



SUSTAINABLE LABS CANADA  
LABORATOIRES ÉCOLOGIQUES DU CANADA

# SUSTAINABILITY AND THE HUMAN ELEMENT



**2018 SLCAN SUSTAINABLE LABORATORY CONFERENCE**

## **PROGRAM**

October 23-24, 2018 – The Fort Garry Hotel  
Winnipeg, Manitoba, Canada

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# 2018 SLCAN SUSTAINABLE LABORATORY CONFERENCE

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# SUSTAINABILITY AND THE HUMAN ELEMENT



Welcome to the 2018 edition of the SLCan Sustainable Laboratories Conference, and welcome to Winnipeg, an incredible city of innovation and knowledge! This year's theme is SUSTAINABILITY AND THE HUMAN ELEMENT. This theme, and the presentations assembled under it, encourages reflection on the strategies and methods we must implement now to ensure that the design and operation of laboratories, as well as other controlled environments, is sustainable in all senses of the word. The call for abstracts generated excellent proposals, which have been translated into a high-calibre conference program.

Beyond the content of this professional development event, this Conference also offers a unique opportunity to network and exchange with representatives for all sectors of the industry hailing from across North America. To achieve our ambitious goals of reducing the ecological footprint of laboratories, it is necessary to work with community partners, to bring about positive synergies. The tradeshow will bring together companies offering diverse products and services to help improve energy efficiency and improve laboratory footprints.

We hope you take advantage of your attendance to this conference to engage in conversation with your colleagues and, who knows, maybe get the answer to a question or find a solution to an issue that has been plaguing you.

Finally, I would like to thank the members of the Planning Committee: Sigrun Asmundsson (Black & McDonald), Erica Brabon (Black & McDonald), Ana Coppinger (Architecture49 Inc.), Jim Delaney (Aqua Air Systems Limited), Yvon Lachance (BGLA|ARCHITECTURE + DESIGN URBAIN), Tammy Patterson (Norlab Laboratory Systems) and our President, the outstanding Ian McDermott (University Health Network). I would also like to thank all members of the SLCan Board of Directors, and offer my warm thanks to The Willow Group team that provided behind-the-scenes support during this year and without whom we could not have achieved this success.

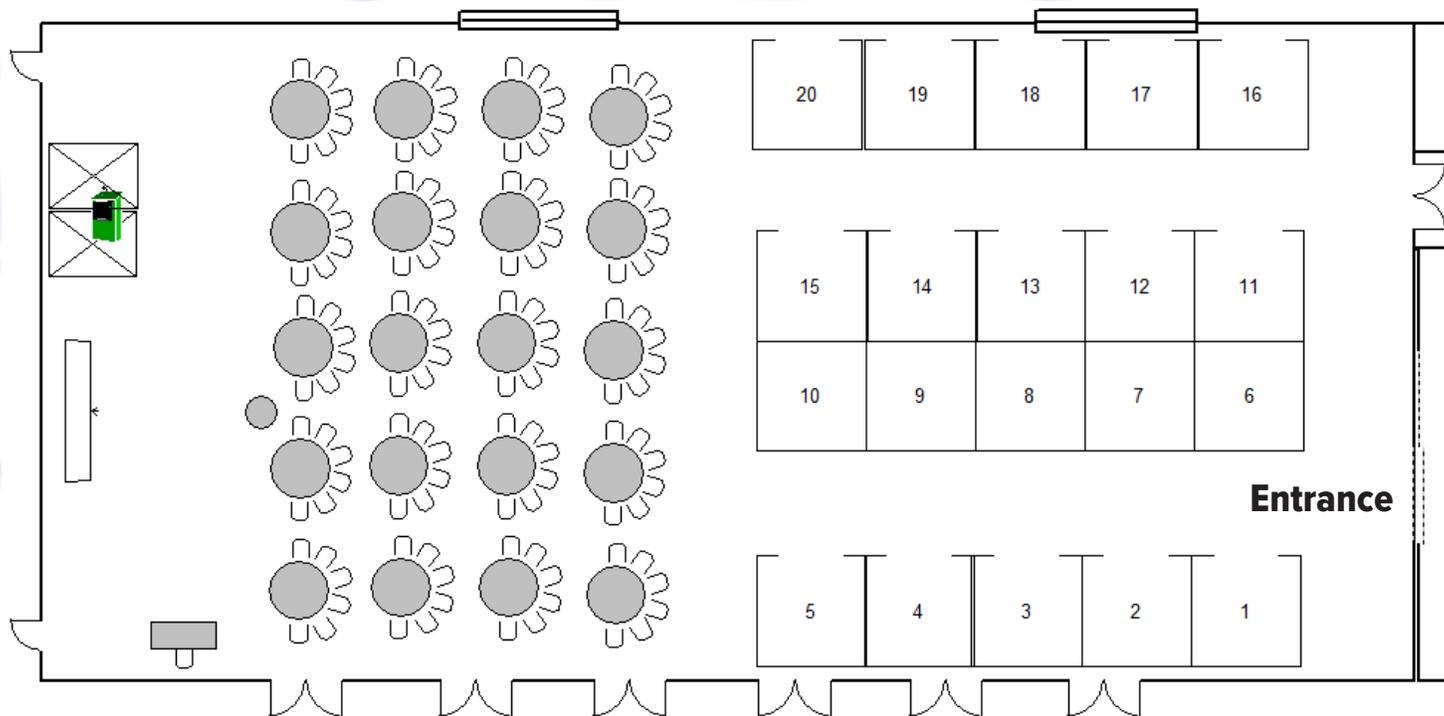
Enjoy the Conference!

*Kevin Humeniuk*

Conference Chair

# FLOORPLAN

## THANK YOU TO OUR EXHIBITORS!



### Organization

### Booth

### Organization

### Booth

Alliance Scientific Inc. ....	1
CiF Lab Solutions .....	2
Price Industries/Antec Controls .....	3
Camfil Canada Inc.....	4
BPL Sales Ltd. ....	5
MK Plastics .....	6
Regulvar Canada Inc.....	7
American Epoxy Scientific .....	8
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RWDI.....	20



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### Committee Members

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Erica Brabon, *Black & McDonald*

Ana Coppinger, *Architecture49 Inc.*

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# 2018 SLCAN SUSTAINABLE LABORATORY CONFERENCE

## Monday, October 22, 2018

**12:00 pm – 4:00 pm**  
*Trade Show Set-up*

**5:00 pm – 8:00 pm**  
*Networking Reception in the  
Trade Show Area*  
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## Tuesday, October 23, 2018

**Stream 1**

**Challenging Lab Design**

How to respectfully challenge norms and standard approaches. Rethink. Redo. Renew. Alternative science for sustainable science.

**Stream 2**

**Smart & Sustainable**

How to implement international best practice and compound thought-leadership. The Science in Sustainable Science.

**Stream 3**

**People Sustained Science**

Sustainability seen through the lens of the human impact.

## Wednesday, October 24, 2018

**Stream 1**

**Sustainable Futures**

Broad-based sustainable concepts, including social sustainability.  
Do not harm. Make a positive difference.

**Stream 2**

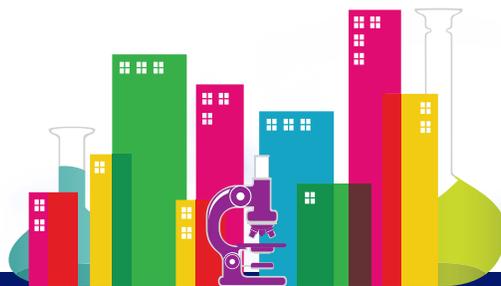
**Smart & Sustainable**

How to implement international best practice and compound thought-leadership. The Science in Sustainable Science.

**Stream 3**

**A Map to Sustainable Labs**

Practical road maps to project planning, design, and delivery.



# 2018 SLCAN SUSTAINABLE LABORATORY CONFERENCE

## Tuesday, October 23, 2018

**7:30 am - 9:30 am** ..... Foyer  
*Registration*

**7:30 am - 8:45 am** ..... Grand Ballroom  
*Continental Breakfast in the Trade Show Area*  
*Sponsored by:*



**8:45 am - 9:00 am** ..... Grand Ballroom  
*Welcoming Remarks*  
■ **Kevin Humeniuk**, Conference Chair

**9:00 am - 9:30 am** ..... Grand Ballroom

### Keynote Presentation

#### **Creating a Sustainability Platform Internally, Regionally and Nationally**

*Ian McDermott, SLCAN president and University Health Network*

Ian will delve into the necessary steps and driving factors required to create Sustainability Platforms. He will look at programs built internally within an organization all the way through to creation of the National network, Sustainable Labs Canada. Do you need major changes to create a platform? NO; Do you need major funding to create a program? NO; Do you need enormous amounts of time? NO. So what do you need and how do you make it a reality? Join Ian and hear about approaches and strategies that have helped create some amazing Sustainable Platforms focused on Laboratories within Canada!

**9:30 am - 10:00 am** ..... Grand Ballroom

### Keynote Presentation

#### **I2SL Update**

*Phil J Wirdzek, International Institute for Sustainable Laboratories*

The International Institute for Sustainable laboratories (I2SL) enters its 10th year with a host of ambitious initiatives including lab O&M training, overhaul of the Labs21 benchmarking tool, awarding manufacturers and buyers of lab equipment having achieved recognition with the ACT Label, and recognizing new I2SL chapters. I2SL has completed the first international laboratory freezer challenge in partnership with mygreenlab.org and expects to launch the challenge again in 2019. Meanwhile, the organization has begun planning for the 2019 I2SL Annual Conference in Denver, CO. The 2019 event will include an extended day at the University of Colorado in Boulder focused on select issues for lab personnel.

**10:00 am - 10:30 am** ..... Grand Ballroom

**Refreshment Break in the Trade Show Area**

Sponsored by:



**10:30 am - 11:00 am** ..... Grand Ballroom

**Keynote  
Presentation**

**The Future of Sustainable Facilities Service Delivery: Collaboration, Transparency & End-User Integration**

*Erica Brabon, Black and McDonald*

This presentation will discuss how collaboration between the facilities team, the research team and other stakeholders leads to a more efficient systems and increased transparency in capital planning and operations. Integrating technology for monitoring and reporting lends new tools to these processes and increases end-user adoption. Creating these new feedback loops and approaches to service delivery sets an example for the future of sustainable facility management and the importance of communication.

**11:00 am - 12:00 pm**

**Panel  
Discussion**

**Sustainability and the Edmonton Lab Hub Project**

*Moderator: Andrée Iffrig, DIALOG*

*Deb Maerz, Alberta Health Services*

*Regan Wolansky, Alberta Health Services*

*Micheal Mengel, University of Alberta & Alberta Health Services*

*Donna Clare, DIALOG*

The objective of this panel presentation is to host an open discussion about the sustainable design process and targets for the new Edmonton Laboratory Hub, a major new diagnostic lab hub planned for the city of Edmonton, Alberta.

**12:00 pm - 12:30 pm** ..... Grand Ballroom

**Lunch**

Sponsored by:



**12:30 pm - 1:00 pm**

**Lunch  
Presentation**

**Fulfilling a Mission at Thermo Fisher Scientific...Insights and Initiatives on Sustainable Labs and Products in Canada**

*Angela Carnrite, Thermo Fisher Scientific*

Thermo Fisher's mission to enable our customers to make the world healthier, cleaner and safer drives our commitment to sustainability. This presentation will discuss how our commitment manifests in products and services that increase sustainability in the lab from design through occupation. We will present case studies of how sustainable products have allowed laboratories to become more efficient and reduced operating costs. We will present from the manufacturer's perspective how purchasing decisions for sustainable products have changed and how they have influenced programs like energy rebates and green labs. This will carry through to a discussion of how laboratory occupants can incorporate sustainability practices into the everyday operation of the space. We will begin with a discussion on how users can identify greener products through manufacturer labels and third party assessments. We will share the impact of these choices through case studies on the short and long term impacts of choosing greener products. This presentation will conclude on the next steps towards advancing sustainability in the lab and the role that manufacturers have in fulfilling that vision.

**12:30 pm - 1:00 pm** ..... Grand Ballroom

*Dessert in the Trade Show Area*

**1:00 pm - 1:50 pm**

*Concurrent Breakouts*

<b>Stream 1</b>	<b>Stream 1: VIU HSC - Innovations for Minimizing Thermal and Auxiliary Energy Demand in Labs</b>
<b>Assiniboine A</b>	<i>Thomas Bamber, Integral Group</i> This presentation examines multiple options for minimizing the energy demand of a new laboratory facility in Nanaimo, BC. These include re-circulation of air, run-around coils on fume hood exhaust and capillary detection systems.
<b>Stream 2</b>	<b>Stream 2: Total System Approach to Designing Economically Viable Sustainable Exhaust Systems for Critical Environment Applications</b>
<b>Assiniboine B</b>	<i>Doug Ross, M.K. Plastics Corporation</i> This presentation will explain control approaches to vary the lab exhaust volume while ensuring that the system remains safe and stable. It will look at the ability to include additional control parameters such as wind analysis and /or chemical makeup of the exhaust stream and will also present principles and techniques that work and have provided pay-back.
<b>Stream 3</b>	<b>Stream 3: Engage &amp; Behave: A Coordinated Research Green Team</b>
<b>Assiniboine Ballroom</b>	<i>Lisa Vanlint, University Health Network</i> The objective of the presentation is to showcase the green team behaviour change engagement strategy at University Health Network as it supports energy conservation, waste reduction, toxics disposition and safety and other areas of sustainability.

**2:00 pm - 2:50 pm**

*Concurrent Breakouts*

<b>Stream 1</b>	<b>Stream 1: HVAC Filtration - Not All Filters are Created Equal</b>
<b>Assiniboine A</b>	<i>Cam Ewart, VIDO-INterVac</i> The presentation will outline the steps taken to analyze HVAC air filter mediums in terms of performance over a long-term basis and demonstrate the positive outcomes in multiple terms such as energy savings, performance, labour and waste reduction in a large scale laboratory setting. The results of the testing will also demonstrate that initial cost savings do not translate to long term sustainability.
<b>Stream 2</b>	<b>Stream 2: Ryerson University Centre for Urban Innovation: Retro-Fitting and Forward-Thinking</b>
<b>Assiniboine B</b>	<i>Ronen Bauer, Moriyama &amp; Teshima Architects</i> <i>Ruth McMath, RWDI</i> The objectives of this presentation are to: 1. Identify unique challenges and constraints associated with the addition of laboratories on existing or infill sites in an urban setting; and 2. Understand the interconnectedness of building mechanical systems and their impacts on potential noise, air quality, and energy use conditions in project design.

**3:00 pm - 3:30 pm** ..... Grand Ballroom

*Refreshment Break in the Trade Show Area*

*Sponsored by:*



**3:30 pm - 4:20 pm**

*Concurrent Breakouts*

<b>Stream 1</b>	<b>Stream 1: Building Laboratories with Wood</b> <i>Yvon Lachance, BGLA</i>
<b>Assiniboine A</b>	Allow designers and clients to objectively analyze the feasibility of opting for wood construction for their laboratories. Provide participants with a matrix and analytical tools, and present a blueprint for the decision-making process.
<b>Stream 2</b>	<b>Stream 2: Exhausting Bio-Safety Cabinets and Fumehoods Outdoors in the Harsh Prairie Climate</b> <i>David Phillips, Con-Test</i>
<b>Assiniboine B</b>	Discuss and present the need and operations costs to exhaust Bio-Safety Cabinets and high velocity (unbalanced) fumehoods outdoors in the harsh Prairie climate. Myths about exhausting 24/7 during winter will be explored and alternative options presented.
<b>Stream 3</b>	<b>Stream 3: Acoustics and Vibration Issues in Laboratory Design</b> <i>Russ Lewis, RWDI</i>
<b>Assiniboine Ballroom</b>	This seminar will review the major areas of acoustic design and noise control for laboratories including building space planning and orientation, exterior wall design, room acoustics, sound isolation, environmental noise and building services noise control.

**5:00 pm - 8:30 pm** ..... *Museum of Human Rights*

*Off-site Tour, Dinner and Keynote*

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<b>Keynote</b>	<b>The Extreme Sports of Low Energy Labs: Case Studies in Net Zero Lab Design</b> <i>Gordon P. Sharp, Chairman, Aircuity, Inc.</i>
	Laboratories with their intense use of outside air and safety concerns are one of the most challenging building types to achieve net zero energy. In fact, some might say it can't be done at least for many climates. However, a path does exist to achieve net zero energy using multiple technologies and approaches such as VAV lab and exhaust fan control, demand based control of ACH's, chilled beams or hydronic cooling, and heat recovery. This seminar will explore this topic from a holistic viewpoint and provide case studies on two net zero labs in the US and a third near net zero lab in the UAE.



# 2018 SLCAN SUSTAINABLE LABORATORY CONFERENCE

## Wednesday, October 24, 2018

**7:30 am - 8:30 am** ..... Grand Ballroom

*Continental Breakfast in the Trade Show Area*

Sponsored by:



**8:00 am - 8:30 am** ..... Grand Ballroom

*SLCan Annual General Meeting*

**8:30 am - 8:45 am** ..... Grand Ballroom

*Welcoming Remarks*

■ Kevin Humeniuk, Conference Chair

**8:45 am - 9:45 am**  
*Concurrent Breakouts*

<b>Stream 1</b>	<p><b>Stream 1: Is Heat Recovery Always Worthwhile? Balancing Energy Savings with Hazardous Material Cleaning and Maintenance</b></p> <p><i>Mary On, Integral Group</i></p> <p>The objective of this presentation is to examine whether fume hood exhaust air heat recovery is always worthwhile for the project considering the special procedure required to maintain the fume hood exhaust heat recovery equipment and the hazardous waste generated.</p>
<b>Assiniboine A</b>	
<b>Stream 2</b>	<p><b>Stream 2: Multi-functional, High-performance Run Around Energy Recovery Systems in Cold Climate Zones Incorporated in the Building's Utility Systems</b></p> <p><i>Rudolf Zaengerle, Konvekta USA Inc.</i></p> <p>The objective of this presentation is to identify drivers for demand-dependent controls of the entire energy recovery system and understand advantages &amp; pitfalls of multi-functional systems. Recovery additional energy in cooling the process chilled water demand in the winter season.</p>
<b>Assiniboine B</b>	
<b>Stream 3</b>	<p><b>Stream 3: Sustainable Laboratory Design From an Owner's and Architect's Perspective</b></p> <p><i>Nigel Tai, Diamond Schmitt Architects</i> <i>Jeff Miller, University of Toronto Scarborough</i></p> <p>A case study of the sustainable design strategies that were implemented in the LEED Gold Certified Environmental Science and Chemistry Building at University of Toronto Scarborough and how the buildings perform in real life.</p>
<b>Assiniboine Ballroom</b>	

**9:45 am - 10:15 am** ..... Grand Ballroom

*Refreshment Break in the Trade Show Area*

Sponsored by:



**10:15 am - 11:00 am**

*Concurrent Breakouts*

<b>Stream 1</b>	<b>Stream 1: Using Dashboard Analytics to Enhance Safety and Save Energy in Labs</b>
<b>Assiniboine A</b>	<i>Peter Hmelar, Aircuity Inc.</i> The objective of this presentation is to show various examples of how to use analytic information gathered about the laboratory environment to improve operation of the lab
<b>Stream 2</b>	<b>Stream 2: A Flexible and Adaptable Lab Planning Approach for Advanced Manufacturing Research</b>
<b>Assiniboine B</b>	<i>John Featherstone, Diamond Schmitt Architects</i> <i>Doug Hanna, Number TEN Architectural Group</i> The presentation will demonstrate a lab planning and design approach to industrial research activities that will support the tenant fit out of lab modules to suit individual client research needs with a sustainable, energy efficient approach that in the future is easily re-purposed for evolving research methodologies.
<b>Stream 3</b>	<b>Stream 3: Consensus Building in Support of Sustainable Laboratory Projects</b>
<b>Assiniboine Ballroom</b>	<i>Kevin Humeniuk, Architecture49 Inc.</i> The objective of this presentation is to put forward an approach and specific strategies which can be used by laboratory project teams in order to bring alignment around sustainability and integrated design.

**11:00 am - 11:50 am**

*Concurrent Breakouts*

<b>Stream 1</b>	<b>Stream 1: Developing a Protocol for Addressing Risks from Laboratory Chemical Emissions at an Urban University Campus</b>
<b>Assiniboine A</b>	<i>John Alberico, RWDI</i> The objective of the this presentation is to present protocols written by UBC and RWDI for assessing risk from laboratory emissions to current and future residential developments in close proximity.
<b>Stream 2</b>	<b>Stream 2: Sustainable Retrofit of a New Laboratory to Reduce Energy Costs While Maintaining Safety!</b>
<b>Assiniboine B</b>	<i>Don MacDonald, Phoenix Controls</i> <i>Kevin Shelast, P.Eng., Aqua Air Energy Solutions</i> The objective of this presentation is to understand unique requirements of laboratory ventilation to ensure sustainability objectives are met or exceeded. How truly effective implementation of VAV fume hood systems require that many aspects of the implementation be considered. Why user behaviour and education are as important as implementation of current technology and concepts.
<b>Stream 3</b>	<b>Stream 3: The Sustainable Transformation of A Mid-Twentieth Century Laboratory Building</b>
<b>Assiniboine Ballroom</b>	<i>Cecily Eckhardt, Diamond Schmitt Architects</i> <i>John Featherstone, Diamond Schmitt Architects</i> The objective of this presentation is to identify contemporary sustainability initiatives within a 50 year old laboratory design and share solutions brought to bear through a comprehensive architectural, mechanical and electrical multi-phased modernization.

12:00 pm - 12:30 pm ..... Grand Ballroom

Lunch

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12:30 pm - 1:00 pm

**Lunch Presentation**

**Grand Ballroom**

**Sustainability, Functionality and Collaboration in Tomorrow's Laboratories**

*Chris Webb, Kewaunee Scientific Corp.*

Fume hoods; Safety, energy, design, options...face velocity, sash height, CFM...VAV, CAV, RAV? Fume hoods can be expensive, mysterious and confusing. However, no one would deny that they are essential to safe research and knowing their basics can help save money, time and headaches. During this presentation we will discuss what a safe hood looks like, how they are used and how they can be combined with various systems to maintain a safe and more energy efficient laboratory space.

12:30 pm - 1:00 pm ..... Grand Ballroom

Dessert in the Trade Show Area

1:00 pm - 1:45 pm

Concurrent Breakouts

**Stream 1**

**Assiniboine A**

**Stream 1: Influencing Change for Biocontainment Standards**

*P. Eng, Public Health Agency of Canada*

*David Barnes*

The objective of this presentation is to ensure that fume hoods are used properly and that they are safe. So how do we know if they are if we don't test them for containment? To add to that, are we also using the proper fume hood for the application? These questions need to be asked and answered to ensure safety.

**Stream 2**

**Assiniboine B**

**Stream 2: Edmonton Lab Hub: A Challenge in Resiliency**

*Warren Lesenko, P.Eng, SMP Engineering*

*John Karman, PMP, C.Tech, LEED AP, SMP Engineering*

The objective of this presentation is to provide the attendees a glimpse into the challenges associated with building a regional central medical diagnostic lab facility to obtain operational efficiencies and the inherent challenges on the electrical systems related to business continuity.

**Stream 3**

**Assiniboine Ballroom**

**Stream 3: SFU's Sustainable Energy and Environmental Engineering Building: Bringing Sustainability to the Students**

*Kevin Shea P.Eng., CPHD, LEED Green Association*

Using the SFU SE3P project as a case study this presentation will identify implemented innovative sustainability strategies, cutting-edge design and breakthrough technology, as well as demonstrate how this building will be used for future generations of clean building engineers to learn from and interact with.

1:45 pm - 2:15 pm

Refreshment Break in the Trade Show Area

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**2:15 pm - 2:30 pm**

Grand Ballroom

**Closing Remarks**

■ **Kevin Humeniuk**, Conference Chair

**2:30 pm - 4:00 pm**

**Site Tour**

- **Canadian Science Centre for Human and Animal Health**
- **JC Wilt Infectious Diseases Research Centre**

\* Shuttle Bus will be provided.



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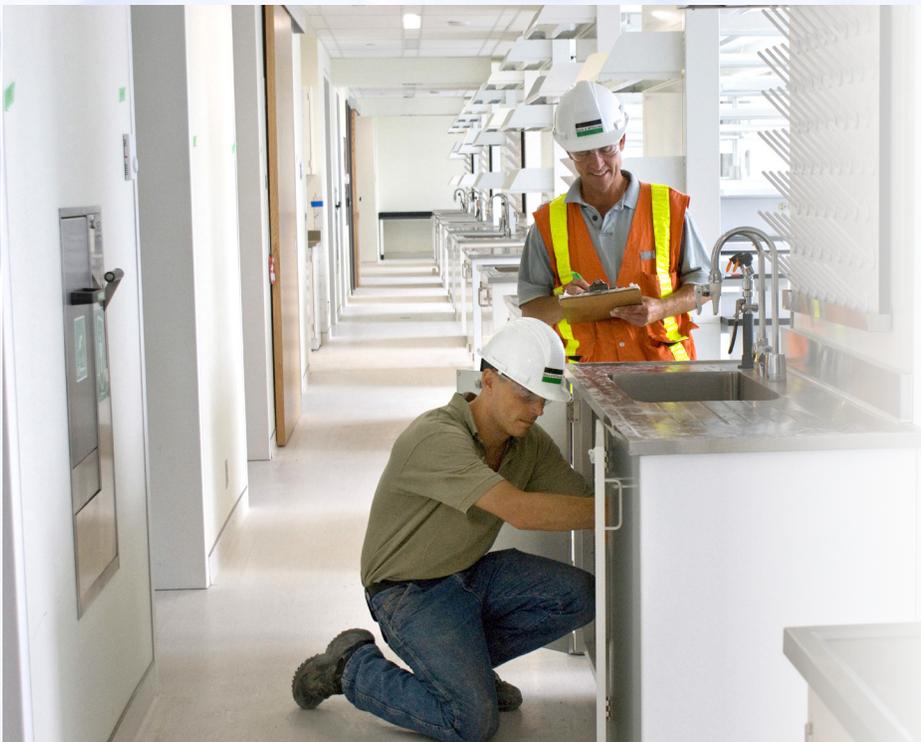
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