

File: TBD

Date: March 18, 2022

Project: **Rise Realty Student Residence**
785 Gordon St
Guelph, ON

Height Details: 10-Storey (30m)

Density Details : 389 Dwelling Units

Prepared By: L.Guzman-Javalera

Sustainability Statement

The City of Guelph's Community Energy Initiative (CEI) lays out a strategy for the reduction of emissions we generate through construction. The City of Guelph's goal is the reduction of corporate greenhouse gas emissions to Net Zero by year 2050. With a considerable large long-term environmental performance expected in less than 30 years, community leadership is the champion of these sustainable strategies needed for implementation to reach the goal. The vision of Guelph requires the creation of a *"healthy, reliable and sustainable energy future"*, one which will *"increase the effectiveness of how we use and manage our energy and water resources"*. The Community Energy Plan (CEP) focuses on 5 goals: investment w/ a sustainable energy future; reliable, competitive energy, water, transport services available; reducing greenhouse gas emissions; reducing energy & water consumption; and publicly funded investments supporting these 4 goals.

Buildings are our global impact. At SRM Architects, we have been working on the planning of new city spaces for various communities over many years. As we continue to progress, we understand the value of air quality, water usage, energy consumption, material sourcing and life cycles of these, as well as transportation impacts that construction produces. With construction making up more than a 1/3 of the world's pollution, we understand that what we create has a huge impact on our planet. For this reason, we take utter care in our design decisions, which include material & systems selections. Habitability and usability of the spaces we create is certainly assessed; however, most importantly we take into consideration all resource lifecycles including source, transport, installation, usability, longevity, and recyclability of the various materials we utilize. Future use & the impacts of our work, especially in the last decades, will ripple through the coming century and beyond especially when referring to *Global Warming*. Thus, for human beings to have access to high quality living environments, we must consider the complexity and impact of construction through design and most importantly sourcing of all the resources involved.

This design philosophy and our background in architecture expertise considers sustainability to be engrained in our work. The incentive for several of our most innovative projects like the FMRP, which use a Geothermal heating and cooling system, is to strive towards a better future. We think that going above and beyond

the norm to produce a building that is considerate to its environment as it is timeless is our guiding principle. Whenever possible, our selected materials and systems are locally sourced, or as local as we can find. Our careful design approach which embodies our client's vision first, also has future generations in mind. Thinking ahead to who will inhabit and how they will use the spaces impacts our building's Basis of Design. It is important for an architect to understand true sustainable design from the inception of the concept phases to be truly good, and nothing less is acceptable in our design vision, where the biggest potential is at stake. Whereas we consider our client's business needs, utmost care is placed on impact of the quality of materials employed and design of the spaces to be inhabited. The result is careful articulation embedded with the knowledge we harness through our technical expertise. Not only in actual construction, but also from an initial design stage, we consider our broad knowledge of materials, system processes, best use of space, energy considerations and place them towards innovative strategies needed to successfully mitigate resource consumption first through passive approaches and then through more active technologies.

To develop these fundamental ideas, we do not value engineer quality to reduce costs but rather would consider the design intent and rearticulate as necessary, to avoid needless waste of space or resources ultimately helping to reduce costs but also pollution and other negative impacts to the environment. We aim for low-maintenance solutions, which today equals to low heating and cooling costs especially in our climate zone. With our sustainable designs, we also aspire to inspire a new generation of architects and clients to generate a built form which is respectful of nature and creates harmony with its environment. Our reduction of our ecological footprint as much as possible and creating of places where clean air, clean water and reduced waste is predominant, will allow inhabitants and surrounding communities to stay healthy and keep aiming toward a more sustainable planet.

Community building requires the inclusion of under-represented communities and affordable housing is part of the solution. Within affordable housing strategies, providing options for students is a piece of the pie and one we are striving towards that here. While rental prices have not yet been established, and affordable housing isn't yet proposed, our client is in research stages with current CMHC programs and Wellington County guidelines to figure out how subsidies and low-cost loans can help us achieve affordable housing solutions. Certain programs which provide incentives toward affordable housing will be further analyzed as the design progresses. A CMHC multi-unit student housing loan insurance is one example. This program also encourages accessibility and energy efficiency which are already part of our design approach.

Having analyzed some important points in the Community Energy Initiative document and City of Guelph's Community Energy Plan goals, we have summarized some of the sustainable strategies being incorporated into the design and ideas that are being discussed to further enhance the reduction of energy and water resources utilized as well as other sustainable approaches worth implementing. Find below the each of the below mentioned categories based on the City of Guelph's Community Energy Initiative (CEI) which will help us help the City of Guelph to attain the 5 goals of the Community Energy Plan (CEP):

<p>Transportation</p>	<p>Considering the influx of students that come to Guelph every academic year, our client has decided to house 520 students as future inhabitants of 785 Gordon St. 29,507 students make-up this fluctuating 21% of the overall population of the City of Guelph (143,740 population as per Stats Canada, 2021). For this reason, the focus has been their needs. Given that most students do not own a vehicle, and the fact that a transit pass is part of the tuition fees at the University of Guelph, as it is for various post-secondary institutions, we assume the predominant way in which students get around is public transit. Being one of the most sustainable forms of transportation, this has made an impact in our sustainable strategy especially being alongside one of the main street corridors of the city on Gordon St. where access to transit is available. Reduced parking numbers are based on a rate of 0.25/bed which is extracted from focused studies of actual vehicle usage of our population segment. All ratios taken from specialized studies have been used to provide adequate amounts of parking for our building's use.</p> <p>Additionally, an increased number of bicycle parking, is widely provided. The design of our building uses ground floor spaces to house a total of 432 bikes through mostly secured spaces. Because public transit and biking make up the most use of transportation for our inhabitants, this is considered in our design. Furthermore, parking will be provided with accessibility spaces and with EV ready conduit for EV parking conversion soon after. A smaller number of EV parking spots will be provided from the beginning at surface in our visitor parking for temporary access to charging.</p>
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<p>Waste Management</p>	<p>Although a decision has been made to utilize private waste pick up for our building due to our tight space restrictions on the site, adequate waste management strategies are provided. For example, in addition to normal garbage pick-up, recycling and composting will be provided at the Refuse Room at Ground Level alongside our compactor in the Garbage Room to provide a sustainable strategy for our building resident's waste disposal.</p> <p>Furthermore, programs can be provided by the building management with areas where students can “Leave what you don't need, take what you can use”. As a suggested and already popular strategy across the GTHA and particularly in student residences, this is also an effective way to keep useful things out of the landfill. The changing hands to recycle the use of necessary items that are usable and simply need to be unloaded for cyclical use is another important way in which our <i>Student Residence</i> will reduce its overall waste.</p>
<p>Water Resources & Use</p>	<p>Given our large number of terraces and outdoor spaces, we are prepared to explore water collection strategies with our mechanical engineering team to use the necessary network of rainwater leaders and wastewater conveyance to determine any available resources usable for collection and irrigation of our outdoor landscaped areas which will help reduce the overall water consumption of the building.</p>
<p>Waste-water Management</p>	<p>Given our large outdoor landscaped areas, run-off will be reduced through design which inherently mitigates the storm water load on the sewers. If suitable, given the large terraces and roof area, we'd be looking at strategic locations where accent planting options can be supported and provided to furthermore mitigate roof run-off or help treat some of the water collected on the roofs for alternate uses.</p>
<p>Built Infrastructure</p>	<p>The focus of creating a residential building for <i>Students</i> is not only necessary in the community of Guelph given its influx of students each academic year, but also the</p>

	<p>ability to provide some affordable housing options to the community which it serves is an important sustainability factor. Having the availability to house a growing population at an affordable price is another definition of sustainability that is important and often dismissed. Although we are not yet providing options for affordable housing, our team is researching the possibility.</p> <p>Making up a fifth of the city's population, it is sustainably-minded to consider the effects of quality design and longevity of finishes as factors of sustainability. Well-constructed, long-lasting materials that are designed with students in mind from the beginning, mean less need to renovate older housing or lower density housing by transforming family homes which are divided to create student apartments. Ultimately, this would be reducing the available homes in family neighborhoods for the economic benefit of investors seeking to house students in smaller or less dense areas.</p> <p>Again, our consideration of material resources used in finishes, but also architecture design and building systems means that we are looking at cycle costs and future uses, but also environmental costs associated with sourcing and actual usability. The potential long-term effects both economic (low-maintenance) but also ecologically minded (life-cycle costs associated with each sourced material and spaces created) are important towards a sustainable future and reduction of carbon emissions and energy resources.</p> <p>The same way that there are senior residences focused on older communities at an affordable price, our focused design on the needs of students and not just a typical renter/buyer allows this building to be part of long-term use for many future generations to provide a fair start in their change of life and adult life journey.</p>
<p>Environmental Performance & Thermal Comfort:</p>	<p>We have used geothermal systems in the past in High Performance buildings. This is not always suitable for every project, nor financially feasible in some cases.</p>

<p>Strategies for Heating & Cooling</p>	<p>Nonetheless, efficient heating & cooling systems are always a priority for us. Working in tandem with our mechanical engineering team, we will provide an Energy Recovery Ventilation (ERV) system that will be able to efficiently provide thermal comfort to our student population, while being able to cause the least impact possible on our environment in a common residential-use situation.</p> <p>Building management would be able to control and reduce public area loads by reducing make-up air during off-peak hours in amenity and corridor areas. While each unit will be thermally controlled by its user to adapt to their needs, an overall range set may be used by building facility management to manage common use. Likewise, having quick access to operable windows in most spaces will allow for natural ventilation of habitable spaces which furthermore improves not only air quality within the building but reduces the need for energy consumption when suitable.</p> <p>The envelope is another way in which we look at mitigating the effects of our extreme climate. We make sure to select the highest level of insulation factor possible for our building's exterior windows and walls up to its most energy-efficient vs. cost-effective factor. Keeping to a range of R10-20 we strive to maintain a high-performance insulated envelope wherever possible or even higher whenever doable as may be the case in roof assemblies.</p>
<p>Energy Resources: Wind, Solar & Other sources</p>	<p>With the large area on the roof that is inaccessible, there is possibility to explore solar energy to compliment the needs of the building and reduce its overall or future energy consumption needs. This is not something that has been yet established but with the design form being stepped and the surface area being available, there is a possibility of energy options to explore even if it is to simply create possibilities for future conversion or supplementation of this strategy to be utilized in tandem with typical grid use.</p>

Alternatively, there are energy options providers that sell electricity or allow one to reduce emissions footprint by allowing building owners, or facilities management, to mitigate energy usage through the purchase of available renewable energy that will offset the typical use of a large scale building as is 785 Gordon St, Guelph. Bullfrog Power is a Canadian green energy retailer that offers renewable energy sources such as wind, and low-impact hydro, for example. If solar panels aren't an option, there is the possibility of buying a percentage of the electricity utilized from renewable energy sources this way too. We'll be sure to explore what would be necessary to make our building ready for this option.

Furthermore, the reduction of electricity consumption is maximized when designing to have ample sources of natural light. Through the extensive use of large windows in our design as well as high R-value products in our building envelope –be it walls, windows or roof, we'll be able to reduce the energy consumption of tenants. The terraced design also allows to maximize natural light and the possibility of solar heat entrapment on the slab that will be radiated over the course of the day to help keep floors warm. The passive approach most important in energy reduction is the building orientation and form which helps to use the sun's energy in its design by maximizing southern exposure to most units.

Window spaces that are south facing provide much needed solar energy to maintain warmth in winter and windows around the landscaped courtyard areas of the design allow the coolest air ventilation to penetrate the building through the operable windows. The large terraces used from spring to summer and even at times in the fall will give students the possibility of more outdoor living which supports sustainable lifestyles. These passive strategies are most sustainably important in our design and will aid in the maintaining warmth in winter and coolness in summer to lower overall energy consumption.

	<p>To ameliorate wind effects at ground level, the landscape design in the front at Gordon St. and along Harvard Rd. includes trees that will reduce westerly winds and allow for favorable conditions walking or sitting at ground level whether it is at the public plaza or at any of the promenade spaces designed. The property, thus, will be tree-lined on all sides or corners to protect it and beautify the streetscape. The design idea is to create a microcosm park condition surrounding the building.</p>
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Considering the goals and measurement guidelines delineated through the Community Energy Plan (CEP) and the Community Energy Initiative (CEI), the investment at 785 Gordon St, Guelph, has been studied from various angles and expertise through our team of consultants. The project is envisioned to ultimately create a positive impact. Those involved in this project aim for the design to be approached in a way that will be beneficial to the overall community. The potential for this project includes investment with a sustainable energy future and innovatively segmented and specific customer base; reliable, competitive energy, water, & transport services will be available to the inhabitants; reduction of greenhouse gas emissions based on metrics of typical buildings of this type and size are expected to be implemented; reduction of energy & water consumption through rain water collection for irrigation and reduction of energy usage through natural lighting strategies, EV charging, natural ventilation availability, envelope performance, overall design form and orientation along with the use of outdoor spaces for recreation are also important parts of the design. The reduced car parking and increase in bike parking and conscient use of pedestrian focused spaces at ground in public and private areas as well as access to public transit is also a sustainable strategy deemed appropriate for this new typology, which is not as commonly stipulated. The project will also study and attempt to fulfill the requirements to apply for publicly funded investment to aim to create affordable housing strategies for students, be it that they are viable for our client.

Overall, the design attempts to support the Community Energy Initiative and Community Energy Plan goals. By creating a sustainable and quality student residence housing 520 students, we will also create a community hub. With commercial spaces at ground level, providing public areas that double as amenity for those who inhabit the building but also for the public; through this we hope to extend its use to its adjacent community. The idea is that cafes and co-

working spaces become available for students and young professionals at the available commercial spaces. The front of the building along Gordon St., the corner plaza at the corner, or promenade gardens along Harvard Rd. will act as a community parkette area for those walking around the neighborhood and create a beneficial micro ecology for bees and birds in the area. Through our promenade garden condition, we have embraced our building from all sides, helping to reduce the heat island effects of construction and hardscape in cities. The landscape will aid in further reducing energy usage by naturally cooling the surrounding environment of which the building is part of. The plantings including trees, shrubs, low plantings, and grassed areas to improve air quality at various levels both outside but also within the building as adjacent spaces influence the interior. Being able to create shaded cool areas also helps in reducing energy usage to cool the building in summer and helps us to maintain a more manageable winter scape with more natural snow hoarding areas in place.

With our knowledge of sustainability along with our team of consultants, we will be able to further the design of 785 Gordon St, as we strive towards a sustainably minded student residence in the City of Guelph. Although net zero is Guelph's goal in the next 30 years, every little step we take overtime, and every project puts their grain of sand onto this mountain we are beginning to climb to save and maintain our Earth as we know it. Meanwhile, SRM architects will continue to design as we always do, with sustainable strategies in mind, from the conception of a project to the end of construction. We start with an idea and continue to assess what makes sense now and will continue the effort every step of the way; not by simply adding costly technologies but by thinking about the future progression and actual use of all spaces. Costs are not the only consideration but most importantly assess life cycles of sourcing and overall impacts created from our every decision. Be assured that we will maintain that sustainable vision towards the future that the community of Guelph has so willingly cooperated to put together.