

## Overview

A university student center and library in the Lehigh Valley upgraded 1,200 aging fluorescent lamps to LED using a retrofit approach that avoided fixture replacement and disruption to daily operations. The existing system was driving up energy and maintenance costs while delivering inconsistent lighting across high-use spaces. Through a phased upgrade using LEDVANCE retrofit solutions, the facility reduced energy consumption, improved lighting quality, and simplified ongoing maintenance while keeping the building fully operational.

## The Challenge

The facility faced a common set of issues found in large institutional environments:

- Inconsistent lighting across study areas, common spaces, and corridors
- High maintenance demands due to frequent lamp and ballast replacements
- Rising energy costs tied to outdated fluorescent fixtures
- Limited flexibility to shut down large sections of the building for upgrades

A full fixture replacement was not a practical option. Any solution had to work within the existing infrastructure and be implemented with minimal disruption to daily use.

## The Solution

The facility moved forward with a retrofit approach using LEDVANCE lighting solutions, allowing the existing fixtures to be upgraded rather than replaced.

The process began with a no-cost lighting assessment that evaluated current light levels, fixture conditions, and energy usage. The assessment identified 1,200 fluorescent lamps across the student center and library as primary targets for replacement. Based on this, a clear upgrade plan was developed to reduce energy consumption and maintenance requirements while improving overall lighting quality.

A mix of LEDVANCE retrofit products was selected to match the different fixture types throughout the facility, including T8 LED tubes for general lighting, plug-in G24 lamps for downlights, and PAR lamps for accent and specialty areas. This approach ensured consistent performance while maintaining compatibility with existing fixtures.

Work was completed in phases during off-hours to avoid interference with peak usage times.

## Implementation

The upgrade was carried out across key areas of the building:

- Study and seating areas received improved ambient lighting for comfort and focus
- Open common areas were upgraded for better uniformity and visibility
- Corridors were standardized for consistent illumination and safety
- Accent lighting was improved in gathering spaces and featured areas

Because the retrofit approach reused existing housings, installation was completed efficiently with minimal disruption to the function of the space.

## Results

The replacement of approximately 1,200 fluorescent lamps (36W) with 24W LED solutions delivered measurable operational improvements:

- Connected load reduction of approximately 14.4 kW
- Annual energy reduction of approximately 63,000 kWh
- Estimated annual energy cost savings of \$7,500–\$8,500
- Simple payback of approximately 2.5 to 3.5 years

Lighting performance and maintenance were also improved, with longer lamp life, more consistent illumination, and reduced service requirements across the facility.

## Takeaway

For large, high-use campus buildings that cannot afford disruption, retrofit solutions provide a practical path forward. Upgrading approximately 1,200 lamps without replacing fixtures allowed this facility to reduce operating costs, simplify maintenance, and improve lighting performance while keeping the space fully operational throughout the process.