Let the sun shine in

Huntington Beach turns to a bright idea, thanks to SSG Site Services

By Eric Fetters-Walp

New skylights at Boeing's maintenance office in Huntington Beach, Calif., do more than shed a little sunshine on employees.

By replicating an installation at a maintenance facility in Mesa, Ariz., Huntington Beach is realizing energy savings, better lighting and increased productivity.

Mesa last year installed nine solar-tracking skylights, a pilot project that won an Energy Conservation Award from Shared Services Group, which has identified the increased use of natural daylight as one of its top renewable energy projects. Carl Luther, facilities analyst and site energy focal at Mesa, said the skylights have been a success.

"The skylights definitely brighten the shop area, and there has been very positive acceptance of the installation," Luther said.

Steve Evans, utilities focal for Boeing's Site Services, thought the skylights would work well for a similar building at the California site where he works. The 20,000-square-foot (1,858 square meters) maintenance office was a good candidate, as the artificial lighting provided by sodium lamps is less than ideal, Evans said.

The skylights' manufacturer, with assistance from Site Services personnel, installed 28 of them on the roof of the Huntington Beach facility. The dome-shaped devices contain an array of mirrors that track the sun through the sky during the day. Powered by light-sensitive photovoltaic cells, the moving mirrors are able to direct the most available daylight into the building from sunrise to sunset.

"These offer a little more consistent lighting from morning until late afternoon," said Evans, noting that during the middle of the day, artificial lighting in the building often isn't needed.

That could reduce the building's carbon footprint by an estimated 50,916 pounds (23,095 kilograms) of carbon dioxide a year. The accompanying savings on energy bills mean the skylights are expected to pay for themselves within three years. They also contribute to Boeing's companywide goal to improve its energy efficiency by 25 percent by 2012.

There also are less tangible benefits. "Increased daylighting and exposure to the natural environment has a positive benefit for employees," explained Jeff Nunn, an SSG Conservation Program manager.

Numerous studies have suggested use of natural lighting, referred to as daylighting, is associated with improved morale, lower fatigue rates and reduced eyestrain. The California Energy Commission found that office workers exposed to daylight in their workspaces showed better concentration and short-term memory recall than workers using just artificial lighting.

Steve Evans (left), utilities focal for Boeing's Site Services, consults with Lavey Roofing's Shannon Booth on the installation of solar-tracking skylights atop a 20,000-square-foot (1,858 square meters) office building in Huntington Beach, Calif. Solar-tracking skylights help reduce energy bills and Boeing's overall carbon footprint.
MICHAEL GAIL/BOEING

While solar-tracking skylights demonstrate use of innovative technology, Boeing also has recognized the wider use of traditional skylights and windows can improve lighting and employees' productivity. As examples, Nunn points to large windows installed in the Renton, Wash., 737 assembly building during the Move to the Lake project and conventional skylights at the Everett, Wash., plant, part of the Future Factory renovations (see story on Page 42).

Site Services is looking at the business case for installing the specialized skylights at other sites, especially in the southwest United States. Evans said they are being considered for additional buildings in Huntington Beach, and Boeing's facility in nearby El Segundo, Calif., is studying them. He thinks there are plenty of other places they might make sense as well.

"When you think of how many square miles of roofing Boeing has, there's certainly an opportunity there," Evans said. ■

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