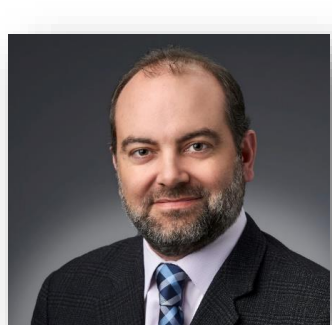


# PATHWAYS FOR MUNICIPAL ACTION ON CLIMATE CHANGE

Presented by Ontario Climate Consortium, Clean Air Partnership and Sustainable Waterloo Region



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**Executive Director**



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**Director of Engineering  
Services**



**Derek Satnik**

**Vice President of  
Technology**



# Pathways for Municipal Action on Climate Change

Wednesday May 22<sup>nd</sup>, 2019  
3:00PM – 5:00PM

Hosted by:



**Clean Air Partnership**



ONTARIO  
CLIMATE CONSORTIUM

Supported by Toronto and Region Conservation Authority



## What is the OCC?



The OCC was established in 2011 as a centre of expertise providing research and analysis services to municipalities, conservation authorities, and the broader public sector.



ONTARIO  
CLIMATE CONSORTIUM

Supported by Toronto and Region Conservation Authority

# Ontario Regional Climate Advisors

## Services Offered:

- Workshops, webinars, and other types of training
- Peer learning and networking opportunities
- One-on-one coaching and support on:
  - available resources and programs
  - Identification of funding opportunities
  - Support with the PCP program and milestone advancement

OCC AR

Ontario Centre for Climate Impacts  
and Adaptation Resources



**Clean Air  
Partnership**

Canada

**FCM**






FEDERATION  
OF CANADIAN  
MUNICIPALITIES

FÉDÉRATION  
CANADIENNE DES  
MUNICIPALITÉS

**ICLEI**  
Local  
Governments  
for Sustainability



## Partners for Climate Protection

-  1. Establish a baseline GHG inventory and forecast
-  2. Set GHG reduction targets
-  3. Develop a local action plan
-  4. Implement the plan or set of activities
-  5. Monitor progress and report results



# THE CORA GROUP

Developers & Managers of Commercial Real Estate

## evolv**1**

- Canada's First Net Positive Energy Multi-Tenant Office Building
- Canada's first Zero Carbon Building – Design Certified



# The Vision



Building a better  
working world



THE CORA GROUP



DAVID JOHNSTON  
RESEARCH+TECHNOLOGY PARK  
UNIVERSITY OF WATERLOO



Stantec



FEDERATION  
OF CANADIAN  
MUNICIPALITIES

FÉDÉRATION  
CANADIENNE DES  
MUNICIPALITÉS



THE CORA GROUP

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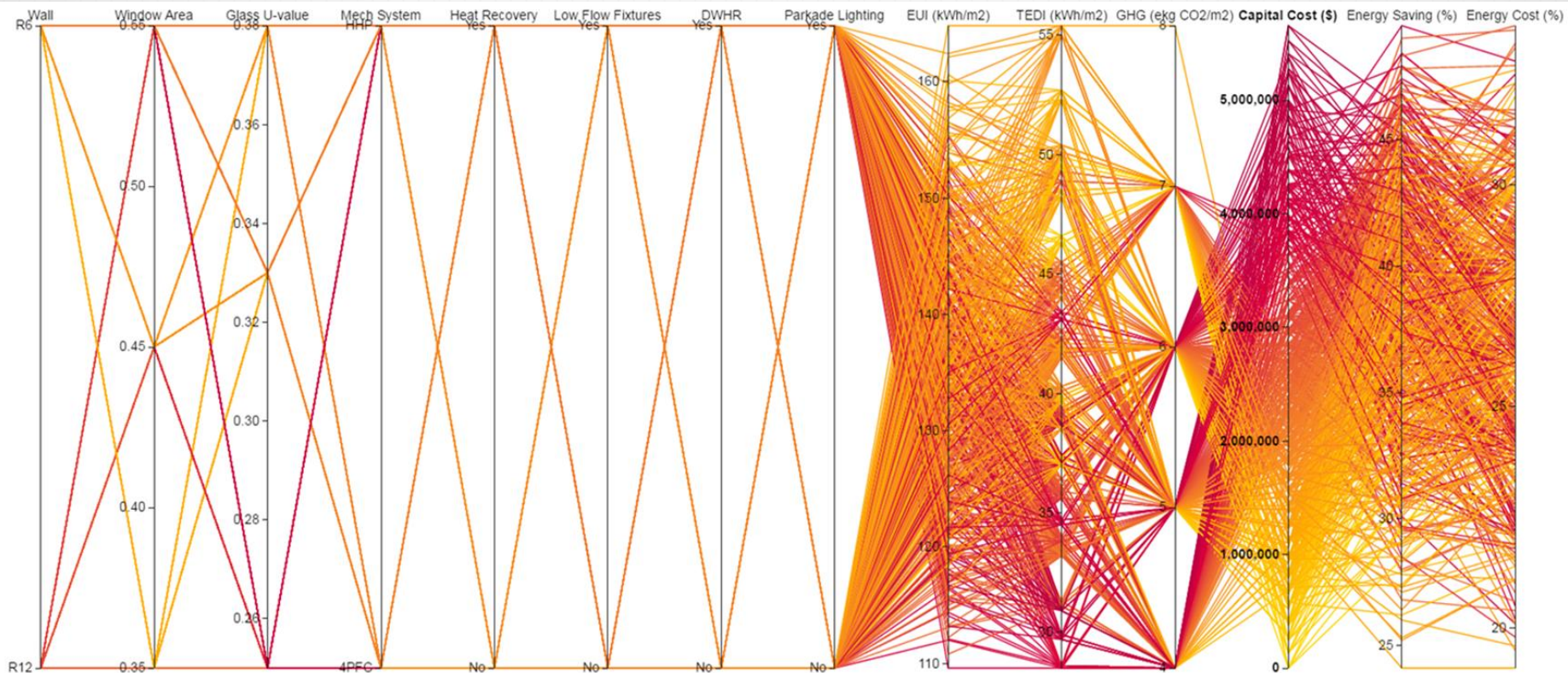
# evolv1 Funding Model

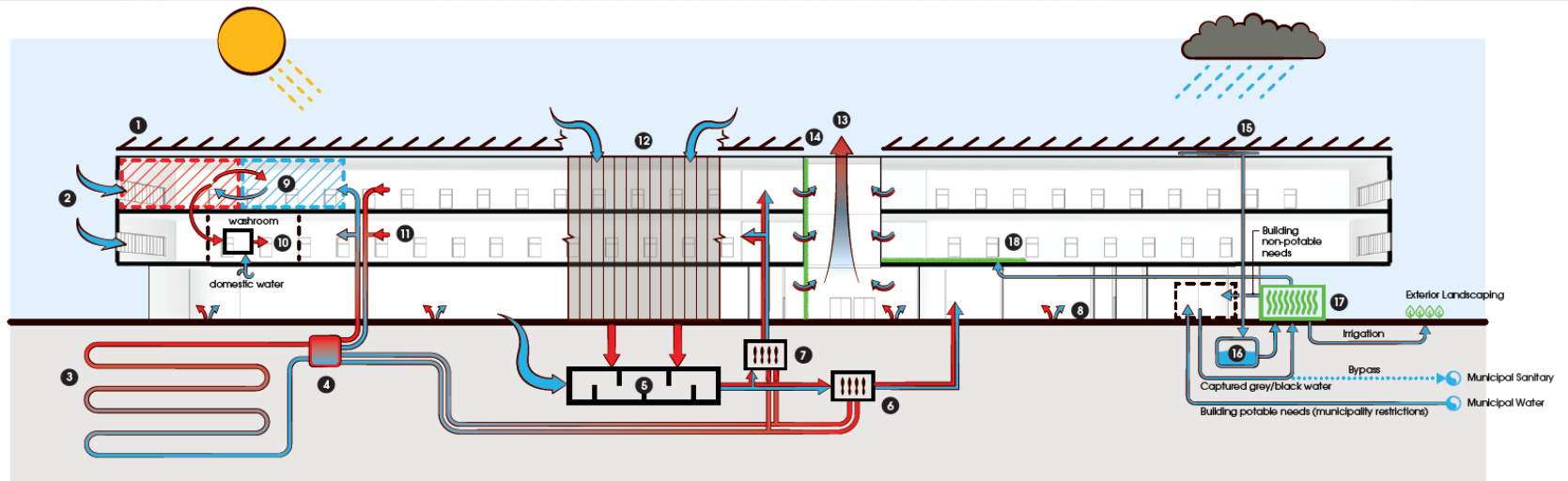
Feasibility  
Study

Building  
Development



# Parametric Simulations

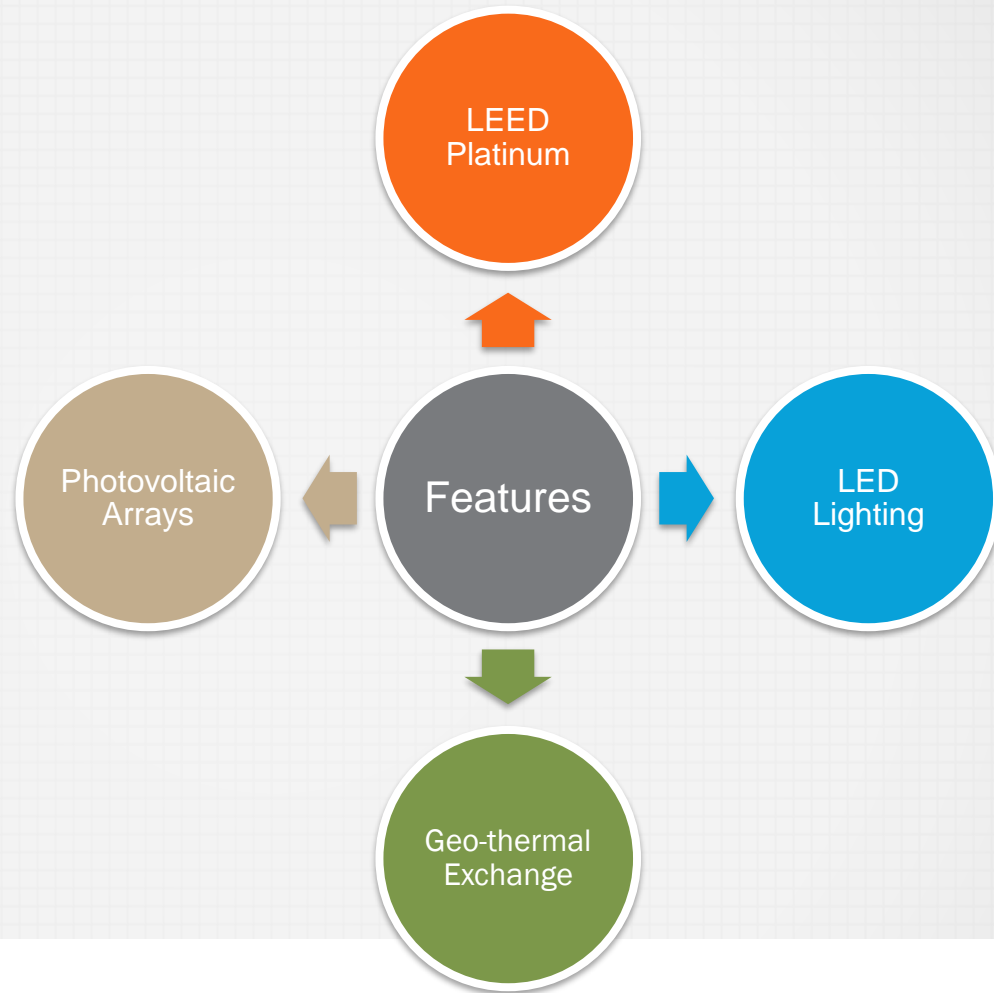




- |  |  |
|--|--|
| 1 PV Array to provide 105% of buildings's energy demands | 9 Water Cooled Variable Refrigerant Flow Systems for heating and cooling across 2nd and 3rd floors |
| 2 Operable Windows to introduce ventilation air          | 10 Domestic Hot Water generated via recovered heat from Variable Refrigerant Flow System           |
| 3 Geo-Exchange Field for heating and cooling             | 11 Geo-Exchange Field feeding the Water Cooled Variable Refrigerant Flow System                    |
| 4 Heat Exchanger to tie into geo-exchange field          | 12 Solar Wall to pre-condition ventilation air   |
| 5 Labyrinth to pre-condition ventilation air             | 13 Atrium/Stack Effect to naturally draw air through the atrium and spill air from each floor      |
| 6 Displacement Ventilation for ground floor              | 14 Living Wall for natural filtration  |
| 7 Pre-Conditioned Ventilation Air for 2nd and 3rd floors | 15 Rain Water Collection   |
| 8 Displacement Ventilation through floor                 | 16 Rain Water Cistern  |
|  | 17 Living Machine to naturally filter grey and black water   |
|  | 18 Green Roof Canopy   |

Figure x: Building Systems

# Enabling Systems Features



# Barriers

- Unprecedented application of technologies  
High cost of approval / Long approval process  
Need certainty
- Skill sets not in abundance
- Sustainability is not a typical customer's top priority

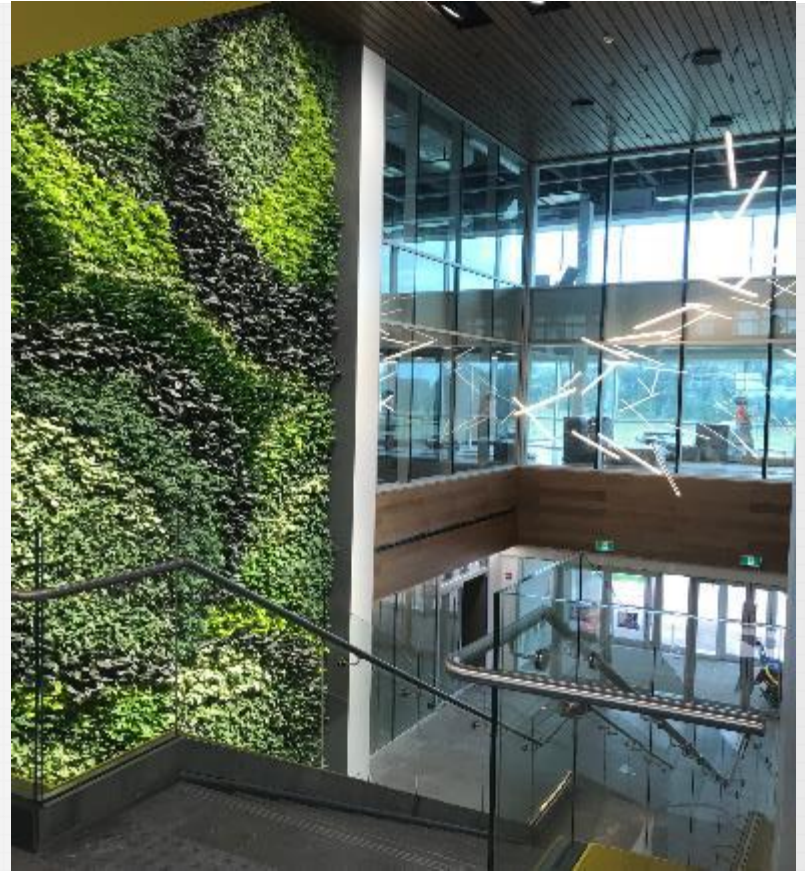
# Lessons

- Invest in design upfront / everyone has to embrace the vision
- Energy savings offset additional capital cost
- evol2 will be offered with same pricing as other new product in the market
- Our buildings are full!













**[www.evolv1.com](http://www.evolv1.com)**

# evolv**1**





## Sustainable Waterloo Region

is proud to be stewards of this clean and prosperous future. It is an honour to work with partners from all sectors of our community, private businesses, public institutions, other non-profits, and more. It is inspiring to support the work that is being done all over this region.

*Creating the first high-performance, sustainable workplace of its kind that gives back, helps to restore our environment, and delivers economic and social benefit*



*Creating the first high-performance, sustainable workplace of its kind that gives back, helps to restore our environment, and delivers economic and social benefit*



## Imagine... buildings that give back

Generating Energy

Cleaning Air

Harvesting Water

Net-zero Waste

Growing our Clean Economy



*Creating the first high-performance, sustainable workplace of its kind that gives back, helps to restore our environment, and delivers economic and social benefit*

## The Process – Early Days



- **SWR Strategic Plan**
- **Business Case**
- **Call for Land**
- **Selecting Partners**

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## Partners



**Develop, Own and Manage**

**Land Owner**

**Anchor Tenant**

*Creating the first high-performance, sustainable workplace of its kind that gives back, helps to restore our environment, and delivers economic and social benefit*

# The Strategic Intermediary



*Creating the first high-performance, sustainable workplace of its kind that gives back, helps to restore our environment, and delivers economic and social benefit*





# Clean Economy Innovation Hub



Inspiring Change  
Research  
Commercialization



*Creating the first high-performance, sustainable workplace of its kind that gives back, helps to restore our environment, and delivers economic and social benefit*

## Community Benefits

- **Leveraging evolv1**
- **Established leadership**
- **Supporting small businesses**
- **Creating jobs**
- **Diversifying our economy**



*Creating the first high-performance, sustainable workplace of its kind that gives back, helps to restore our environment, and delivers economic and social benefit*

## Culture of Sustainability

- Partnership with VERiS at Wilfrid Laurier University
- Helping building reach its potential
- Engagement Strategy



*Creating the first high-performance, sustainable workplace of its kind that gives back, helps to restore our environment, and delivers economic and social benefit*