



## Case Study: Professional Auto Body

Glenwood Springs By Cameron M. Burns, CLEER



# Lighting upgrade offers multiple benefits at Professional Auto Body

When Dave Malehorn, owner of Professional Auto Body in Glenwood Springs, agreed to an upgrade to the lighting throughout his 11,000-square-foot facility on Marand Road, he knew he'd save money on his electric bills.

But he was surprised by the quality of light from the new energy efficient fixtures that now illuminate the interior of the auto repair shop.

And he was even more surprised by the new energy efficient lighting that illuminates the exterior of the auto shop. "It makes it stand out," he said. "It makes it look much more professional."

Professional Auto Body is a typical light-industrial business in the Rocky Mountain West. The work they do inside demands good lighting. There, technicians cut, grind and weld metal car components.

### Lessons Learned

- New, energy efficient LED lighting can make your business look more professional
- New, energy efficient LED lighting can help your workers be more productive



Professional's co-owners Phil Pich and Dave Malehorn. Photos by Cam Burns

They paint pieces of cars to precise standards. And they screw together intricate sets of parts and panels to achieve perfect alignment. Being able to see properly is a necessity, not a luxury.

The shop's previous lighting was adequate. But in recent years, Holy Cross Energy has been encouraging its business customers to upgrade energy-using devices, including lighting, to more efficient models. Craig Tate, with Holy Cross Energy, had been encouraging Malehorn to take advantage of new energy-saving products on the market. But as Malehorn noted, "I never took the time to deal with it. It just seemed overwhelming."

In November 2013, Shelley Kaup,

an energy coach with CLEER, which runs Garfield Clean Energy, called Malehorn and again suggested he do an upgrade. Most importantly, she said, "I can make this really easy for you."

"I said, 'Now you're talking my language,'" Malehorn said later.

Kaup and Mollie Harte, title, of electrical and lighting contractor R&A Enterprises, visited Profes-

### The Upgrades

- Replaced old inefficient lighting throughout the building with more efficient LED lighting
- Replaced old inefficient exterior lighting with more efficient LED lighting

One of Professional Auto Body's paint booths before (left) and after the lighting upgrades. The photo on the left required a flash.

sional Auto Body. The pair convinced Malehorn and his business partner Phil Pich that the shop could benefit from a lighting upgrade. R&A Enterprises carried out the project in November and December 2013.

Malehorn said the projected savings—energy and cash—are impressive.

For an initial investment of \$17,400, Professional Auto Body got rebates of \$6,535 from Holy Cross Energy and \$2,500 from the Community Office of Resource Efficiency (CORE), making his total out-of-pocket cost \$8,365.

The electric savings were estimated by R&A and CLEER to be \$3,113 per year, meaning the upgrades are expected to pay for themselves in fewer than three years. It's the equivalent of a 35% return on investment.

But it's the quality of the lighting more than the savings that have been the big surprise for the longtime Glenwood Springs businessman.

With the old lighting, Professional Auto Body's technicians were working under anywhere from 25 to 30 foot candles (a measure of brightness) on the shop floor.

"Now we're at 65 to 82 foot candles," Malehorn said. "The amount of light we're getting out of these fixtures is just awesome. For the first two or three days, my guys were saying 'We need sunglasses.' It was pretty cool."

One of the more interesting retro-



fits was the lighting in the car wash bay. Old, inefficient lamps were replaced with G&G LED lamps configured in waterproof tubes. The lamps are stunningly bright.

One of the trickier aspects of lighting the 17 work bays in the shop is color rendition, and it prompted Malehorn and Harte to do a little sleuthing. All electric lighting produces color of some kind. Incandescent bulbs (those old bulbs with the heated wire which are now discontinued in the U.S.), for example, produce a warmer color, rated at 2,700 to 3,000 degrees Kelvin. Compact fluorescent bulbs typically produce a cooler light of white to blue with ratings around 5,000 degrees Kelvin, similar to the color of sunlight.

So in the paint booths, Malehorn and Harte had to figure out which of the new energy efficient lamps they were considering would best match natural sunlight. After all, a nice auto paint job that looks good under typical warm interior lighting could look really bad once the vehicle is taken outside.

"GE offers the lamp we used in the 28-watt energy saver series, with a super extended life of 80,000 hours," said Harte. "With this life rating, these lamps should last them



over 20 years.

"The energy savings is around \$500 per year. But they have also increased their light around 100 percent in the older booth and nearly 25 percent in the newer booth, and they will save thousands of dollars over the life of this project with the reduced maintenance."

Maintenance will be one of the most important aspects of the upgrade for Professional Auto Body. The new T5 lamps in the main shop are expected to last 40,000 hours and have a five-year warranty. The new G&G LED lamps in the car wash bay are expected to last 100,000 hours. By comparison, compact fluorescent bulbs last 6,000 to 15,000 hours and incandescent bulbs last 750 to 1,000 hours.

Between better quality light, long-lasting bulbs and lower electric bills, the owners and staff at Professional Auto Body are extremely pleased. "This really is a great upgrade for us," Malehorn said.

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