

Restaurant turned Chiropractic Clinic is Energy Efficient and Healthy

CASE STUDY

Focus on Energy, a statewide service, works with eligible Wisconsin residents and businesses to install cost-effective energy efficiency and renewable energy projects. We provide technical expertise, training and financial incentives to help implement innovative energy management projects. We place emphasis on helping implement projects that otherwise would not get completed, or to complete projects sooner than scheduled. Our efforts help Wisconsin residents and businesses manage rising energy costs, protect our environment and control the state's growing demand for electricity and natural gas.

To learn more about Focus on Energy,SM call 800.762.7077 or visit focusonenergy.com

When Dr. Patrick Hickman's growing chiropractic practice prompted a search for a larger space, he and his wife, Linda, were delighted to find an existing structure—a former Country Kitchen restaurant—that met their requirements for size, location and parking. Unfortunately, the circa 1976 building lacked any energy-efficient features. "It was built during the era when conserving energy meant turning off the light when you left the room," said Hickman.

Hickman wanted to create a space that was energy-efficient and patient-friendly and he knew just where to turn: Focus on Energy, Wisconsin's energy efficiency and renewable energy program. With the help of Bobbi Rongstad, an Energy Advisor at Focus on Energy, Hickman now has a building that doesn't sacrifice comfort for energy efficiency.

"Bobbi was able to assess our needs and put us on track to take the existing structure and move it toward an efficient building," said Hickman.

The project, which Rongstad describes as a complete "gut and remodel," focused on three areas: insulation, lighting and heating/cooling.

INSULATION

Conventional insulation options include fiberglass batting, rigid extruded polystyrene, rigid bead board and blown cellulose; each of which posed issues with installation or potential side effects. Understanding the balance that Hickman wanted to strike between energy efficiency and safety, Rongstad recommended a less well-known alternative: soy-based insulation.

This option offered superior energy efficiency—an R-factor of 6.3 per inch vs. an R-factor of 5 per inch for runner-up, rigid extruded polystyrene—and was available as a blown foam that could accommodate the structural challenges the building presented.

"The ceiling was laced with electrical conduit, ductwork and structural beams, and in the former kitchen area there were a lot of ventilation openings that had to be sealed," said Rongstad. "Rigid foam worked well on the block walls and the spray foam



Dr. Hickman's office utilizes awnings to help control the amount of heat from sun light to manage AC costs.

gave them an effective way to seal up holes and deal with beams and the like."

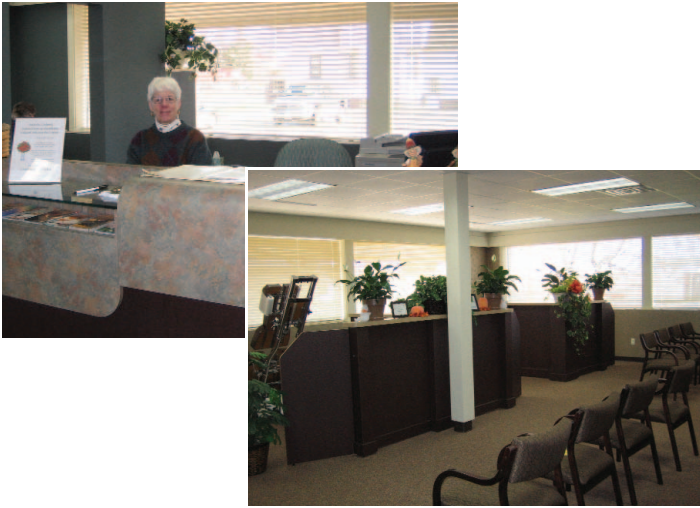
Plus, the soy-based insulation was extremely people-friendly. The foam was installed using a water-based blowing agent and soy insulation presents no problems with outgassing—the release of volatile organic compounds that have been linked to health problems, and could have been a concern with the traditional insulation options.

LIGHTING

Because windows wrap the entire north side of the building, and half of the east and west, much of the building can take advantage of natural light. Hickman complemented this light with 5,000 Kelvin fluorescent lamps—in both overhead and wall fixtures—which mimic natural light quality and have been shown to improve visual acuity.

To ensure that this "feels good" environment was also energy efficient, Rongstad researched and specified high performance T8 lamps and ballasts for overhead lights, which were installed in standard two feet by four feet ceiling mount fixtures. These save over two kW of demand and over 7,500 kWh annually when compared to standard T8 technology.

"Frankly, it does take some persistence to find these—they're not yet an off-the-shelf item and not every contractor will be familiar with them. But that's one advantage of working with Focus on Energy: we'll take the time to learn about new technology options that could be of benefit to you," said Rongstad.



The existing building was a former restaurant that required a complete remodel to accommodate Dr. Hickman's needs and desire for energy efficiency best practices.

To save additional energy, Rongstad also recommended occupancy sensors in restrooms and meeting rooms. These devices cost about \$50 a piece and have a payback of two to four years depending on the number of fixtures controlled and how frequently they are used. Rongstad is currently working with Hickman to relamp the parking lot. "Dr. Hickman wants his parking area to be safe and welcoming without overlighting the space and using more energy than necessary."

HEATING/COOLING

With winter temperatures that are often in the single digits, energy-efficient heating is critical. Rongstad agreed with the recommended two natural gas forced-air furnaces with separate zone controls. Each is outfitted with an efficient ECM (electronically commutated motor) blower, and together the furnaces will save roughly 732 therms of natural gas and 2,822 kWh annually. Programmable thermostats save an additional 222 therms and 232 kWh.

Cooling is less of an issue given the clinic's location just four blocks away from the chilly breezes of Lake Superior, so Rongstad agreed with Hickman's decision to install an A/C system that met code without going over and above the efficiency requirements. And although the extensive bank of windows would seem to be a drain on the building's A/C system, overhangs—and excellent insulation!—help to counteract its effect on hot summer days.

"Sometimes people hesitate to go with energy-saving options because they seem to be more expensive. But when you look at the long-term savings that's often not true. Focus on Energy can help you to evaluate which choices make sense for you," says Rongstad.

PROJECTED PROJECT ENERGY SAVINGS

Savings are based on estimated energy costs of \$1 per therm of natural gas and \$0.075 per kWh.

Heating System	Therms	kWh
Furnaces	732	2,822
Thermostats	222	232
Lighting		
Exit lights		1,788
Sensors		1,780
HP T8s		7,564
CFLs		4,200
CFL wall packs		1,400
Insulation	1,600	
Total	2,554	19,786
Annual savings	\$2,554	\$1,484

FOCUS INCENTIVES

- Insulation: \$494
- Heating and thermostats: \$350
- Lighting and controls: \$848

HOW CAN FOCUS ON ENERGY HELP YOU?

"From floor to ceiling, and front door to back, Focus on Energy was able to give us energy-conscious options. We were able to make choices that were good for the building, the environment and the occupants without compromising on efficiency or safety."

Dr. Patrick Hickman
Hickman Chiropractic Clinic
Ashland, Wisconsin

Rehabbing an existing facility? You can "go green" and still stay in your budget. To learn more about effective ways to improve the energy efficiency of your facility, contact Focus on Energy. Our Energy Advisors offer in-depth, up-to-date knowledge on new technologies and offer a neutral, third-party perspective that can help you to determine the most effective ways to solve your energy challenges.

For more information, call 800-762-7077 or visit www.focusonenergy.com.