

# A+ for Solar on the Exam Centre

The 4<sup>th</sup> floor of the Exam Centre, home to the Sustainability Office, is continuing with its efforts to be eco-friendly (it's already LEED Gold certified) with the installation of solar panels this September. Our summer Work Study student, Mariya, sat down with the Director of Sustainability Operations, Paul Leitch, to get the full scoop on the solar project.

**Mariya (M): What is the solar project?**

**Paul Leitch (PL):** *Solar panels will be mounted on the roof of 255 McCaul Street, with panels facing south so that throughout the year the sun's rays will hit the front of the panels and will convert the energy from the sun into electricity. The electricity generated will be fed into the Exam Centre to offset its regular day-to-day electrical energy use. The solar system is based on photovoltaics (PV), which is a well-proven technology for converting the sun's energy into electricity.*

**M: How long did the planning process take?**

**PL:** *[The solar project] started in December of 2015 when we proposed the idea. The real start I would suggest was in March of this year. And March to September is how long it will take to complete. We expect to be generating electricity for the Exam Centre by the end of September this year.*

**M: When will the solar panels be installed?**

**PL:** *The schedule is to have the panels installed and running this September (2016).*



Ron Swail (left) and colleagues from the solar panel project on the exam centre roof (photo by Jonathan Sabeniano)

**M: Will the panels provide electricity for the whole building?**

**PL:** *The panels will produce a portion of electricity for the building, offsetting the normal electricity supplied to the building by Toronto Hydro with electricity from the sun! The solar system will in effect directly contribute to the electricity the building needs and Toronto Hydro makes up any shortfall. We will buy less electricity when the sun is shining.*

**M: How will the solar panels be maintained during the year?**

**PL:** *There is very little to do. Once or twice a year someone will go up and clean them to make sure there are no leaves or dirt on them. We will make sure the electrical devices are in good shape and will likely have to replace some electronics equipment in 10 years or so. The panels themselves will last more than 30 years.*

**M: How much energy will be produced in a year? How much is that in comparison to a regular home?**

**PL:** *By the end of the year, and every year, the system should provide around 75,000 kilowatt hours. A regular house needs around 10,000 kilowatt hours a year, so our solar panels on top of the Exam Centre will produce 7.5 times more energy than an average home in Toronto needs each year.*

**M: What will happen during cloudy days?**

**PL:** *Toronto hydro will still provide electricity to the building as before. The Exam Centre will use as much electricity as it needs, just as before the PV system was installed. But now, the sun's energy will contribute some of that electricity directly to the building. On cloudy days and at night Toronto Hydro provides all of the electricity the building needs.*

**M: Are solar panel installations a trend you see for the rest of the St. George campus?**

**PL:** *This project on the Exam Centre is part of an on-going assessment for solar on campus buildings. We have a few systems on campus now like the [Green Roof Innovation \(GRIT\) lab at John H. Daniels Faculty of Architecture, Landscape, and Design](#), which is 10 kilowatt system and is used for research and contributes electricity to the building. There is also a 35 kilowatt system on the Mining Building which generates some electricity for that building. In addition, we're looking at other buildings on campus to put solar systems on where the roofs are strong enough to withstand their weight and there is good access to sunshine [many roofs are not suitable due to shading from other building]. We could have a few more systems here at the St. George campus over the next couple of years!*

**M: What are the environmental benefits of installing solar panels?**

**PL:** *The biggest benefits are that they reduce the demand for electricity from fossil fuels. Installing solar panels is about reducing the electrical and carbon footprint, reducing greenhouse gases. Besides environmental benefits, here at U of T solar panels have tremendous educational benefits for staff and students to understand how renewable sources of energy work. In addition, the system will generate enough electricity to pay for itself in about 10 years or so.*



**M: Are there any downsides to installing solar panels?**

**PL:** *If I could think of some I would tell you, but I can't really think of anything. It's going on the roof that won't be used for anything else. The Exam Centre roof also collects rainwater for use in the building – to flush toilets – and that process won't be interrupted. Snow will collect on the panels in the winter, so it won't generate much power if there are heavy snowfalls, but we take that into consideration when we design the system.*

*What's more, the price of installation is coming down and installation experience is growing. Plus, as I mentioned, the life of these panels is over 30 years. I put up a 1 kW solar system in 1982, it's still working, and that's using old technology, so I know these panels will last for decades!*

**M: How else is Facilities & Services making our campus greener?**

**PL:** *Making the campus greener is a core objective of Facilities & Services. Every day, dozens of staff are engaged in reducing our environmental footprint. Many of our projects are not highly visible but through our efforts, we have achieved significant energy and carbon footprint reductions [check out the most recent [Sustainability Yearbook](#) for details]. For example, controlling the indoor air temperature in buildings, and doing that efficiently is what we do across campus. We have been designing [buildings] a lot more efficiently in the last few years, which means we are saving a lot of money and a lot of carbon emissions, all the while making the campus a comfortable space for students to learn in. I mentioned we're looking at doing other photovoltaic [solar] projects on campus and many other conservation and carbon footprint reduction projects. Right now, we are continuing with more lighting projects around campus to accelerate the conversion to high efficiency lighting called LED. The Medical Sciences Building, OISE and Robarts Library are examples of where significant retrofits have been undertaken, but whose positive impact to the environment only a few can see.*