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# Sustainability Report

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Sheridan



## Letter from the President

Dear Sheridan community,

The unprecedented challenges inherent in navigating a global pandemic are compounded by climate, biodiversity, and social crises. The path forward rests squarely on our capacity to enable an equitable and resilient future for all.

To that end, Sheridan has embedded five empowering enablers in our new Strategic Plan, including, “fiscal and environmental sustainability.” Specifically, we have committed to reinforce our leadership in green campus initiatives by: continuing to set new standards for environmental sustainability on our campuses and in local communities; and, to renew our Mission Zero environmental sustainability initiatives with expanded 2024 goals. The concrete planning to deliver on this commitment is reflected in Sheridan’s new Campus Master Plan.

This 2020 Sustainability Report details the strides we have made to foster sustainability; it also points to future opportunities and directions.

In addition to modifying our own behavior to manage our impact on the planet, Sheridan has a pivotal role to play in building a more sustainable future through innovation, education and principled leadership. I believe that engaging progressive voices and mentoring people about citizenship and the responsibilities inherent in living within a democracy is a reliable strategy for driving positive change. In that context, it’s a key to saving the planet.

I am tremendously proud of the Sheridan community for standing by these commitments and, in the process, living its values.

**Dr. Janet Morrison**  
President and Vice Chancellor

## Land Acknowledgement Statement

We would like to acknowledge that the land on which we gather has been and still is the traditional territory of several Indigenous nations, including the Anishinaabe, the Haudenosaunee Confederacy, the Wendat, the Métis, and the Mississaugas of the Credit First Nation. Since time immemorial, numerous Indigenous nations and Indigenous peoples have lived and passed through this territory.

We recognize this territory is covered by the Dish with One Spoon treaty and the Two Row Wampum treaty which emphasizes the importance of joint stewardship, peace, and respectful relationships.

Sheridan College affirms it is our collective responsibility to honour and respect those who have gone before us, those who are here, and those who have yet to come. We are grateful for the opportunity to be working and living on this land.

## Introduction

Sheridan is proud to unveil our second sustainability report, which highlights our progress across various areas of sustainability.

The information and data contained in this report are primarily from Sheridan's 2018 report submission to the Sustainability Tracking, Assessment & Rating System (STARS), which tracks higher education's progress toward sustainability.



Sheridan maintained its STARS Silver rating in 2018 and made improvements across many categories and increased the total score.

We're proud of these achievements and we'll continue working toward improving our STARS rating, as well as our overall sustainability performance and engagement.

## Acknowledgements

This report is largely possible due to the help of co-op students who worked on collecting data for Sheridan's 2018 STARS submission. Thank you to Gurpartap (Guri) Singh, Vignesh Naidu, and Yasmine Awad. Lindsey Jones worked on the layout and graphics within this report. Many Sheridan employees also improved this report with their valuable content and insightful comments.

We thank everyone at Sheridan and beyond who contributed to providing data and information for Sheridan's 2018 STARS submission. In addition, thank you to our sustainability champions around the institution who contribute in various ways, big and small, to making Sheridan a green place to work and learn.

Thank you!  
The Office for Sustainability team

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# Buildings

## Davis | A-Wing

### Construction

- Started spring 2015
- Opened in January 2017

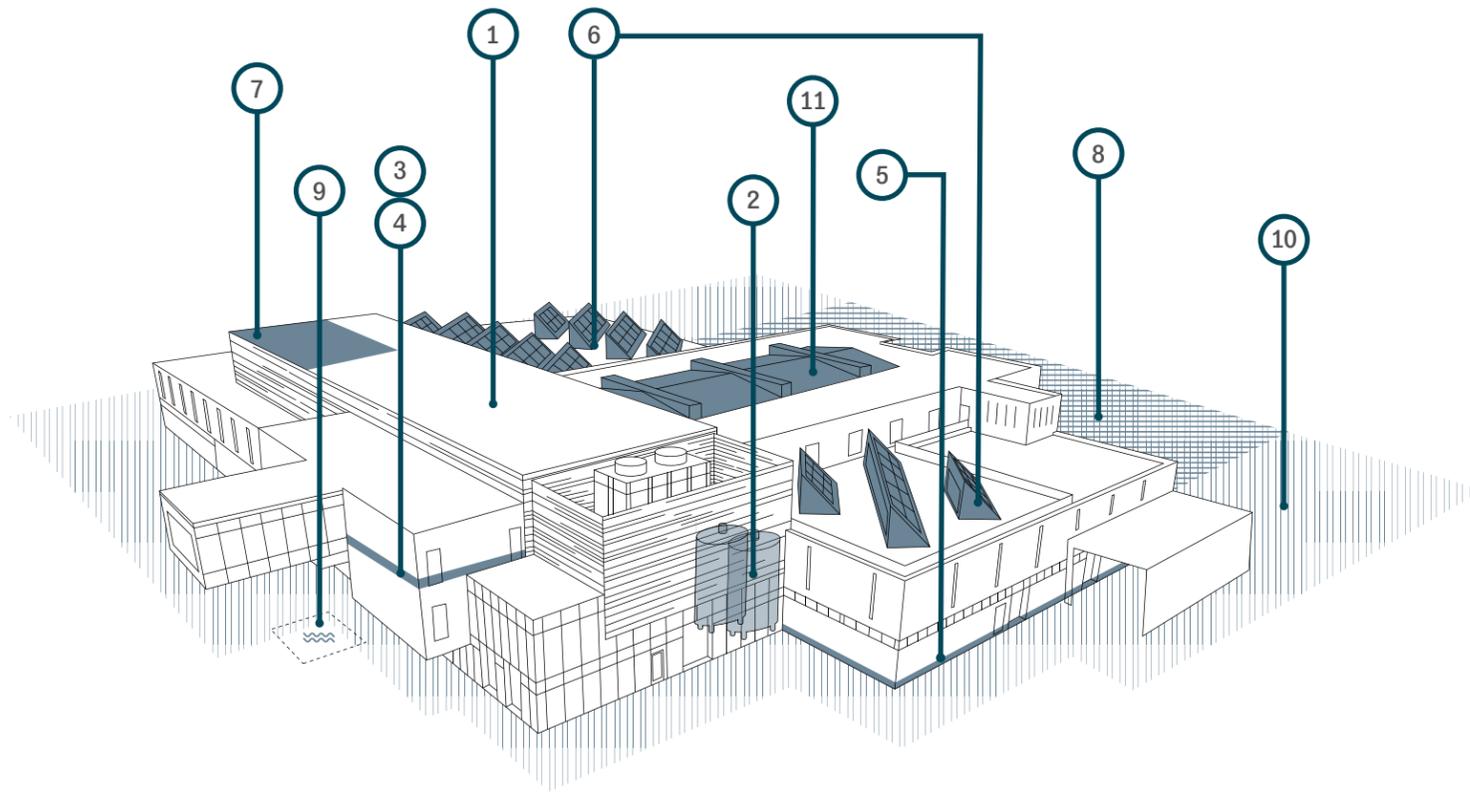
See next page for details.

### Area

- 131,126 ft<sup>2</sup> (12,182 m<sup>2</sup>)

### Function

- Classrooms, labs, offices, Learning Commons, and District Energy Centre
- Home to the Skilled Trades Centre



## Hazel McCallion | B-Wing

### Construction

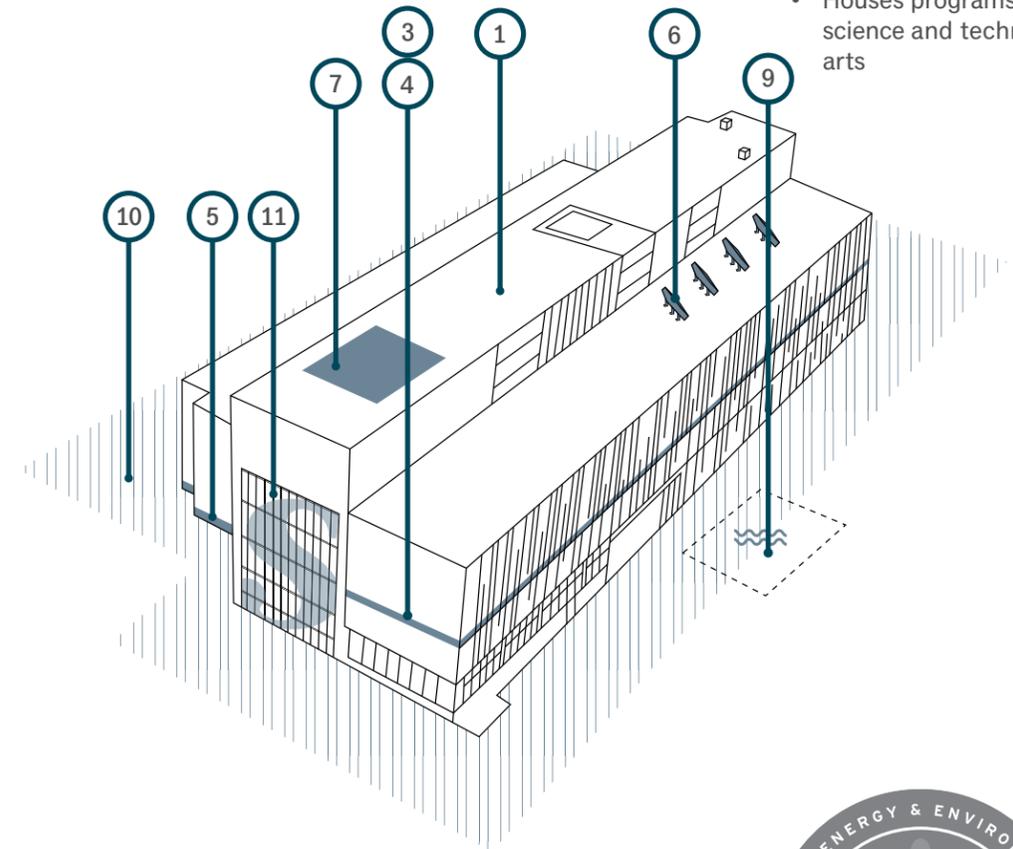
- Started fall 2014
- Opened in January 2017

### Area

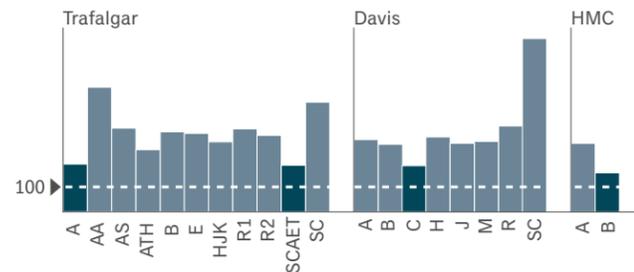
- 237,990 ft<sup>2</sup> (22,110 m<sup>2</sup>)

### Function

- Classrooms, labs, offices, cafeteria, bookstore, Learning Commons, Entrepreneurship hub (EDGE), and Institute for Creativity
- Houses programs in business, science and technology, and arts



Energy consumption by campus



All new Sheridan buildings have a site energy performance target of <100 ekWh/m<sup>2</sup>/year.

Currently Sheridan's largest building





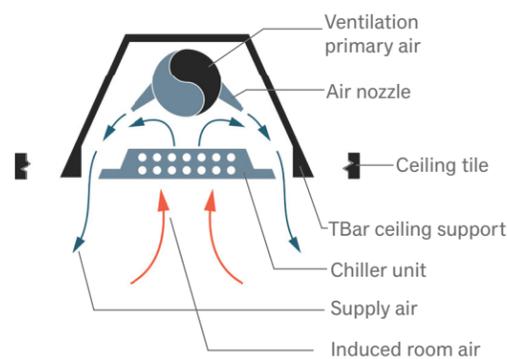
# Buildings

## Smart buildings

1 **Building controls** – Davis A-Wing and HMC B-Wing both have schedules and sensors to reduce building energy use. For example, when the building is unoccupied, lights automatically dim or shut off and the space's temperature adjusts closer to the outdoor temperature.

## Energy efficiency

3 **Chilled beams** – Cold water passes through the chilled beams to cool individual spaces and offer personalized temperature controls. Water-based (hydronic) systems use less energy than air-based systems because water holds more heat energy per unit than air, so less of it needs to be circulated around the building.



2 **Thermal storage** – Insulated storage tanks at the Davis A-Wing store heating and cooling water that's used during peak hours of high demand and cost.

**Living lab** – Davis A-Wing has learning opportunities for Integrated Energy Systems and Electrician programs. HMC B-Wing has view windows for building services, mock-up sculptures, and educational signs.

4 **Free cooling coils** – On cooler days, free cooling can bring fresh outdoor air to cool indoor spaces. Free cooling coils are part of the mechanical equipment and achieve this in a more controlled way than opening a window.

5 **In-floor radiant heat** – In-floor radiant heating is the most efficient way to heat high-ceilinged spaces because the heated concrete is warm in the lowest areas of the space (where people are located).

6 **Solar** – Davis A-Wing has 27 kW of rooftop solar panels for hands-on education. The panels can produce enough electricity to power more than four homes for a year. Both buildings have solar thermal collectors that are used to heat water for washrooms (instead of using natural gas to heat it).

## Building envelope

**Insulation** – High levels of insulation and envelope sealing help prevent loss of conditioned air to the outdoors.

**Doors** – The buildings both have revolving doors that reduce conditioned indoor air from escaping every time the door is used.

**Air curtains** – Air curtains help prevent the mixing of indoor and outdoor air at entrances.

**Windows** – Windows in both buildings have two-pane glass with a one-inch gap filled with argon. They also have thermally broken frames, to prevent air infiltration.

The windows also have a frit pattern and low e-coating. This reduces solar heat gain, which in turn decreases energy use needed for cooling.

Windows also automatically open during fair weather when the automated building management system calls for it. To ensure energy efficiency, windows aren't manually operable.

## Water management

8 **Permeable pavers** – Permeable pavers are built with intentional large gaps to allow water to freely drain through. They also direct water to recharge groundwater supplies, help prevent runoff from paved surfaces, and reduce standing water.

9 **Rainwater** – Rainwater from the roof is collected into a storage cistern and used to flush toilets and urinals in the building's washrooms. This serves the dual purpose of managing stormwater for the site and reducing use of potable water. These cisterns each hold tens of thousands of litres of water.

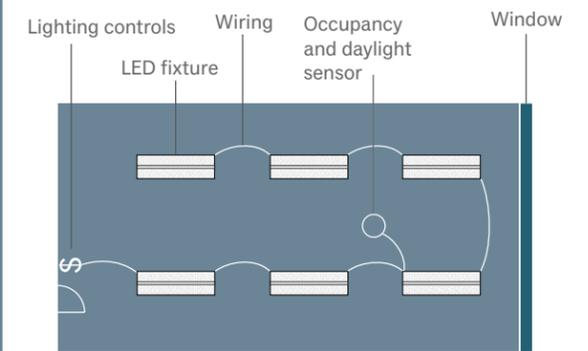
10 **Snowmelt** – Both buildings have a snow melt system. It uses a combination of glycol and water to melt snow and ice when outdoor temperature is below freezing, and moisture is detected on the ground. This keeps walkways safe and minimizes need for salt compounds that can adversely affect local aquatic ecosystems.

**Low flow fixtures** – Both buildings use low-consumption plumbing fixtures that provide excellent water efficiency. Toilets and urinals use stored rainwater first before tapping into clean drinking water.

## Lighting

**LEDs** – Light-emitting diode (LED) light bulbs last much longer and use significantly less energy than fluorescent bulbs. This saves on energy use and re-lamping costs.

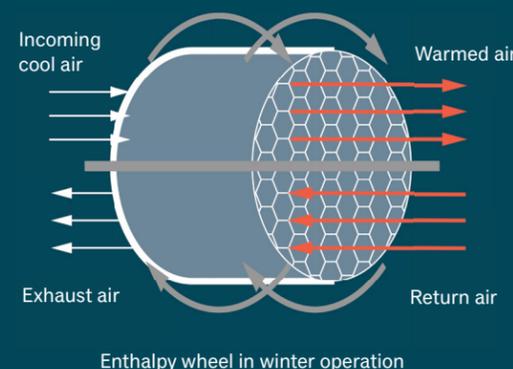
11 **Daylight harvesting** – Windows and skylights allow the buildings to utilize free natural sunlight instead of energy-consuming simulated light. Lighting fixtures near windows and skylights dim automatically when it's sunny outside to take advantage of the free sunlight.



Typical classroom lighting plan

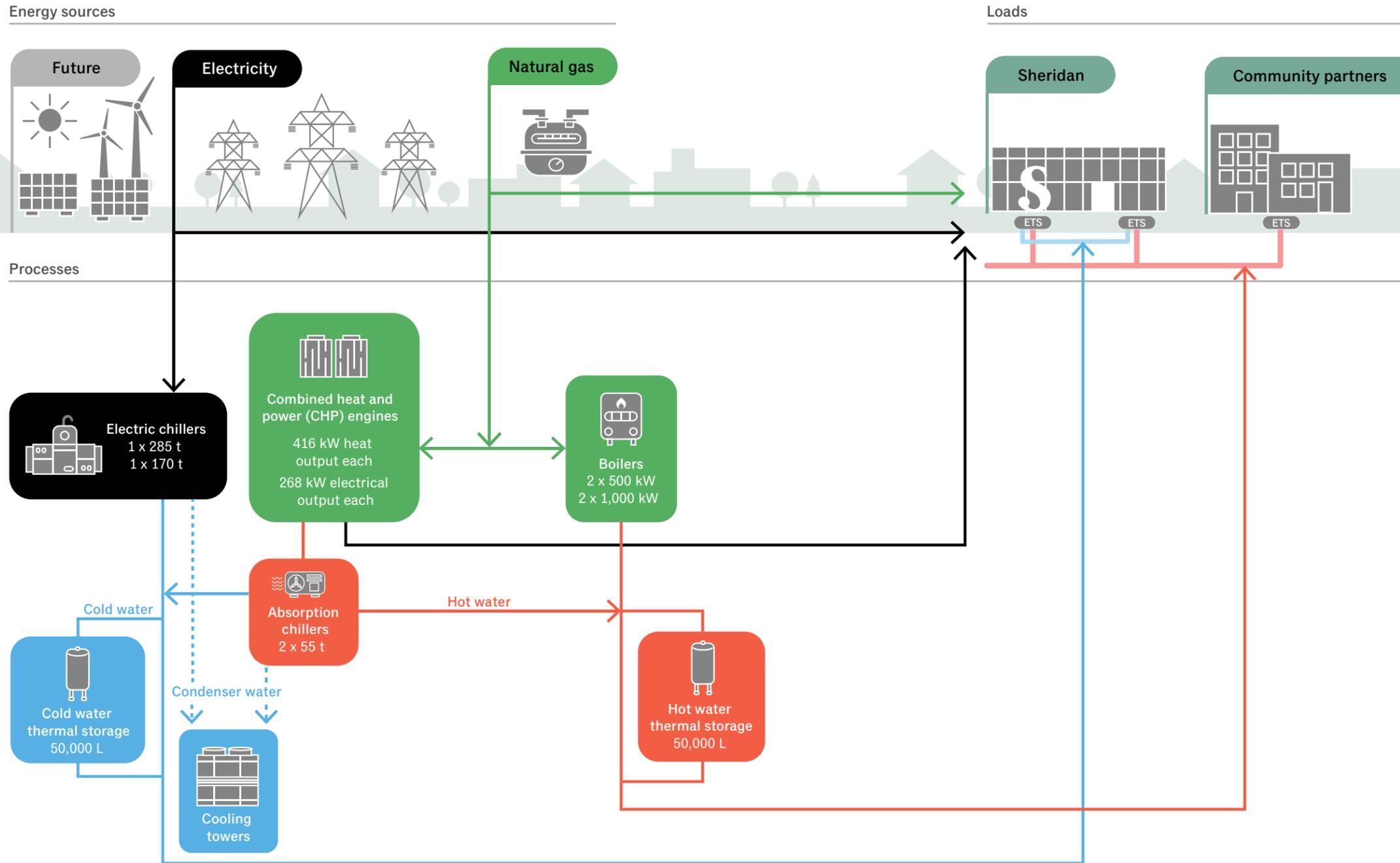
## Energy recovery

Fresh air needs to be brought into the building constantly to flush out stale air and contaminants. The air handling unit transfers heat between fresh and used air without mixing them. This reduces how much natural gas must be used to heat incoming fresh air up to indoor temperature.





## Energy sources and processes



## District energy

Sheridan has built efficient, flexible and modern district energy systems at our Trafalgar Road Campus in Oakville, Ont., and our Davis Campus in Brampton, Ont. These systems will provide all of the heating and cooling services for each respective campus. At Davis, the central district energy centre contains combined heat and power engines that simultaneously produce thermal and electrical energy. It also has absorption chillers and thermal storage tanks. The graphic to the left depicts the general components and flow of energy of this system.

In addition to powering the campuses, the energy centre will be the first node of what could eventually become a municipal community thermal network. By expanding our thermal systems beyond our campus borders to develop a local 'thermal node,' Sheridan is acting as an early adopter/endorser towards establishing a more prolific (and highly efficient) thermal utility for local companies to utilize for heat sourcing/ejection. Sheridan has established discussions as to how relevant facilities can be connected to this thermal node and is working with the municipalities on their community energy plans, with a long-term view to achieving more sustainable communities.

The district energy centres also provide ample education opportunities for cooperative education as well as curriculum course offerings and research opportunities for Sheridan students. The Davis district energy centre is encased in glass, which makes it visible from both outside the building and internally from a classroom.

For our efforts, Sheridan was presented with the Innovation Award in recognition of our Integrated Energy and Climate Master Plan (IECMP). We received the award in 2018 during the Brampton Board of Trade's Business Excellence Awards.



## Bike programs

HMC has a bike rental program where full-time students and employees can rent a bike for free for up to a week at a time. The rental includes a bike, lock, key, basket, and lights.

The Pedalwise Mentorship program is designed to pair new bike riders with seasoned cyclists to ride their bikes together. The goal of the program is to help less experienced cyclists become comfortable with cycling and bike safety, while reducing their reliance on vehicles or public transit for shorter trips. Participants attend educational workshops, make new friends, and share support with fellow community members. This program is offered at both Sheridan Bike Hubs and it's free to join.

## Bike rental usage

### Bike rental demographics



### Bike rental use/transactions



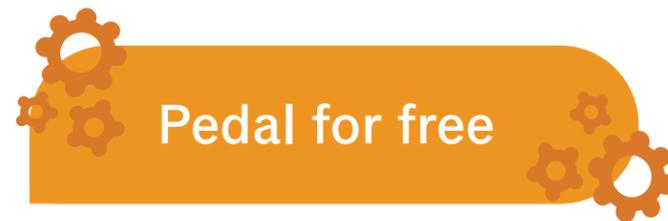
## Bike hubs

The Bike Hubs at Davis and HMC provide a do it yourself repair space with tools to repair and maintain your bike. Volunteers/staff are available to teach and guide visitors. Parts are available for a small fee, if applicable.

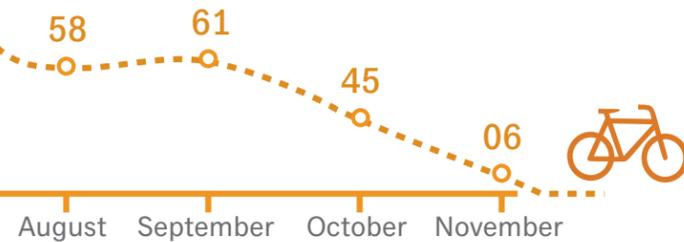
## Bike facilities

Sheridan supports bicycle commuting by providing several exterior bicycle racks at all our campuses, as well as indoor bike storage on our HMC campus. Lockers are available at all campuses for a fee. Shower facilities are also provided at all three campuses. At HMC, students also have access to shower/storage/fitness facilities at the local YMCA building.

In addition, long-term storage is available in dedicated bicycle rooms inside campus residence buildings.



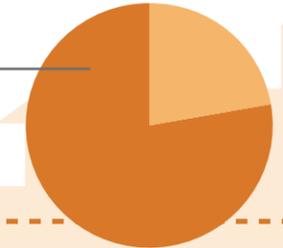
**The average user rented three times**



How do students and staff get to campus?



76% of students use an alternate mode of transportation to get to Sheridan  
Commuting Survey, 2018

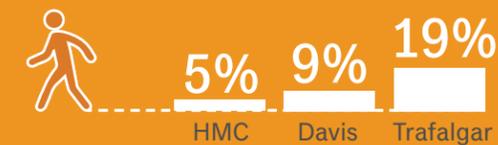


## Two feet and a heartbeat

### Walk

Sheridan offers guided walks on campus. Walking in nature has many physical and mental benefits. Mood Routes are weekly outdoor walks at Davis and Trafalgar campuses hosted by Counselling and Wellness Services. They are a great opportunity to take a break, get some exercise, and re-energize yourself. All staff and students are welcome, and no registration is required.

Percent of students that walk to campus



### Cycle

Approximately a third of students are interested in cycling workshops related to:

- Bicycle maintenance and repair
- Cycling safety courses
- Guided rides with a cycling leader

If you're interested in a guided ride, join the Tour de Sheridan. For upcoming tour information, visit the Mission Zero

[events page.](#)

## Share the ride

### Carpool

Carpooling reduces your carbon footprint, allows you to share the cost of driving, and gives you someone to chat with on your drive. Plus, using the HOV lane is less stressful than sitting in traffic. Feel good about these benefits for you and the planet!

[Smart Commute's](#) tool can help match you with suitable people to share the ride. Check out Sheridan's Parking website for additional information on carpooling permits.

### Take transit

Taking the bus or train reduces commuting stress because instead of focusing on driving, you can read, listen to music, or meditate. All three Sheridan campuses are serviced by multiple transit authorities: Oakville Transit, Brampton Transit, and Mi-Way are run by the municipalities; GO buses, with connections to the GO trains, are operated by GO Transit. Transit riders can also make connections to other local and regional transit providers such as VIA Rail.

1 Bus = 57 Cars



Ontario Ministry of Transportation



## Medicine Wheel Garden

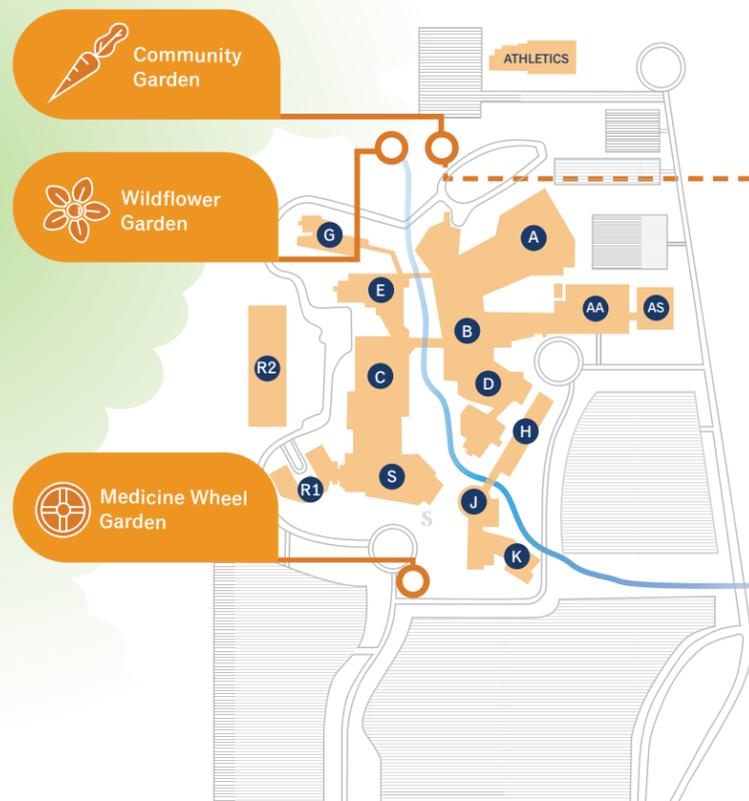
The Medicine Wheel Garden at Trafalgar was a collaborative project between the Office for Sustainability and the Centre for Indigenous Learning and Support. Previously inhabited by the invasive buckthorn shrub, the garden now provides nectar, pollen, and fruits for pollinators. It features four quadrants of native perennials, including three Indigenous sacred plants (sweetgrass, sage and white cedar), surrounded by a circle of armour stone seating.

The circular design is inspired by the Indigenous medicine wheel to symbolize all things connected in the circle of life, on Mother Earth and within the universe. The four quadrants represent the four directions, four seasons and the four dimensions of our well-being: physical, mental, emotional, and spiritual. The shape is rooted in traditional teachings that remind us to walk our life in balance. The garden aims to provide the opportunity for the Sheridan and the wider community to learn about nature and the traditional Indigenous teachings. It's a garden for all peoples and all living things. It provides a sacred space for healing, celebration and peace. The Sheridan Medicine Wheel Garden was officially opened at the College's 50th anniversary celebration in October 2017.

## Community Gardens

### Trafalgar Road Campus

Students and employees are invited to participate in the Sheridan Community Garden at Trafalgar Road Campus. The Community Garden provides participants with the opportunity to learn how to grow and harvest in-season food for personal consumption. Participation is almost entirely free of charge (gardeners may choose to purchase additional plants or materials). The Community Garden is designed to help foster collaboration and community involvement by providing participants the opportunity to teach, learn and mentor each other in groups. Students, employees, and community members of all experience levels are welcome to participate.



## Wildflower Garden

The Wildflower Garden at Trafalgar is home to 25 native species of wildflowers, grasses and perennial groundcover. It was installed during the 2018 Sheridan employee welcome back event. The plants attract pollinators (such as bees, butterflies, and beetles) to the garden by offering them nectar and pollen for their food. In turn, these insects help fertilize crops that become food for humans. The insects themselves act as a source of food for other wildlife in the food chain.



Photograph by Wai Chu Cheng

### Davis Campus

In 2019, the Community Garden expanded to Davis. Eight plots were added: five planter boxes and three in-ground plots. The planter boxes were built by dual credit high school students learning woodworking/carpentry. Many departments, including Skilled Trades and Facilities Management, got involved at various stages. Aerial photos were taken during garden construction.

A weather station was set up on the roof of H-Wing. Using solar panels for power, the unit periodically collected data on rain, wind speed, wind direction, humidity, barometric pressure, temperature, and ambient light. This weather data can be correlated with harvest data to start a long-term data set.





# Mission Zero

## IECMP progress

Developed in 2010, the Integrated Energy and Climate Master Plan (IECMP), is Sheridan's guide on how we will consume 50% less source energy and emit at least 50% fewer GHG emissions by 2030.

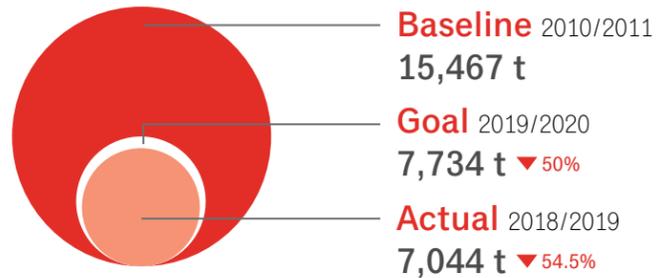
The goals and results achieved under the IECMP are further discussed below.

- 2010-2013**  
Plan completed
- 2013/14**
  - Pilot building automation system
  - Pilot lighting control system
  - Trafalgar E-Wing mechanical and lighting upgrades
- 2014/15**  
Mechanical and lighting upgrades
  - Trafalgar C-Wing
  - Trafalgar G-Wing
  - Trafalgar SCAET
- 2015/16**  
Automation system upgrade
  - Davis J-Wing building
  - Trafalgar H, J, and K-Wing buildings
- 2016/17**
  - District energy network installation
- 2017/18**
  - Brampton district energy centre
- 2018/19**
  - Oakville district energy centre
  - Decommissioned Oakville steam plant
- 2019/20**
  - Connect A, B, C, D, E, AA-Wing buildings to district energy network
  - Davis C-Wing mechanical and lighting upgrades

**Goal –**  
Reduce GHG emissions from energy use by 50% by 2030.



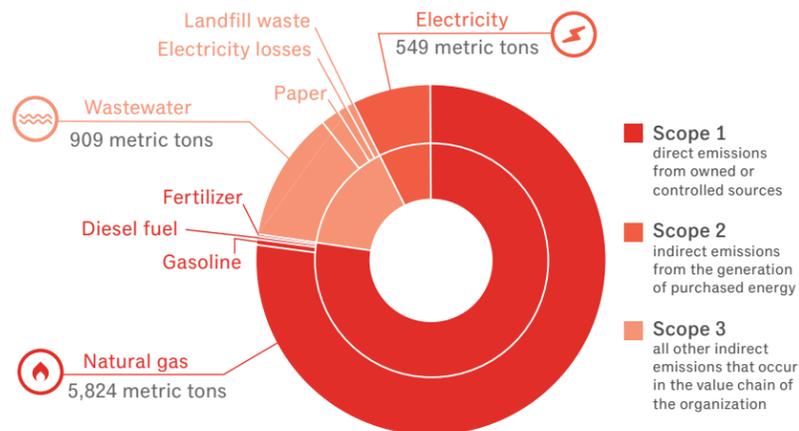
### Carbon emissions (tons)



### Carbon footprint

In 2018/2019 Sheridan's GHG emissions were 7,587 metric tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e). More than 80% of the emissions are from building energy use. Energy-related emissions have decreased by 54.5% (8,423 tCO<sub>2</sub>e) in 2018/2019 compared to 2010/2011. Decreases in building energy use and a cleaner electricity grid were the primary reasons for this reduction.

Mission Zero 2024 will include new energy and GHG targets to help further advance Sheridan's position as a leader in climate change mitigation.



## Energy efficiency

**35% less energy used per student between 2010/2011 and 2018/2019**

In 2018/2019 both electricity and natural gas use went down at Trafalgar Road Campus by 24.1% and 14.4%, respectively, relative to the 2010/2011 baseline.

Total energy use reductions were higher at Trafalgar (21.7%) than Davis campus (8.1%). This was most likely due to a significant increase in enrolment at Davis.

**Goal –**  
Use 50% less source energy by 2030.



Overall, Sheridan achieved a 15.7% (16.5M ekWh) source energy reduction since 2010/2011. This is equivalent to the energy consumed by:

- 583 homes in one year
- 1,227 passenger vehicles driving for a year

In addition, Sheridan's new buildings are much more energy efficient than our older buildings. On a per square foot-basis, Davis A-Wing uses 50.3% less energy than the Skilled Trades Centre did and HMC B-Wing uses almost half the energy of HMC A-Wing.

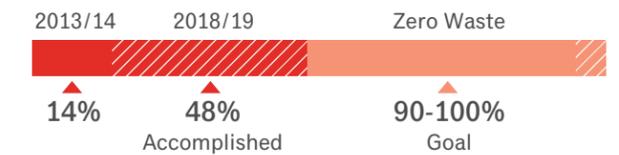
**Goal –**  
Become a Zero Waste campus by 2020.



## Waste

Sheridan reduced total waste produced across all of our campuses by 23% (365 metric tonnes) in 2018/2019. This includes a 54% (732 metric tonnes) reduction in landfill waste and 167% (367 metric tonnes) increase in recycling and organics. These numbers are relative to data from before the introduction of the Zero Waste program (2013/2014).

During this same period, Sheridan increased our diversion rate (i.e. less waste to landfill) from 14% to 48%.



New fire-proof Zero Waste bins designed for accessibility have been installed at the Trafalgar and Davis campuses. They'll also be installed at HMC in the near future.



## Office clean-up

In December 2018, the Office for Sustainability and Facilities Services organized an office clean-up event to encourage Sheridan employees to clean out their offices of unnecessary clutter. Reusable tote bags

and free lunches were offered as incentives. Discarded items were reused, repurposed, donated, or recycled, wherever possible.

**265 people participated in the event.**



# Mission Zero

## Water

Based on the 2017/2018 Ontario College Facilities Management Association (OCFMA) benchmarking report, Sheridan has the highest water consumption per full-time equivalent (FTE) student and per square foot of the reporting Ontario colleges.

The number of students is a fairly good predictor of Ontario college water consumption. Although Sheridan's water consumption per FTE is high, Sheridan has the highest square footage of residence space out of Ontario colleges. Even though residences occupy only 18% of total Sheridan space, they account for nearly 40% of the total water consumption.

### Water conservation tips

1 Always turn taps off tightly so they don't drip.

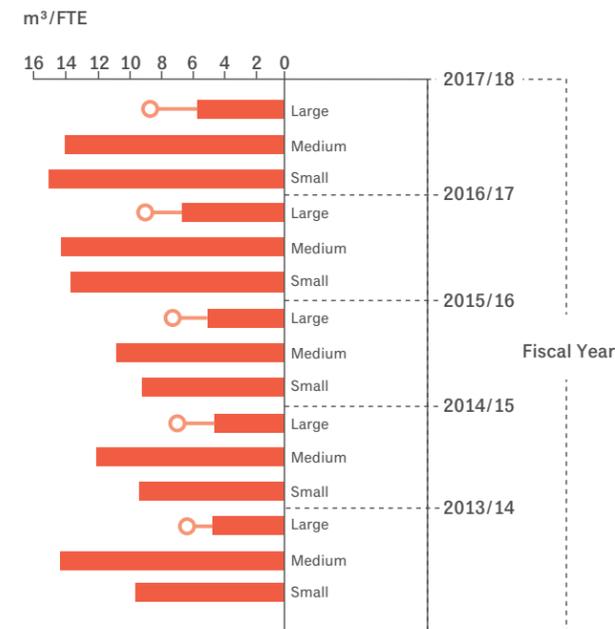
2 Only wash full loads in your washing machine and use the shortest wash cycle possible.



## Water consumption per FTE

○ Sheridan    ■ Average Ontario college

| Small         | Medium       | Large        |
|---------------|--------------|--------------|
| Boreal        | Centennial   | Algonquin    |
| Cambrian      | Conestoga    | Fanshawe     |
| Canadore      | Durham       | George Brown |
| Confederation | Fleming      | Humber       |
| La Cite       | Georgian     | Seneca       |
| Lambton       | Mohawk       | Sheridan     |
| Loyalist      | Niagara      |              |
| Northern      | St. Clair    |              |
| Sault         | St. Lawrence |              |



## SDGs

The United Nation's 17 **Sustainable Development Goals** are a call to action to address the sustainability of the planet and its inhabitants.

*"They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests."*

- United Nations, 2020

Sheridan is interested in evaluating how we're currently contributing to the realization of these grand goals, and learning what we could do in the future.



## Purchasing

In 2017/2018, more than 88% of Sheridan's expenditures on electronic products (including leased equipment) were certified EPEAT Gold. EPEAT is a third party, independent label for sustainable electronic equipment.

In addition, Sheridan's current custodial contractor uses cleaning products and janitorial paper products that are third party certified green and sustainable.

Sheridan will continue to look for opportunities to continuously reduce our impact on the environment.

## Next phase

The Principled Path:

- 

Understand the full economic, environmental and social costs of our activities, and our influence on the world.
- 

Protect and restore the integrity of Earth's ecological systems, with special concern for biological diversity and the natural processes that sustain life.
- 

Uphold the physical, emotional, financial, and spiritual rights of all people, with special concern for the rights of those with less freedom and power.
- 

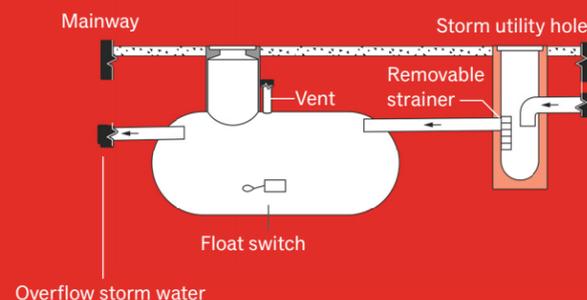
Recognize the dependence of human civilization on nature and practice decision-making that simultaneously maximizes benefits to natural, social and economic systems.
- 

Provide and promote transparency, fairness, cooperation, and peace.

## Rainwater harvesting

At HMC B-Wing, rainwater from all roof drains is collected into a 35,000-litre underground storage cistern. This harvesting system captures more than 90% of the average annual rainfall on the building.

Davis A-Wing has three cisterns. At 30,000 litres each, they can hold a total of 90,000 litres of rainwater.



“UNLESS someone like **you** cares a whole awful lot, nothing is going to get better. It's not.”

- The Lorax, Dr. Seuss

Learn more.

Get involved.

## Contributors

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