. In addition, VanHorn Hardwood Floors, of Bettendorf, lightly sanded and recoated the parquet floor in the sanctuary with medium-gloss polyurethane. This resurfacing cost \$500.

American Electric, a subcontractor on the geothermal project, corrected some code violations with wiring in the sanctuary, and also installed outlet boxes on the outside of the church to facilitate placement of thermostatically controlled heating coils to prevent ice buildup on the roof. Bos Electronics installed spotlights to light the stage portion of the sanctuary (\$1900). The spotlights required installation of two 20-amp outlets, done by American Electric for \$1,000.

4. **Social Hall:** Social hall renovation included ceiling tile replacement, new lighting, painting of walls and trim, and replacement of rubber baseboard molding. The ceiling tile was Armstrong item 755B fissured 5/8" X 2' X 4', from Westmont Interior Supply, Bettendorf, at a cost of \$542. Light fixtures were four-bulb T-8 Lithonia fluorescent fixtures with oak ends, from Home Depot: the cost, including natural-light bulbs, for 16 fixtures, was \$1,112. Paint matched the existing color. Beige baseboard molding was also purchased from Home Depot. Cost of these and other materials was approximately \$400. This project was completed in five Saturdays entirely with volunteer labor.
5. **Window Replacement:** Henry Becker is working on replacement of windows on the southeast side of the building with thermo pane glass, and with safety glass along the stairway leading from the front hall to the Social Hall. Henry Becker is pursuing this project.

Following are some major unmet needs that we've had to leave to the next capital campaign:

1. Resurfacing the parking lot. The interim solution, using crushed rock and tar, would have cost an estimated \$8,000 (this does not include an anticipated increase in the project resulting from the spike in petroleum costs that occurred in 2005-6). Complete asphalt replacement has been estimated to cost \$40,000. Part of this job entails grading and perhaps other water management that will channel runoff to the detention area at the foot of the hill, to be developed as part of the landscape master plan. The objective of water detention might involve an evaluation of using pervious materials for part or all of the parking lot, together with trees located so as to provide shading for all parked cars. Implementing this last suggestion would reduce the use of gasoline for air conditioning cars during the summer.

2. Replacing the wood deck along the outside of the church (note that the stairway was new in 2004).
3. Installing a new floor in the Social Hall. This will be a major undertaking. The mastic for the existing tile floor contains asbestos, so removal would be expensive. Installation of a floating wood floor leaving the existing flooring in place would also be costly, and might not have the durability of the existing floor.

Cool Campaign Committee members were Henry Becker, Vivian Becker, Judie Lance, Kathryn Allen, Jack Wiley, Judy Stengel, Phil Kester, Marilyn Kester, Emily Smith and Len Adams.

Implementation could not have been attempted, much less completed, without the assistance of many donors and other church volunteers, some of whom worked very hard. In addition to the members of the committee, workers included Jon Halladay, Kriss Wells, Martha Easter-Wells, Larry Huggins, Julie Ross, Cindy Sadlek, Mike Condon, Jerry and Dottie Wala, Dick Kasper, John and Kathy Bowman, Cathy Weideman, Sue Witte, Lana Long, Mike Traylor and Connie Sauer-Adams. My apologies if I've forgotten anyone.

Len Adams
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