Skylighting Helps a Manufacturing Company Retain Employees

REMO Inc., one of the world’s largest manufacturers of drums, had been operating out of a variety of older buildings in North Hollywood when they decided to consolidate their operations in a single new building and move to Valencia, 25 miles away. They chose a site with an existing set of speculative building plans which showed two percent of the roof area devoted to skylights. The company decided to increase the skylighting area to three percent, to add photocontrols, and to invest in a direct/indirect evaporative cooling system. One of their objectives for the new building was to enhance the working environment for their employees. They hoped the new building would be a morale booster, and that they would keep as many of their existing employees as possible in spite of the move. The manufacture of drums is very labor intensive, and REMO did not want to lose its investment in its employees. They also hoped to reduce operating costs in the new location.

Skylighting became a way to address both objectives. The bright, well-lit environment of the new 199,000-square-foot plant is a very pleasant place to work, a dramatic improvement over their previous facilities. Indeed, REMO has found that nearly 100 percent of their original employees are still with them two years later. “Morale has never been better,” says the company CFO.

And the dramatic cost savings associated with the upgrades made the decision even easier. “With the energy features in this building, we are saving thousands of dollars a month,” says the CFO. The building developer reports that REMO is very happy with their decision to include additional daylighting features in their building. “They think it is one of the best decisions they made.” And he adds, “We use them as a reference, and take potential clients on tours of their building. People are always impressed.”
Optimizing the Design

Engineering analysis during design showed that an optimized skylighting system with daylighting controls would save about $36,000 per year in building operating costs. The most cost-effective design devoted three percent of the gross roof area to skylights, and used a slightly more expensive type of skylight dome with high visible light transmission and a low shading coefficient. The additional costs for photocontrols, the skylight upgrade, and one percent skylight area increase amounted to $54,000 (27¢/sf). Painting the interior walls white, which also dramatically increased light levels, cost an additional $4,500 (2.25¢/sf).

The building uses 250-Watt metal halide lamps on a modified 20’ x 24’ grid, resulting in a lighting power density of 0.6 Watts per square foot. The photocontrols switch one-third or two-thirds of the lights off in a checkerboard pattern. Lights in some critical areas and half of the lights along the perimeter are always left on during working hours.

Selecting on/off controls for metal halide lamps is considered by some designers to be a bit unusual for a manufacturing setting, because once the lamps are switched off, it takes up to 20 minutes before they will turn back on again. However, as the skies tend to be either clear or cloudy most of the time, with little in between, the lights typically turn off in the morning and remain off for the rest of the workday.

A Little Dusting Saves a Lot of Money

The maintenance supervisor has found that the skylights are almost maintenance-free. However, because the building is located in a construction zone in a desert climate, a lot of dust tends to accumulate on the roof, so he simply has someone hose off the skylights a few times during the summer.

After occupying the building for about six months, the supervisor noticed that the lights seemed to be staying on longer during the day. He discovered that because the manufacture of drum heads generates a lot of dust in the interior of the building, the photosensors were acquiring a layer of dust that reduced their sensitivity. He started dusting the small sensors once a month or so, and significantly increased the yearly energy savings.