

Dr. Nathan C. Manion

Sustainable Energy Applied Research Centre (SEARC)

St. Lawrence College

Kingston, Ontario, Canada

K7L 5A6

(613) 544-5400 ext. 1489

NManion@sl.on.ca

Dear STARS Steering Committee,

On behalf of St. Lawrence College, I am pleased to submit this letter of support for the Innovation and Leadership Innovation Data Tracking Sheet, as part of the College's inaugural AASHE Application. As project manager and lead researcher for both the Sustainable Energy Applied Research Centre (SEARC) and the new Sustainable Living Centre here at St. Lawrence College, I want to outline some of the work that is both underway and in planning phases for the two Innovation and Leadership projects included as part of this application: the Passive House project, and the Sustainable Living Centre project.

In 2018, the College was successful with their application to the province's 2017-18 Low-Carbon Building Skills Training Fund Apprenticeship Enhancement Fund Stream (LCBS-AEF). This project that was approved was the construction of a side-split residential duplex building on campus – one unit was to be built to Standard Building Code while the other side would be built with LEED Platinum targets in mind. The building would allow the carbon footprint and life cycle energy and environmental impacts to be compared between the two units. Construction of the building was started in September 2018 and was just recently completed. Students from a number of different programs (e.g. Civil Engineering, Carpentry, Energy Systems Engineering Technicians, Electrical, Plumbing, Masonry) were invited to participate in the construction of the building at each phase of construction. The program provided experiential learning opportunities for hundreds of students that allowed them to learn sustainable building skills and design.

Currently, the College is in the process of acquiring several different renewable energy technologies to include into each side of the house, where it will serve as a low carbon building skills tool and demonstration home for students in apprenticeship, trades & technology programs, as well as industry and community audiences. Some examples of partnerships and research projects that we have initiated already as part of the Passive House project include: i) the installation and testing of new solar PV vinyl siding that is being developed in nearby Smith Falls, Ontario, ii) installation and testing of

Ridgeblade roof-mounted wind power, which will be their first peaked-roof installation in the world, and iii) installation and testing of a biomass pellet hydronic heating unit that is new to the North American market. This new space will therefore serve as a space where new technologies can be installed, maintained, and evaluated, thus offering valuable ongoing data collection that can be used by builders, municipalities, and companies who utilize these technologies, to make more informed decisions about how to best approach future sustainable building design.

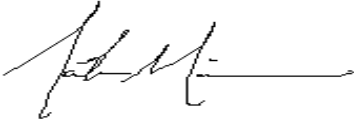
The second innovative project currently underway at the College is the construction of their new Sustainable Living Centre. An old gymnasium on campus is being converted into an integrative learning, research, and fabrication centre for new sustainable building designs. Building upon our successes in academic programming in the areas of building and energy technology/trades, the Sustainable Living Centre will allow for over 1100 students in 12 academic programs (technology/trades/apprenticeship) that vary in length and credentials to work with industry partners on multi-year sustainable building projects. The building projects will be focused on constructing sustainable modular buildings that will allow students from a variety of programs to practice implementing sustainable building practices.

The goal is to be able to expose students from the 12 academic programs to the building project in each semester of their study. Industry partners will be able to use the SLC for training purposes; to display related products and services; and as an opportunity to recruit graduate. Some of the key objectives of the Sustainable Living Centre are to: i) create partnerships that provide structured, accessible, and meaningful learning activities, ii) to simulate real world work environments and problems, ii) to ensure students use self-assessment and reflective practices to solidify the learning, iv) to apply classroom learning in professional environments and enhance essential employability skills, v) and to receive formal recognition from the College for successful completion of the activities. One example of a project at the Sustainable Living Centre that was just started in partnership with SEARC includes a small home design using new innovative insulated wall structures by a local Kingston company. A second example is a partnership we have started with ASM innovations, where we are helping them design a northern off-grid greenhouse that will be built for remote, northern aboriginal communities. We are also excited to work with ASM on potential future projects aimed at housing projects, and helping to overcome some of the technical challenges facing northern and remote communities, such as the Innovation Station in Sioux Lookout and Cat Lake.

Both the Passive House project and the Sustainable Living Centre projects offer the opportunity to not only improve the sustainability of our campus, but also to provide

integrative action learning opportunities for students that enable them to have positive impacts on sustainable design and buildings for local industries, municipalities, and groups in need of sustainability guidance. Should you require any additional materials or information I would be happy to supply it.

Sincerely,

A handwritten signature in black ink, appearing to read 'N. Manion', with a long horizontal flourish extending to the right.

Nathan Manion, BSc, MSc, PhD
Project Manager, Sustainable Energy Applied Research Centre (SEARC)
Project Manager, Sustainable Living Centre
St. Lawrence College, Kingston, Ontario, Canada



Figure 1. Concept art of west, and south wall views of the future Passive House project. Currently the external portion of the house is complete, and work is beginning on using students to install the majority of the remaining energy infrastructure. (artwork by Shoaltz and Zaback Architects Ltd.)



Figure 2. Concept art of south, and east wall views of the future Passive House project. Solar PV panels as well as the new Ridgeblade wind system on the ridge of the building are depicted on the 'enhanced' side of the duplex. Dual front doors and internal partitions also allow for comparative blower door tests and other comparative learning opportunities. (artwork by Shoaltz and Zaback Architects Ltd.)



Figure 3. Photo of the south facing wall of the new Passive House project during its construction phase in mid January. (date of photo: January 17, 2019)