KANEPI INNOVATIONS

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The *way to say* wireless infrastructure solutions

Knoll

East Greenville, Pennsylvania

Saving energy through forward-thinking technology in manufacturing

As a leader in practices designed to cut waste and safeguard natural resources, it's no surprise that Knoll Inc. had determined that reducing energy usage in their East Greenville manufacturing facility was a top priority.

An internationally recognized, leading designer and manufacturer of branded furniture products and textiles, Knoll Inc. operates four manufacturing sites in North America. Its East Greenville, Pennsylvania manufacturing facility covers approximately 400,000 square feet, of which about 350,000 is devoted to manufacturing, and 50,000 to warehousing.

Challenges— Just as ecological principles inform Knoll product designs, its manufacturing policies and practices are built around conserving natural resources and reducing waste—standards detailed in the company's Environmental, Health & Safety Management Plan.

At its East Greenville facility, Knoll had two key objectives: first, to replace existing HID lighting with energy-efficient t8 fluorescent fixtures, and second, install a lighting control system that would provide flexibility and integrate with both the new fixtures and the t8 fixtures they already had. Knoll already had a simple PC-based program to turn lights on and off, but it was limited by existing wiring. When equipment was moved and shift changes occurred, the lighting pattern could not be changed.

At the same time, Knoll was anticipating future needs, which included gaining more control over HVAC, load shedding and equipment monitoring to achieve further cost savings. The useful life of the control system was important, too, particularly in light of today's rapidly changing technology. Knoll wanted technologically advanced hardware that would continue to be supported in a system capable of handling multiple applications.

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Solution— Focusing first on their lighting fixtures, Knoll replaced HID lights with t8 fluorescents, and fitted all fixtures, new and existing, with Kanepi nodes. "I looked at it as a package," said Paul Nowicki, Manager of Facilities for Knoll. "I could install Kanepi with the new lights, and retro-fit to the energy-efficient lights I already had. No new wiring was required. The Kanepi wireless infrastructure allows us to control the lights in so many different ways. And it's so flexible that we can change the way we control those lights."

Another key advantage for Knoll was that the Kanepi wireless mesh network is based on the ZigBee® standard—802.15.4—an open systems protocol that is proven, reliable and secure. Each node is scalable, with the capacity to integrate and control other building systems and devices. In the future, Knoll can add applications as they become available, such as heating and cooling control or machine monitoring.

Implementation of the wireless mesh network began with setting up scheduling protocols in a 30,000 square foot test area within the East Greenville plant, where people, tasks, and shifts change frequently. Since then, because of equipment moves, changes, and additions, scheduling has changed about once each month. "It was very easy to do," said Nowicki. "Our electrical tech went in, talked with the manager in the area, got the schedule, and changed it around. It was very simple."

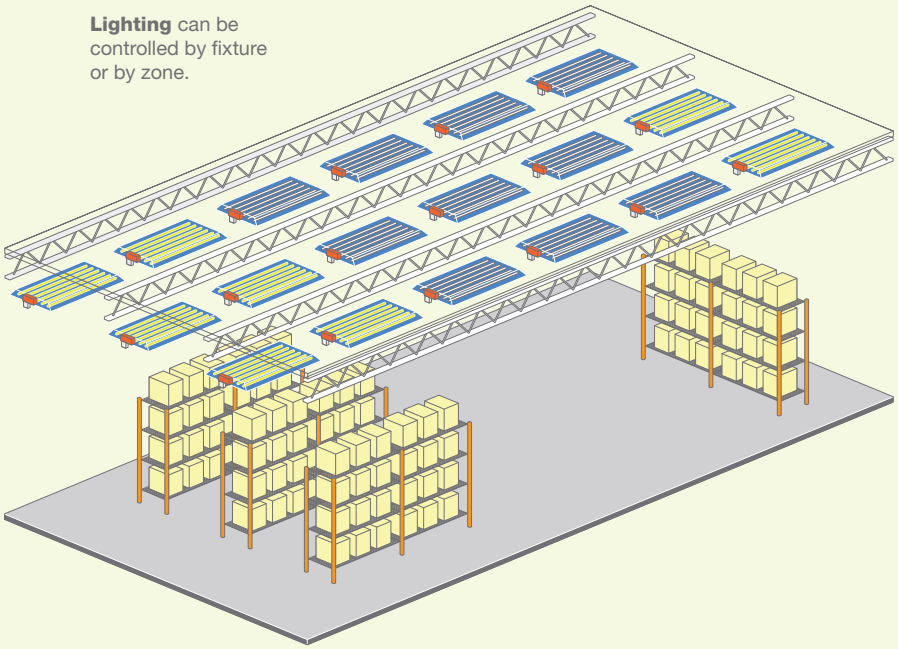
"With Kanepi, you have the infrastructure installed. It's there waiting for your next move."

Paul Nowicki—
Manager of Facilities
Knoll, Inc.

Results— Knoll is tracking results, and in their test area—about one-tenth of the total wireless mesh network—they are saving an average of 8,000 kilowatt hours a month, the result of efficiencies gained from both the t8 fixtures and Kanepi.

According to Nowicki, "We did the installation in one, big step, but that's quickly paying for itself. We also get carbon credits because we're using less electricity, which in the future will probably generate additional cash flow for us. We're working now on another area in the plant that is about three to four times larger, and we think savings will be similar. Kanepi lends itself to being able to do a little bit at a time. We're working through by priority, trying to find the best way to do it."

"We've just scratched the surface of what we think we're going to be able to do with Kanepi. As new capabilities and applications are developed, we'll be able to control other things like HVAC, or be able to load-shed at appropriate times. I can see us controlling air compressors or heating, and looking at indoor air quality. We expect to save an awful lot of money," said Nowicki. "And when somebody comes up with an idea and says, 'Hey, we want to do this,' well, now that we have the infrastructure, we can say, 'Yeah, we can do that.'"



Lighting can be controlled by fixture or by zone.

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