

TOTAL SOLUTIONS PROVIDERS

Pfister Energy



Delivering turnkey renewable energy systems, this company looks at the big picture of sustainable energy in its installation of a solar roof (and so much more) at the Humanscale Manufacturing and Distribution Center

By Maura Welch

When leading ergonomics company **Humanscale** wanted to improve energy efficiency at its Piscataway, New Jersey Manufacturing and Distribution Center, the company searched for ways to reduce waste, employ renewable energy onsite, and create a healthier work environment for employees. **Pfister Energy**, which provides engineering, procurement, and construction services for renewable energy projects, provided a plan to seamlessly integrate solutions for all of those goals—and it all started on the roof.

The company installed a new PVC roof with a 775-kilowatt solar array, 70 new high-bay LED lighting fixtures, and 72 daylighting units. Given Pfister's philosophy on smart, real-world sustainability, it is no surprise that this project was all about achieving energy efficiency through complementary technologies and turnkey solutions.

"When I incorporated the company, it was important for me to not only offer solar, but to take a more holistic approach of stackable technologies," explains president **Wayne Pfisterer**. "There's a massive

amount of infrastructure inefficiency in the grid that we use in the United States. When power is generated in Ohio and ends up in a light bulb in New Jersey, energy is lost from point A to point B. When we look at the rooftops of America, we see platforms for technology."

Stackable Technologies

At Humanscale, Pfister started by installing a new white roof membrane, which is much more reflective than the black surface it replaced. This helps to keep the building cool, and also keeps the solar panels from overheating.

Placed among the solar panels on the roof were 72 **SolaTube** daylighting units, which diffuse daylight and spread it evenly inside the building. Pfister also installed 70 brand-new high-bay LED units. The installation significantly decreased the Humanscale facility's energy demands, and massively reduced its reliance on external energy sources. In 2015, its first full year of operation, the solar array generated 980,000 kilowatt-hours, or nearly a megawatt-hour of energy—meaning that it provided 85% of its own electricity needs on site.

Prioritizing Human Health

It makes sense that Humanscale, a leading producer of healthy work environment products (think ergonomic keyboards and standing desks), would choose Pfister, which works to make buildings more environmentally sustainable and promote the health of their occupants, for this project.

The SolaTube daylighting units that allow natural daylight to fill the interior are complemented by light sensors that recognize when additional light is needed from the new LED lighting units. Since natural daylight has been shown to support people's moods and health, Pfister customized the placement of the SolaTubes on the roof in order to best serve the people working inside.

"We asked Pfister to take into consideration where our assembly locations were. We wanted the skylights to go where the people were. So Pfister laid out the solar panels on



THIS SPREAD Pfister Energy provides engineering, procurement, and construction services for renewable energy projects.

the roof to accommodate the SolaTubes and what was happening inside the building," explains **Jane Abernethy**, sustainability officer at Humanscale. "As the sun goes behind clouds the light will ramp up automatically and when the sun comes out they will dim down. Inside there's a really nice constant level of light."

Wayne Pfisterer elaborates, noting that daylighting is not only about the cost savings of offsetting artificial lighting. "It's also about enhanced performance for employees. In well-daylit facilities we find that there are fewer people who are out sick, production tends to rise, and there are fewer accidents," he says. "People generally feel better under natural light."



Moving Toward Smarter Energy Solutions

The Humanscale facility in New Jersey demonstrates Pfister's innovative approach to diversifying energy, to seamlessly integrating complementary technologies, and to using smart energy to create beautiful spaces and support human health.

Pfister Energy works with a wide array of sustainable technologies—beyond those employed at the Humanscale facility. They have installed wind turbines that look more like modern art than energy infrastructure; rainwater harvesting systems that collect storm runoff for use in irrigation, toilet flushing, and fire suppression; geothermal systems that harness heat from below the earth's surface to warm interior environments; and green roofs that manage storm water, reduce noise pollution, and keep buildings cool—just to name a few.

"We take roofs and stack these technologies," Pfisterer says. "We bring in thermal, solar, daylighting, and rainwater harvesting. We transform that roof from just a building component that keeps it dry and turn it into a generator of energy and irrigation."

He also notes that they are one of the companies that push this, and that Humanscale has been just one of their success stories. "More companies will realize that not only are these strategies a return on investment, but it's also the right thing to do," he says. "It gives us energy independence. And it's better for our employees." **gb&d**

The Humanscale Installation By the Numbers:

2,585

Number of 300-watt solar modules, which equates to a total of about 775 kilowatts

980,000

Number of kilowatt-hours the solar array produced in 2015—nearly a megawatt

85%

Percentage of the Humanscale facility's energy demands that the Pfister installation provides on site

\$1.75 million

Estimated savings resulting from the Pfister energy overhaul

110,000

Square footage of the Humanscale facility

12

Number of times more solar heat the white roof membrane can reflect than could the old black asphalt surface

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