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SKYLIGHTS CUT ENERGY USE BRINGING SUNLIGHT INTO FORD AUTO DEALERSHIP

ENEREF INSTITUTE REPORTS HOW DAYLIGHT HARVESTING IN A FORD DEALERSHIP WITH RETROFITTED SKYLIGHTS CUT THE ENERGY COSTS.

Ford has an ambitious sustainability initiative and encourages dealerships to reduce their carbon footprint wherever possible.

Akins, one such Ford dealership near Atlanta, could be a model for energy reduction strategies. Akins Ford didn't start out looking to reduce their carbon footprint when they brought the light of day into their Georgia Ford dealership with skylights. But that's just what

CUSTOMERS DROP OFF THEIR VEHICLES FOR SERVICE AND SAY, 'WOW! IT'S SO MUCH BRIGHTER.'

To achieve a completely glare-free room, Sunoptics employs a prismatic pattern lens optically designed to evenly distribute incoming sunlight.

they did.

"As we got going," said Chris Akins, general manager of Akins Ford, "we could see there was some benefit to going green. But the first thing out of the gate was to decrease energy use."

The dealership's existing lights and furnaces were guzzling \$30,000 per month in electricity use and natural gas.

SKYLIGHTS RECOMMENDED

Reviewing their energy bills the auto dealership knew something needed to change. They contracted Atlanta based Frazier Service Company to audit their energy use. Frazier confirmed the dealership could cut overhead enormously if they were willing to invest. But now it was a matter of finding just the right technologies to invest in.

"They weren't quite sure what they needed," said Steven Hawn, a contractor with Frazier. "But they knew they were spend-

ing exorbitant amounts of money on energy."

Frazier recommended both lighting and HVAC upgrades. For the HVAC system, they encouraged Akins to purchase new waste-oil-powered furnaces and new boilers. They also advised the company invest in a lighting renovation, including efficient florescent high-bay fixtures and high performance modern skylights.

Akins Ford sought out a second opinion, confirmed the value of Frazier's recommendations and concluded to move forward. Akins hired Frazier to go ahead and implement the retrofits. The dealership replaced the HVAC system, added new furnaces and installed a computer-controlled energy management system to ensure the system was performing as planned.

But the most dazzling difference came with the lighting retrofit.

The original fiberglass skylights had yellowed over time in the

buildings where skylights had first been installed years earlier. To maintain proper light levels, the facility was running more than 3,000 460-Watt metal halide lights full-time. That meant the dealership was footing three big lighting-related bills: the energy to keep the lights on, the cost to replace the metal halide lamps when they burnt out, and an energy penalty to cool the facility from the heat generated by the metal halide lighting.

Frazier specified a combination of 219-Watt T5 highbay fluorescent light fixtures and Acuity brand Sunoptics prismatic lens domed skylights. The new florescent lights would be fitted with automatic dimmers, so the facility could take advantage of maximum daylight whenever it was available to the skylights.

INVESTMENT IN SAVINGS

Hawn explained how the modern prismatics skylights cast the best overall ambient light distribution pattern. A prismatic lenses throw a wider, more even light than old-fashioned flat-panel skylights, which only cast light straight down. The hard plastic double dome lets in plenty of daylight, but blocks UV radiation and heat — key features especially in the hot Georgia summers.

The dealership decided to make the investment. "We knew we had



MONEY IN THE BANK

Before the retrofit, Akins Ford was spending over \$30,000 in energy monthly to run their operation. Whereas after the retrofits, "their latest bill was \$12,400," said Hawn.

to spend money to save money," Chris Akins said.

The prismatic skylights meant a faster payback. Prismatic lens skylights are designed to take in the maximum light cast by the sun and redistribute it evenly. The thoughtful layout of the skylights on the ceiling eliminate dark corners, hotspots and glare. Because of the photometric distribution of the skylights, the dealership needed only 97 strategically placed skylights to bathe their space in beautiful, high-quality ambient daylight. The next best daylighting option would have required at least 140 skylights, explained Hawn. So, ultimately, the

dealership spent less on materials and installation for the Sunoptics domes than they would have with a lower grade alternative.

In addition to the skylights, the dealership replaced all of their old metal halide lights and ballasts with T5 highbay fluorescent fixtures and automated dimming ballasts. Photocontrols fitted beneath the skylights to measure foot-candle readings of the sunshine communicate the readings to the dimmer controls. The new T5 highbay fluorescents dim or brighten in response to the amount of sunlight coming in, seamlessly complementing the daylight to provide a steady illumination of at least 45 to

55 footcandles throughout the day and throughout the space.

On a sunny day, daylight coming through the skylights casts nearly 80% of the total light needed in the Akins facilities. As the afternoon wears on, or when it's cloudy, the skylights still produce over 50% of the light needed to operate the dealership. Only at night are the new fluorescent lights running at full capacity.

THE SAVINGS THEY COUNTED ON

The combination of lighting and HVAC retrofits helped to cut the energy bills by more than half. Before the energy upgrades,

WITH OVER 170,000 EMPLOYEES, FORD HAS A FAR-REACHING OPPORTUNITY TO REDUCE ENERGY USE.

“I have seen a genuine transformation as Ford integrated sustainability into its business plan, its products, its operations and its relationship with stakeholders,” explained Robert Brown, Vice President, Sustainability, Environment and Safety Engineering in June of 2013.

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Akins Ford was spending over \$30,000 monthly in energy costs to run their operation. Whereas after the retrofits, “their latest bill was under \$20,000,” said Hawn. “Outstanding.”

Daylight harvesting accounts for only a portion of the total energy savings when the HVAC system is included in the calculation — estimated to be about 10% according to Hawn. But daylighting provides many advantages in addition to slashing overhead costs. Studies show worker productivity improves under natural light. And daylight pleases customers; even increasing retail sales according to the studies.

Akins Ford’s customers have certainly noticed the change. “They drop off their vehicles for service and say ‘Wow! It’s so much brighter,’” Akins said.

“The value is hard to describe until you see it,” Hawn added. “Seeing is believing.”

The dealership is certain the prismatic skylights were an excellent decision. Management is so pleased with the new lighting that they’ve got a second retrofit on the drawing board with plans to open

up the tile ceiling and install more skylights in the showroom. Natural daylight’s flawless color rendering will show the new cars in their best light — literally.

FORD MOTOR COMPANY

With over 170,000 employees, Ford Motor Company has a large footprint; 67 plants, 40 distribution centers and 113 sales offices. That’s why Ford’s efforts in reducing CO2 emissions is so important. Company wide, their operational energy goal is to reduce their facilities’ CO2 emissions by 30 percent per vehicle by 2025 compared to a 2010 baseline.

For Akins Ford, the energy savings has paid additional benefits. Leaders in the Georgia community have taken notice.

“We’ve had Senators, Congressmen, business leaders, all kinds of state officials out here,” said Chris Akins. “We set up walking tours, show off the facility, tell the story.” Tim Echols, the Public Service Commissioner for Georgia, came out and “was blown away” by the retrofit. “He’s helping us promote it locally and statewide,” Akins said.

In this Georgia auto dealership, going green and cutting costs have

gone hand-in-hand. The dealership is enthusiastic about the money they’ve saved with the energy overhaul.

“Our power bill has been cut in half, and our gas bill has gone away,” Chris Akins marvels. But nothing has done as much to change the mood of the facility as the new lighting. “It’s night and day,” he said.

“It’s not even comparable. Everybody knows it. It’s not even the same place.”

Research and reporting compiled and provided by Eneref Institute. Byline, Christina deVillier, research fellow with Eneref Institute. (www.eneref.org)