

Markham Stouffville Hospital's Allan Kelly and Elena Pacheco with Honeywell's Luis Rodrigues (centre).



# A DOSE OF GREEN

## Markham Stouffville Hospital takes many measures to achieve environmental sustainability, garnering it positive reception from CHES

**M**arkham Stouffville Hospital (MSH) may not be the newest hospital in Ontario, but it's on track to become one of the most environmentally friendly. Comprised of three sites, totalling more than 1 million square feet, the community healthcare facility has a progressive greening and sustainability program, which earned it this year's Wayne McLellan Award of Excellence in Healthcare Facilities Management.

"I couldn't be happier," says MSH plant maintenance manager Allan Kelly, who, along with vice-president of support services and transformation Elena Pacheco, accepted the award on behalf of MSH. "Everyone is very proud of the measures the hospital has taken to improve sustainability, and this award really validates the efforts being made."

Since opening its doors in 1990, MSH has steadily raised its environmental performance and reduced energy, water and waste costs, while maintaining or exceeding high quality patient care. Some of its green initiatives leading up to the award win include: rescheduling more than 40 air handling units to meet occupancy needs, resulting in more than 1.2 gigawatts (GW) of power savings; retrofitting the hallway and corridors in two buildings with LED lights, which has amounted to 204,791 kilowatt hours (kWh) in energy savings; and conducting a steam trap audit and changing out more than 30 defective traps, producing a savings of 94,146 cubic metres of gas.

Energy efficiency projects implemented thus far have saved more than \$400,000, with monies invested

back into additional conservation measures as well as patient care. Results to date, not including water, have also shown a reduction of 354 tonnes of greenhouse gas emissions.

Four additional projects, which the hospital recently received funding for, will further minimize MSH's carbon footprint by 1,918 metric tonnes.

"Finding money to improve energy and utility costs can be challenging," says Kelly. "In a hospital environment, these types of projects rarely get priority during capital spending discussions, so we explored alternative funding opportunities, which brought us to OntarioBuys."

Established in 2004, the provincial government initiative provides financial resources to projects that help broader public sector organizations adopt

innovation, achieve benefits and improve operational efficiency in supply chain and back office processes. Projects must meet, or demonstrate how they will meet, specific criteria in order to qualify for funding. OntarioBuys typically pays for up to 75 per cent of eligible project costs; however, projects that emphasize innovation or leading-edge themes may qualify for 100 per cent coverage.

“We were awarded \$900,000 in December 2017, which was exactly the dollar amount we were looking for,” says Kelly, who joined MSH exactly two years prior. “It was probably one of the best Christmas presents I’ve ever received.”

The four projects, selected by MSH’s environment and sustainability committee because of their potential to reduce energy consumption and ease of implementation, are on track to be concluded by the Mar. 31, 2019, deadline. They include lowering air exchanges in operating rooms from 20 to six during unoccupied hours (11 p.m. to 7 a.m.), which is estimated to save 950,000 kWh; reducing kitchen exhaust and ventilation; replacing existing fluorescent tubes (approximately 300) with on-demand LED lighting in areas that are lit 24-7; and converting the hospital from an open loop to a closed loop water cooling system, which will increase resource efficiency and reduce

operational costs, saving MSH \$60,000 a year in water alone.

The first three projects have been procured through an innovative process based on value, while the fourth has been obtained through a traditional procurement model solely based on price. Upon completion, MSH will become the energy services company and manage these projects with its own resources, which will help keep costs down.

“Each project will have a significant environmental impact,” says Kelly.

“Take the kitchen exhaust fan that sucks 15,000 cubic feet of air per minute out of the kitchen and pushes it outside,” he continues. “By installing smart technology, the speed of the exhaust fan will be reduced by 40 per cent when not in use. This will provide significant energy savings.”

MSH’s green program and the success it has achieved would not have been possible without the hard work and dedication of its corporate services department, comprised of facilities, environmental services, food services, biomedical services, patient transport, security and waste management. These core services staff members not only implemented the strategies outlined by senior leaders but also gave feedback and provided frontline insight into how the program could be improved.

For example, when MSH implemented real-time building

analytics five years ago, it was the maintenance team that monitored and interpreted the results produced by the new software. As a result, there were many improvements made throughout the hospital, including clearing up scheduling irregularities, static pressure and fan speed optimization in air handling units, and resolving temperature sensor failures and unnecessary damper cycling.

“Staff members (such as these) are the eyes and ears of the hospital and because they’re here 24-7, they know what works and what doesn’t,” says Kelly.

Employee buy-in has also played an important role in ensuring the success of the hospital’s sustainability strategy. MSH has taken a number of steps to raise awareness of, and engagement in, its green initiatives. This includes holding an annual bike to work day, a spring hospital property cleanup event and a Greening and Sustainability Expo to coincide with Earth Day. The expo brings together external vendors, hospital partners and staff, physicians and volunteers to learn about how they can be more ‘green’ in their day-to-day activities and to celebrate the hospital’s earthy-friendly achievements.

“Employees play a crucial role in transforming sustainability strategy into a reality,” says Kelly. “If they’re on board and they feel accountable for the results, then this will affect positive change.” ■



### LEEDing the Way

When Markham Stouffville Hospital (MSH) embarked on a major expansion project nine years ago, it decided to not only add a 385,000-square-foot building to the existing hospital but to also construct a central utility plant off-site that supplies thermal energy, electricity and emergency power through Markham District Energy. This partnership with a community-based utility provider is not only unique — MSH is the first hospital in Ontario to embark on such an endeavour — but it is a great example of working with leaders in the industry to use energy more efficiently. The project was evaluated according to LEED (Leadership in Energy and Environmental Design) Canada new construction standards, earning 35 points towards MSH’s LEED silver designation, which it achieved in summer 2015.