

*Bright Ideas, Bold Innovations*

# Keeping Cool with Venture!

Today, Preferred Freezer Services, Inc. is keeping its cool. As one of the largest refrigeration companies in the United States, Preferred Freezer maintains 99 million cubic feet of freezer space at a frigid temperature of minus 10 to minus 25 degrees Fahrenheit. This is just the right temperature for warehousing frozen seafood of which nearly 75 percent of domestic consumption passes through one of Preferred Freezer's 26 warehouses.

## Background

A typical Preferred Freezer warehouse had been lit using 320 fixtures of 400W HPS. Light levels measured below 4 footcandles in the aisles (7 ft wide, 175 ft long, 60 ft high) which proved insufficient for optimal employee productivity during daily 12-15 hours of operation.

Preferred Freezer contacted Liberty Lighting, Venture's representative in New Jersey, about a lighting upgrade.



**Before**

**After**

*"We're extremely pleased with the Venture product and the results of heat reduction, energy savings and increased light levels."*

*-John Galiher,  
President of Preferred Freezer*

Replacing 400 Watt HPS with Venture's 350 Watt Uni-Form® pulse start system resulting in:

- **More than Twice the Light with Reduced Heat**
- **Annual Savings of over \$2 Million**
- **Reduction of Energy Usage by 55%**



*Preferred Freezer Services, Inc.,  
based in New Jersey*



**VENTURE**  
**LIGHTING**

# The Facts

PULSE START METAL HALIDE LIGHTING SYSTEMS



## Objectives

Preferred Freezer investigated lighting options that would achieve the following objectives:

- Switch to more desirable white light
- Dependable lighting given the demanding environment of extreme low temperatures
- Increased light levels for optimal employee productivity
- Energy savings through efficient lighting technology
- Flexibility of dimming controls

## Solution

Venture's 350W pulse start system was selected as the solution for use in Hubbell Highbays controlled with LightBAT™ motion sensors, one per fixture, programmed for high-low light levels. This system delivers significant energy savings of 65 Watts per fixture as compared to the HPS system. Additional energy savings is obtained by keeping fixtures at 50% illumination when an aisle has no activity and the motion sensors trigger the lamps to full brightness when activity is detected. About 90% of the time, fixtures are in low mode. Additionally, the number of fixtures was reduced to 275 (from 320) while light levels at full illumination more than doubled to 9 footcandles (from 4 footcandles). Pulse start metal halide lumen output and dependable striking is unaffected by the cold temperatures, unlike FL T8 and T5HO. Fluorescent's performance is dramatically decreased in cold environments.

## Benefits

John Galiher, President and CEO of Preferred Freezer, expects the lighting project to yield a return on investment in 1.2 to 1.5 years. Not only did the lighting upgrade satisfy all of the stated objectives, Preferred Freezer has been pleasantly surprised with additional energy savings. The additional savings comes in the form of reduced cooling demand. A lower lamp wattage translates to less radiated heat. The new 350W pulse start system generates **724 million** fewer BTUs annually per warehouse. From this heat savings, the refrigeration system doesn't need to work as hard to cool the space resulting in lower annual utility costs. This savings is significant and can be quickly approximated as 34% (SEER=10) or 26% (SEER=13) of the calculated annual energy savings due to reducing the lamp wattage. (Example: If the annual energy savings from reducing the lamp wattage from 400W to 350W is \$10,000, then the cooling energy savings is an additional \$3,400 for a SEER=10). For this project, Preferred Freezer will save **\$429,250** in annual cooling costs alone.



Liberty Lighting with Preferred Freezer during installation

## Comparisons

Existing System <b>400 Watt HPS</b>	vs	Venture's <b>350 Watt MH PS</b>
<b>320</b>	Number of Fixtures	<b>275</b>
<b>465</b>	System Watts	<b>400</b>
<b>15</b>	Hours of Operation/Day	<b>15</b>
<b>4</b>	Average footcandles	<b>9</b>
<b>814,680</b>	Energy Consumption for Lighting (kWh)	<b>365,114*</b>
<b>0</b>	Annual Cost Saving @ \$0.14/kWh	<b>\$62,939</b>
<b>0</b>	Annual Cost Saving for Cooling, (SEER=13)	<b>\$16,509</b>
<b>0</b>	Annual Saving per Warehouse	<b>\$79,449</b>
<b>0</b>	<b>Total Annual Savings</b>	<b>\$2 Million</b>
<b>0</b>	Energy Savings	<b>55%</b>

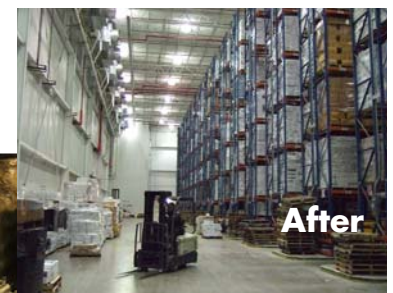
Note: \* Includes dimming to 50% lamp power

## Reference

The efficiency of air conditioners are often rated by the **Seasonal Energy Efficiency Ratio (SEER)** as defined by the Air Conditioning And Refrigeration Institute in its standard 210/240 Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment last updated in 2006.

The higher the SEER rating of a unit, the more energy efficient it is. The SEER rating is the BTU of cooling output during a typical cooling-season divided by the total electric energy input in watt-hours (W·h) during the same period. **SEER = BTU ÷ W·h**

Note: As of January 2006, all air conditioners sold in the United States must have a SEER of at least 13. ENERGY STAR qualified Central Air Conditioners must have a SEER of at least 14. See ENERGY STAR's web site.



After



**VENTURE**  
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