



University
Gymnasiums

Project Overview

Moravian University, Pennsylvania

“With the energy we’re saving,
the lighting upgrade pays for itself.”

— Chad Royer, Associate Director – Plant Operations, Moravian University

Background

On college and university campuses, athletic facilities are often a hub of student activity. In 2012, Moravian University in Bethlehem, Pennsylvania updated the lighting and controls in their competition and auxiliary gymnasiums from 1000W metal halide fixtures to 360W fluorescent gymnasium fixtures all controlled by a Lutron digital lighting control solution. The system allowed for flexible programming, easy scene recall, and centrally controlled lighting access.

That lighting upgrade significantly reduced energy use in the gym and introduced individual fixture control to accommodate a wider range of campus sporting and cultural events. Eight years later, advanced LED lamps and driver technology offered the university an opportunity to once again improve the lighting without having to replace all the fixtures.





Lighting in the Moravian University competition gym can be easily adjusted to meet the needs of sports competitions, awards ceremonies, and other public events.

The Challenge

In the eight years since the initial gymnasium renovations, LED lamps have redefined the lighting landscape. Chad Royer from Moravian’s facilities team recognized the opportunity to further increase lighting efficiency in the gyms and turned to Lutron Rep Synergy Electric and Light Efficient Design/C-Flex for help.

The most cost-effective, energy-efficient solution involved replacing the current fluorescent lamps and ballasts with Lutron LED drivers and C-Flex LED lamps. These were retrofit directly into the original Lutron gymnasium fixture — an ideal opportunity to add value and save energy.

The existing Lutron Quantum digital control solution is engineered for the long haul and continues to provide the high level of control and functionality necessary in a busy university gym. Moravian was especially interested in a retrofit that maintained all the features of the control system while adding the benefits of a Type C LED retrofit kit.

The LED upgrade was accomplished using all existing wiring and controls including the Lutron Pico wireless remotes at every entrance for easy scene selection, and wireless occupancy sensors that ensure no one has to enter a dark gym and lights turn off when the space is vacant.

The Solution

The upgrade encompassed 54 fixtures in the main competition gym and 76 fixtures in the auxiliary gym. In addition to keeping the original Lutron fixtures — which were built to handle the rigor of a championship basketball program — the team realized both the fixtures and lenses could be easily cleaned during the upgrade to further enhance light quality.

LED drivers and lamps don’t generate anywhere near as much heat or UV light as fluorescent ballasts and lamps, ensuring that the fixtures and lenses will better maintain a higher light output over time — another advantage of the upgrade.

In each fixture, (6) 54 Watt T5HO fluorescent lamps were simply swapped out, one-for-one, with 25 Watt T5HO C-Flex LED lamps. The original fluorescent installation required (3) 2-lamp EcoSystem ballasts, but due to the lower lamp wattage the retrofit only required (2) 3-lamp Lutron EcoSystem LED drivers, further reducing cost and labor time.

The retrofit maintains the fixture’s UL certification, and renews the 5-year warranty on the Lutron LED drivers and C-Flex LED retrofit lamps.

Results

The results are even better than the team originally anticipated. While they anticipated the energy savings, they were pleasantly surprised by the enhanced light quality throughout the gyms. In addition, the upgraded lamps and drivers deliver instant light to 100% output, and the new lamps feature 320 degree light distribution with no scalloping or resultant dark spots across the gymnasium.

- 55% energy savings at full light
- Auxiliary Gym = 13% measured increase in light output.
- Competition Gym = 24% measured increase in light output.

The project also helped to support Moravian University’s sustainability initiatives. Replacement fixtures would have added significant material and cost to the job, but more critically, reusing the existing fixtures avoided throwing 130 metal fixtures and polycarbonate lenses into a landfill.



Installation Details

Auxiliary Gym

- 3 Lutron ballasts powering 6 54W T5HO 4000K fluorescent lamps for a total of 367.2 Watts per fixture
- Replaced with 2 Lutron LED drivers powering 6 C-Flex T5HO 4000K LED lamps for a total of 166.8 Watts per fixture
- A savings of 200.4 Watts per fixture (a 55% savings)
- Pre-upgrade light output = 22.4 footcandles (fcd)
- Post-upgrade light output = 25.4 fcd
- An increase of 3 fcd per fixture (a 13% increase)

Main Competition Gym

- 3 Lutron ballasts powering 6 54W T5HO 4000K fluorescent lamps for a total of 367.2 Watts per fixture
- Replaced with 2 Lutron LED drivers powering 6 C-Flex T5HO 4000K LED lamps for a total of 166.8 Watts per fixture
- A savings of 200.4 Wats per fixture (a 55% savings)
- Pre-upgrade light output = 70.5 fcd at center court
- Post-upgrade light output = 87.5 fcd at center court
- An increase of 17 fcd at center court (a 24% increase)





Competition gym is ready to welcome athletes and spectators in just the right light

The entire team is excited to have identified, implemented, and tested this Type C LED retrofit solution in the gyms, and has already identified other areas where the energy savings and light quality improvement can have an impact on improved lighting for campus buildings. For fluorescent-to-LED upgrades where the customer wants to maintain existing control performance and sequence of operations, this is a win-win solution.

“We needed a retrofit solution for our outdated T5 lamps that could meet our budget and our time constraints. With Lutron LED drivers and C-Flex lamps, we were able to re-use our existing fixtures and controls, and we completed the upgrade in about 20 minutes per fixture. With the energy we’re saving, the lighting upgrade pays for itself,” said Chad Royer, Associate Director – Plant Operations, Moravian University.

Lutron and Moravian University have worked together for many years, tailoring lighting and control solutions to expanding campus needs. Chad Royer counts on the entire Lutron team for ongoing service and support as the university renovates existing buildings, adds state-of-the-art facilities, and embraces new technologies for more powerful, flexible control.

Distributor

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Game-day photo courtesy
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