



there will be more projects of this type done at the facility. Irving Tissue is now considering adding occupancy sensors to the new fixtures to increase energy efficiency, something that could not be accomplished with the old HPS fixtures. Kim Clark states that, “Simply put, the new lighting is a lot better. Nobody has anything negative to say about it.”

### Irving Tissue: The Bottom Line

The new fixtures have a much higher efficiency and therefore can deliver more light with less lumens and lower wattage, and have the ability to get the light down to the warehouse floor, where it is needed. These factors result in significant energy savings. At about 162 Watts per fixture, the total wattage of the system is only about 0.22 Watts per square foot. Compared to a typical warehouse area at 3.0 Watts per square foot, Irving Tissue will save over \$17,000 per year in energy costs. At the low cost of about \$0.20 per square foot for materials, Irving Tissue will see a quick return on their investment.

### T-8 Linear Fluorescents for a Vehicle Service Facility

R.J. Valente Transport does in-house heavy vehicle service for its sister company R.J. Valente Sand and Gravel. When its repair and maintenance facility was recently relocated into an existing 5,600 square foot building in Albany, Valente management quickly realized the need to upgrade the lighting. The existing T-12HO strip fixtures located at the 16-foot ceiling simply did not deliver the amount of light needed to efficiently work on their vehicles. R.J. Valente contacted John Maloney of LaCorte Companies, an SCLP Contractor Ally in Troy, for help.



**T-8 linear fluorescent high-bay fixture provides light from the 16-foot ceiling.**

Photo courtesy of Ruud Lighting

Together, they determined the challenges that had to be overcome: getting enough light from the ceiling to where it is needed to perform vehicle work, while minimizing glare and providing good color rendering. **The Right Light<sup>SM</sup>** solution: four-lamp, T-8 linear fluorescent high-bay fixtures offering many advantages over the old system. The 16-foot ceiling height made T-8 fixtures a logical solution because they would deliver

enough light with a limited number of lamps. The fixtures were selected to provide the necessary glare control. The work bay setup of the shop floor, typical of automotive repair facilities, requires light only around the vehicle — not general lighting. Hand held task lights provide additional lighting when needed. The linear fluorescent fixtures selected distribute the light where needed on the sides of the vehicle. At the same time, the system provides enough light on the floor to find that “missing” screw, and meets the IES recommendations of about 30 footcandles for an industrial area. The T-8 lamps, with a good color rendering index of 78, helps colors appear more natural making it easier for mechanics to match color-coded wires.



**Vehicle maintenance and repair productivity has increased with the improved lighting system.**

LaCorte’s solution combined good vertical light levels, good color rendering, low glare, and energy-efficient fixtures. The result is a lighting system that provides an effective, energy-efficient solution for R.J. Valente. Employees working in the space can now perform their tasks more efficiently—and the majority feels the lighting is much better than found in other shops where they have worked. Shop Foreman, Dave Marotta, noted, “I see noticeably brighter light levels here than other forms of lighting, despite the dirty environment of a repair shop.” Mechanic Harry McGraw, who worked under the old lighting system says, “The new lights and layout help us see much better than before without any glare problems.”

## R.J. Valente Transport: The Bottom Line

The combination of T-8 lamps with a very efficient lighting fixture provides a good energy-efficient solution: about 0.37 Watts per square foot. Compared to a typical low-ceiling industrial area at 2.5 Watts per square foot, this highly efficient lighting project will save R.J. Valente over \$5,000 per year on its electric bills. The low cost of about \$0.33 per square foot for materials will provide a quick return on its investment through the energy savings.

## Pulse-Start Metal Halide Fixtures for a Distribution Center

As a third example of industrial lighting, a New York City distribution center found that its existing fluorescent strip light system was not adequate for storage areas. Most of the light was lost to the area above the fixed shelving, making it difficult for employees to see the products on the shelves below. The company was suffering from costly errors, as employees picked and shipped the wrong products, increasing breakage and losses, and reducing employee morale. The company also was seeking to reduce their energy costs.

The distribution center contacted an area SCLP Ally to help. Because the new fixtures had to be ceiling-mounted 30 feet above the floor, a high wattage fixture would be required to deliver the light. The tall shelving units were spaced on 23-foot centers, and light had to be delivered uniformly not only on the floor, but on the products on the shelves. Proper selection and spacing of the fixtures within the aisle would be required to provide the uniform horizontal and vertical lighting levels needed, with no dark spaces between the aisles. Finally, glare had to be controlled, to provide visual comfort to the employees.

The **The Right Light**<sup>SM</sup> solution for this application: highbay fixtures incorporating a prismatic reflector, using 320 Watt pulse start metal halide coated lamps as the light source (342 W per fixture, including the ballast). The prismatic reflector design provides a low level of up light (avoiding the “cave” effect) while delivering good vertical light levels from the top to the bottom shelf. At the same time, glare is limited at crucial angles, improving employee visual comfort. The coated pulse start metal halide lamps provide white light and improved color rendering (70 CRI compared to 62 CRI for the old fluorescent lamps).

The more natural appearance of colors under the new fixtures makes it easier to identify package labels, reducing employee errors. Higher-efficacy pulse start systems provide more lumens per watt than standard metal halide systems, helping to reduce electricity consumption and reduce electricity bills. Another benefit: their shorter re-strike time reduces the wait when the lights are turned on. Further, maintenance and replacement costs are reduced because the pulse start metal halide lamps maintain their light output longer than standard metal halide lamps.

The management of this distribution center was so pleased with the original project that they installed the same system throughout the facility. Higher employee morale and productivity were achieved due to the better quality lighting, and product damage decreased by an amazing 75 per cent—all attributable to **The Right Light**<sup>SM</sup>—an effective, energy-efficient solution.



***Pulse start metal halide high-bay fixtures with a prismatic reflector make it easy to locate products on storage shelves.*** Photo courtesy of Ruud Lighting

## Distribution Center: The Bottom Line

For this 24,000 square foot facility, the total wattage was about 0.38 Watts per square foot, significantly lower than a typical warehouse area with high ceilings at 3.0 Watts per square foot. This will reduce the distribution center’s electricity bill by more than \$23,500 per year compared to a typical space. At the low cost of about \$0.20 per square foot for materials, the investment will provide a quick return through energy savings for the facility.

## Summary

An effective, energy-efficient lighting solution—**The Right Light**<sup>SM</sup>—can be found for almost any industrial situation by selecting the proper technology combined with good design. Effective, energy-efficient solutions yield energy savings while meeting the needs of the people using the space. The examples used in this case study demonstrate how energy-efficient lighting technologies combined with the proper layout, good color-rendering lamps, and low-glare fixtures not only help reduce end-users’ electricity bills, but provide a better working environment, more satisfied employees, and higher worker productivity.

Tech Specs			
	Irving Tissue	R. J. Valente Transport	Distribution Center
Type of Space	Warehouse	Vehicle Maintenance	Distribution Center
Ceiling Height (feet)	24	16	30
Project Square Footage	15,000	5,600	24,000
Previous Lighting System	High Pressure Sodium	T-12HO Linear Fluorescent	T-12 Linear Fluorescent
Project Objective	Adequate and uniform vertical and horizontal illumination Low glare Good color rendering Reduced energy cost		
New Lighting System	T-5HO Linear Fluorescent	T-8 Linear Fluorescent	Pulse Start Metal Halide
New Fixture Wattage	162 W	120 W	342 W
New System Watts/sq ft	0.22	0.37	0.38
Typical Application Watts/sq ft	3.0	2.5	3.0
Annual Electricity Cost Savings	\$17,000	\$5,000	\$23,500
Project Cost (\$/sq ft) materials only	\$0.20	\$0.33	\$0.20
Project Benefits	Easier to see and read Reduced energy cost	Easier to see Higher productivity Reduced energy cost	Easier to see Higher employee morale Reduced breakage and losses Reduced energy and maintenance costs

## For More Information

The New York Energy Research and Development Authority (NYSERDA) offers businesses energy-saving opportunities through the **New York Energy \$mart<sup>SM</sup>** Small Commercial Lighting Program. Additional programs can help businesses reduce utility costs, including the **New York Energy \$mart<sup>SM</sup>** Smart Equipment Choices Program, which offers financial incentives to businesses for energy-efficient lighting equipment and a variety of

other electric-efficiency measures. Low interest rate financing may be available through the **New York Energy \$mart<sup>SM</sup>** Loan Fund Program.

To learn more about these incentives and to make your lighting more effective and efficient, visit [www.nysERDA.org/sclp](http://www.nysERDA.org/sclp) or call toll-free **1-866-NYSERDA (1-866-697-3732)**.

Note: All energy cost savings are based on \$0.10 per kWh and the actual operating hours per year of the facility.

To learn  
more  
about

**The Right  
Light<sup>SM</sup>**

and how to make  
your lighting  
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