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Aurora Sinai Medical Center Case Study: Award-Winning Energy Savings

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Greater efficiency supports patient care.

AHA Data & Insights

Aurora Sinai Medical Center

Square footage: 958,411 square-foot campus

Staffed beds: 202

Employees (FTEs): 1,041

ENERGY STAR® Rating: 92 (Current)

Each year, a single ASHE member facility wins the Energy Champion Award, which recognizes exceptional energy efficiency leadership. In 2019, Aurora Sinai Medical Center in Milwaukee, Wisconsin, won the award. It has been a long journey from the beginning of its energy program in 2008, when the facility had an ENERGY STAR rating of 15. Since then, Aurora Sinai has been committed to improving building performance.

In 2016, Aurora Sinai achieved considerable improvement (an ENERGY STAR rating of just above 50), but its sister campus Aurora St. Luke's South Shore in Cudahy, Wis., achieved ENERGY STAR certification with a rating of 75. Both hospitals were operating under the same administration and facility management.

Through deliberate efforts the hospital went on to achieve certification in 2017 and attain an even higher ENERGY STAR rating. This case study describes how Aurora Sinai prioritizes energy efficiency and earned the 2019 Energy Champion Award.

A Culture of Continuous Improvement

Embracing energy efficiency to attain measurable results is a facility-wide effort. With the support of Aurora Sinai's leadership, a culture of continuous improvement was and continues to be sustained by all departmental teams. The medical center's facilities operations team identifies improvement opportunities and are empowered to make operational changes. An engaged leadership team set aside capital to support these identified opportunities.

While capital is certainly vital to improving energy efficiency, seemingly small actions taken by every team member can make a big difference. "During all department staff huddles and meetings, department leaders are encouraged to employ directed conservation efforts, such as turning off unused equipment or lighting," says Mike Collova, facilities manager.

Aurora Sinai's cultural commitment to carrying out the vision for improved energy efficiency has had measurable results. The vice president of hospital operations and the system vice president of facilities operations have both been involved in ENERGY STAR plaque presentations to staff. Leadership has also requested awards be prominently displayed in the main lobby, including the 2018 Energy to Care Award and the ENERGY STAR certification.

Facility Improvement

"Hospital leadership has supported project initiatives from the Aurora Sinai facilities operations team regarding suggestions on improvements in design for operation and building performance," says Jedd Winkler, energy program manager, facilities operations at Advocate Aurora Health.

What facility improvement projects have helped fuel Aurora Sinai's dramatic improvement?

- **Lighting.** Aurora Sinai invested in relighting several areas with LED lighting, including corridors, stairwells and the café.
- **Kitchen and café.** The facilities operations team influenced the design to improve energy performance as part of a kitchen and cafeteria remodel. The renovation efforts included ENERGY STAR rated equipment, upgrading the HVAC terminal equipment to direct digital controls (DDC) for improved scheduling and temperature control and LED lighting replacements, according to Winkler.
- **Infrastructure equipment.** Capital expenditure funds have also been used to upgrade infrastructure equipment. For example, two cooling towers were replaced. Waste steam condensate was piped to pre-heat domestic hot water systems. The facility also upgraded to DDC controls and chilled water pump variable speed drives. At the facility's outpatient health center building, replaced air-cooled chillers and distribution pumps contributed to improved energy efficiency. RTU replacements and envelope and fenestration improvements positively affected energy usage in the hospital's professional office building.

Each project and its expected impact are carefully considered. "Infrastructure improvements, at a corporate level, are graded on a number of different criteria, including positive patient impact, equipment life, energy efficiency and others," says Winkler.

Building Performance Benchmarking

Aurora Sinai's team uses regular benchmarking to track the progress and success of its energy efficiency efforts. "Site facilities operations staff have increased vigilance in benchmarking their daily utility usages, which has encouraged aggressive scheduling of ventilation systems and reducing coincident heating and cooling," says Winkler.

The site facilities operations team monitors energy performance daily and discusses ideas during weekly huddles. The corporate facilities operations team tracks the performance of Aurora Sinai and its sister hospitals comparatively on a monthly basis. The hospitals set annual merit goals for building performance improvement.

Since 2010, Aurora Sinai MC has had over 30% BTU site reduction. From 2017 to 2018, Aurora Sinai had a 3.1% further reduction in source energy use intensity (EUI), decreasing from 278.6 to 270 kBTU/sq. ft. The facility has also made positive strides in gas and electric usage.

Uncovering Savings for Patient Care

Energy efficiency translates directly into savings for health care facilities. Since 2016, Aurora Sinai has achieved $414,238 in annual savings directly related to energy usage and improved building performance. Hospital administration has reallocated funds from the utilities budget to address direct patient care needs.

Investment in the future

Achieving the 2019 Energy Champion Award is a milestone for Aurora Sinai, but it is not an endpoint for its energy efficiency mission. “Since the Aurora Sinai site is an older vintage, there are always opportunities,” says Winkler.

The facilities operations team are already planning on future projects for further improvement, including:

- Upgrading to an automated chiller dispatch, with active chilled water temperature, static pressure distribution pumping and cooling tower conditions controls
- Replacing three additional cooling towers
- Adding passive heat recovery on the mezzanine air handlers’ outdoor intake

As more areas of the hospital are renovated, Winkler stresses the importance of also upgrading the HVAC system, control infrastructure and lighting. “Having a common vision between construction, administration and facility operations has been a boon to remodels,” says Collova.

Improving energy efficiency is a constant journey. “There are no short cuts or magic,” says Winkler. “Results follow engaged staff focused on operational vigilance, attention to detail, consistency and follow-through, from the terminal box to the central utility plant.”

Though it may seem challenging to tackle these types of facility-wide initiatives, there are multiple places to start and areas for improvement. Aurora Sinai aims to build on its previous success and to continue being a champion in energy efficiency.

The Energy to Care program, sponsored by Johnson Controls, encourages hospitals across the country to reduce their energy consumption by 10 percent or more over their baseline energy consumption. Since 2009, hospitals participating in the Energy to Care program have tracked more than $67 million in energy savings. This free program includes a robust energy-benchmarking tool in addition to the awards. ASHE congratulates these hospitals for their leadership in reducing energy consumption.

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