



**B**rian Halbrook has been a do-it-yourself man for as long as he can remember. For this reason, he knew that if he wanted to work at one of the best auto body shops in Illinois, he'd have to create it himself. That's exactly what he did in 1987 when he opened the doors to his one-man shop, beginning his journey toward the American dream.

Since becoming his own boss in the '80s, Halbrook's business, Halbrook Auto Body, has grown into a very busy, very well known shop that many in the area use when their passenger cars or trucks are in need of auto body restoration. He now has a staff of six full-time employees and one part-time staffer. However, his successful growth called for more than just additional manpower – he needed a new location to accommodate the number of vehicles repaired on a daily basis.

The new and improved Halbrook Auto Body facility opened on September 1, 2005, and is 10,500ft<sup>2</sup> in

## Halbrook Auto Body Shelbyville, Illinois

total area. The structure is a one-story metal building with a concrete slab-on-grade floor. A shop area comprises about 8,700ft<sup>2</sup>, while a 1,800ft<sup>2</sup> office is located in the northwest corner. Both of the areas are heated and air-conditioned.

Activity within the structure is light industrial (auto body restoration) and office work. The facility maintains an average occupancy schedule of 8:00 am to 6:00 pm, Monday through Saturday. The maximum number of people occupying the facility is usually about 20.

### Seeking Solutions Through Energy Efficiency

Halbrook works to maintain a friendly workplace by recycling workplace materials and other recyclable items, committing to conserve energy when possible, and most importantly, maintaining a commitment to create a healthier workplace.

“We have two frame machines, a drive-through downdraft paint booth and an air-filtration system to paint cars with,” said Halbrook. With all this equipment, it would be easy to choose lower first-cost energy options, but not without compromising the safety of his staff and the quality of their work. “It's important to have a good building for the health of my employees... that's why I did it.”



When he first decided to open a larger facility, Brian Halbrook had his Shelby Electrical Cooperative representative, Chris Spears, come out to discuss ways he could minimize his energy use while keeping his shop a healthy and comfortable place to work. Taking his needs into consideration, Spears suggested Halbrook contact the Small Business Smart Energy Program's Smart Energy Design Assistance Center (SEDAC) team to see if its free technical assistance services could improve on his new building's design.

Building envelope, lighting and HVAC energy savings measures were evaluated. Various HVAC options were analyzed, and the geothermal heat pump system with radiant floor heating was found to have the most favorable return on investment. The analysis also showed favorable savings for switching out incandescent exit signs for LED exit signs. Additionally, the implementation of programmable thermostats providing thermostat setback opportunities, a revised shop lighting design including thirty, six-lamp 32-Watt T-8 fluorescent high bay fixtures, and a revised office lighting design including energy-efficient 25-Watt T-8 fluorescent lamps and electronic ballasts were found to be greatly beneficial.

## Small Changes Add Up To Big Savings

As a result of the analysis, the Smart Energy Design Assistance Center was able to show how the implementation of a geothermal heat pump heating and cooling with radiant heating in shop, high bay fluorescent lighting fixtures in the shop area, energy efficient fluorescent lighting in the office area, LED exits signs in the shop and office area, and programmable thermostats could help Halbrook Auto Body realize annual electricity use of 60,124 kWh and no natural gas consumption at all. For an additional cost of \$32,505, an annual savings of \$5,320 would apply if all recommended measures were implemented.

After the SEDAC team confirmed this data, Brian Halbrook was provided with a detailed report showing the costs and savings associated with the recommended energy efficiency upgrades. Once Brian had a chance to look over everything, he opted not to install the geothermal heat pump due to time constraints on his construction and his ability to get a very efficient three-phase, 13 SEER forced air unit from Trane with 92% efficient furnaces.

However, he did install a White Rogers programmable thermostat and followed the



suggested lighting design by installing 4’ T-8 lamps that are housed in 8’ fixtures. He also went a step further and installed high efficiency windows by Anderson to ensure his facility stayed comfortable year-round.



### **Increased Profits, Comfort and Safety Through Energy Efficiency**

Now that all the upgrades have been completed and the doors of Halbrook Auto Body are open to vehicles from Shelbyville and beyond, Brian is pleased with the rewards of his added efforts. The energy conservation measures he installed into his body shop will save him more than 12,042 kWh of electricity and 210 therms of natural gas annually. These savings will result in nearly \$1,200 in annual cost savings just from making energy efficient improvements to his original design.

While sacrificing nothing but a little time and a small amount of up-front money for the more expensive lights, Brian has increased his profit margin by an average of \$100 per month. As energy costs increase, Brian will save even more, growing his profits without any added work on his part. This increasing profit margin will continue

for the life of the measures, which could be as many as 10 years, resulting in potential savings of more than \$12,000 over the lifetime of the measures.

The Small Business Smart Energy Program was developed for businesses like Halbrook Auto Body. Brian is extremely pleased with the service and the guidance he found through the program, helping him make his building even better.

When asked about his thoughts on his efforts, Brian humbly replies, “We strive to get it right the first time in our business, and that’s what we’ve done for our building, too.”

Proof of their success in doing so is evident – just bring your car by Halbrook Auto Body for a paint job sometime and see for yourself.

#### ***Annual Energy Savings Details***

**Electricity Savings:** 12,042 kWh  
**MMBtu saved:** 62  
**Natural Gas Savings:** 210 therms  
**Annual Cost Savings:** \$1,200  
**Average Monthly Cash Flow:** \$100  
**Total Return on Investment:** \$12,000

#### ***Building Data***

**Location:** Shelbyville, Illinois  
**IL Economic Region:** Central  
**Office Space:** 1,800 sq. ft.  
**Shop Space:** 8,700 sq. ft.

#### ***Design/Build Team***

**Owner:** Brian Halbrook, Halbrook Auto Body  
**HVAC contractor:** Macari Heating and Cooling  
**Lighting supplier:** Casner Lighting

#### ***SBSE/SEDAC Team***

- The Illinois Department of Commerce and Economic Opportunity
- The University of Illinois at Urbana-Champaign, School of Architecture
- The Geothermal Heat Pump Consortium