

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 between 700,000 and one million 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 65,000 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 museum is in the midst of an ambitious 20 year Master Plan, which will transform this iconic building for future generations. This master plan includes upgrading all of its systems, many of which are original to the building. 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: 45%

"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

Mayor Kenney committed the City of Philadelphia to reducing carbon emissions 80% by 2050. To support this goal, the Office of Sustainability issued the City's first Municipal Energy Master Plan for the Built Environment to demonstrate how the City's own buildings could reduce energy use and associated carbon emissions. Since the Art Museum was identified as one of the largest municipal energy users, the City selected Johnson Controls for an energy savings

performance contract to cut the museum's energy use by 23%, while also adding green jobs to the economy.

"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



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.

In keeping with the City and the museum's goals of creating jobs and engaging diverse businesses, Johnson Controls and city leaders formed an Economic Opportunity Oversight Committee to monitor progress. The project created 329 green jobs and exceeded diversity goals with nearly 45% of all contracts awarded to minority and women-owned businesses.



Watch the video to learn how leaders describe the transformation.



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- Charles Williams, Capital Projects Engineer
Philadelphia Museum of Art



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.

About Johnson Controls Building Technologies & Solutions

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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