Case study

Philadelphia Museum Of Art

Partnership Transforms an Iconic Museum

In a city known for its rich history, the Philadelphia Museum of Art is the cultural heart of civic pride. It attracts 800,000 visitors each year with internationally renowned collections. More than a repository of great treasures, the museum helps drive the economy and supplies vital educational resources.

“More than 60,000 school children come each year and they’re inspired. For many, it’s the first time they’re introduced to world cultures,” President and Chief Operating Officer Gail Harrity said.

Harrity is overseeing a transformation of the campus with an ambitious 20-year master plan. The main building dates back to 1928, and many of the HVAC systems were installed in the 1970s. Those systems have to work 24/7/365 to maintain a stable environment for the artwork. Lighting was also in need of upgrades.

Harrity sees the transformation as an investment in the future.

“Thoughtful, careful planning, which addresses the state-of-the-art equipment needs and preserves the cultural heritage of a landmark building, is the best investment you can make.”

PROJECT AT-A-GLANCE

Public-Private Partnership:
• City of Philadelphia
• Philadelphia Energy Authority
• Philadelphia Museum of Art
• Johnson Controls

Space: 1 million square feet
Investment: $11.3 million
Completed: 2019
Guaranteed Annual Savings: $750,000
Rebates: $82,000
Payback: 20 years
Green Jobs Created: 329
WMBE participation: 42.1%
“It’s a matter of collaborating appropriately and bringing the expertise and skills to bear with a common goal and desire to see a wonderful outcome.”

Gail Harrity, President and Chief Operating Officer
Philadelphia Museum of Art

Collaboration, Sustainability and Green Jobs

The City of Philadelphia pays the utility bills, and the museum topped the list as the biggest municipal energy user.

As part of the Philadelphia Energy Campaign, leaders chose Johnson Controls to partner with them on a wide-ranging energy savings performance contract that would cut the museum’s energy use by nearly 23% while adding green jobs to the local economy. The bold energy campaign, launched by the Philadelphia Energy Authority in 2016, aims to invest a billion dollars over 10 years in energy efficiency and clean energy projects while creating 10,000 jobs. The strategy uses energy as a tool to transform city-owned buildings, schools, affordable housing and small businesses.

“Johnson Controls has a history and has been a leader in public-private partnerships,” City Council Member Derek Green said. “Being able to bring those ideas to the City of Philadelphia is a benefit as we try to achieve our goals of resiliency and sustainability.”

Neutral Budget Impact: Funding with Energy Savings

Museum and city leaders identified $11.3 million in upgrades that would generate $750,000 in guaranteed annual energy savings over 20 years. The investments focused on nearly all aspects of operations, according to Capital Projects Engineer Charles Williams, including replacing 11,000 light fixtures.

“The improvement in lighting alone is phenomenal for electricity upgrades. Our steam distribution would be our second largest. We are converting 200 pneumatically-controlled steam valves to DDC valves and wiring them into our building automation system,” Williams said.

Even the museum’s four-acre green roof parking structure is greener. Intelligent LED lighting turns on when people and vehicles are moving. It gradually dims and turns off to save energy when there is no movement.

Overall results include:

- 23% Energy use
- 8% Water use
- CO₂ emissions equivalent to 21,389 passenger vehicles

**IMPROVEMENTS**

- 11,000 LED lights
- YORK® YZ magnetic bearing chiller
- Variable flow chilled water distribution
- Chilled water pumps and controllers
- 200 pneumatic steam valves converted to DDC
- 800 steam traps replaced
- Condensate water reuse
- Building automation upgrades
- Air handling units
- Water fixtures
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- Charles Williams, Capital Projects Engineer

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Outcomes Create a More Resilient, Sustainable Future

Through bold strategies, like the Philadelphia Energy Campaign, and deliberate investments tied to strong partnerships, the city and the Philadelphia Museum of Art transformed its landmark facility and established a model for sustainability.

President and Chief Operating Officer Gail Harrity is pleased with the outcomes because they preserve great art for future generations.

"It’s a matter of collaborating appropriately and bringing the expertise and skills to bear with a common goal and desire to see a wonderful outcome," Harrity said.

The Power Behind Your Mission

Johnson Controls is powering Philadelphia’s mission to become a more resilient, sustainable city while improving the community and local economy.

To ensure that minority and disadvantaged businesses participated in the revitalization efforts, Johnson Controls and city leaders formed an economic opportunity review committee to monitor progress. Completed in 2019, the project created 329 green jobs and exceeded diversity goals with 42.1% in minority, woman-owned and disadvantaged business participation.

Watch the video to learn how leaders describe the transformation.
About Johnson Controls:

Johnson Controls is a global leader creating a safe, comfortable and sustainable world. Our 105,000 employees create intelligent buildings, efficient energy solutions and integrated infrastructure that work seamlessly together to deliver on the promise of smart cities and communities in 150 countries. Our commitment to sustainability dates back to our roots in 1885, with the invention of the first electric room thermostat. We are committed to helping our customers win everywhere, every day and creating greater value for all of our stakeholders through our strategic focus on buildings. For more information, visit www.johnsoncontrols.com or follow @johnsoncontrols on Twitter.

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Johnson Controls Building Technologies & Solutions is making the world safer, smarter and more sustainable – one building at a time. Our technology portfolio integrates every aspect of a building – whether security systems, energy management, fire protection or HVACR – to ensure that we exceed customer expectations at all times. We operate in more than 150 countries through our unmatched network of branches and distribution channels, helping building owners, operators, engineers and contractors enhance the full lifecycle of any facility. Our arsenal of brands includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, Ruskin®, Titus®, Frick®, PENN®, Sabroe®, Simplex® and Grinnell®.

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