Industry leaders and government officials shaping the buildings of tomorrow.
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## Schedule Overview:

### Wednesday, November 7

| 7:30 AM | Registration & Networking Breakfast  
| 7:30 am - 8:00 am  | South Foyer |
| 8:00 AM | Conference Kick-Off  
| 8:00 am - 8:30 am  | Room 1/2/3 |
| 8:30 AM | Putting the Active in Passive: Creating Transformational Organizations & Roles - Coro Strandberg  
| 8:30 am - 9:30 am  | Room 1/2/3 |
| 9:00 AM | Networking Break  
| 9:30 am - 9:50 am  | South Foyer |
| 9:30 AM | Big Buildings Case Study 1: A Passive House Office  
| 9:50 am - 10:50 am  | Room 1/2/3 |
| 10:00 AM | Healthy & Comfortable - Part A  
| 9:50 am - 10:50 am  | Room 11/12 |
| 10:30 AM | Refresh Break  
| 10:50 am - 11:00 am  | South Foyer |
| 11:00 AM | Knitting the Sweater  
| 11:00 am - 12:00 pm  | Room 1/2/3 |
| 11:30 AM | Urban Density  
| 11:00 am - 12:00 pm  | Room 11/12 |
| 12:00 PM | Networking Lunch  
| 12:00 pm - 1:00 pm  | South Foyer |
| 12:30 PM | PHI Updates  
| 12:30 pm - 12:50 pm  | Room 11/12 |
| 1:00 PM | Creating the Seal  
| 1:00 pm - 2:00 pm  | Room 1/2/3 |
| 1:30 PM | Big Buildings Case Study 2: A Community Centre  
| 1:00 pm - 2:00 pm  | Room 11/12 |
| 2:00 PM | Refresh Break  
| 2:00 pm - 2:10 pm  | South Foyer |
| 2:00 PM | Once Moved In - Part A  
| 2:10 pm - 3:10 pm  | Room 1/2/3 |
| 2:30 PM | Northern PH  
| 2:10 pm - 3:10 pm  | Room 11/12 |
| 3:00 PM | Networking Break  
| 3:10 pm - 3:30 pm  | South Foyer |
| 3:30 PM | Lessons Learned  
| 3:30 pm - 4:30 pm  | Room 1/2/3 |
| 4:00 PM | PH University Initiatives  
| 3:30 pm - 4:30 pm  | Room 11/12 |

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**BCIT High Performance Building Lab Demo Night**  
(Advance Ticket Purchase Required)  
6:00 pm - 9:00 pm  
Ticket Holders meet in VCC East lobby @ 5:15pm
## Schedule Overview:
### Thursday, November 8

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<tr>
<th>Time</th>
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<tr>
<td>7:30 AM</td>
<td>Registration &amp; Networking Breakfast</td>
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<td>8:00 AM</td>
<td>PHC Annual General Meeting</td>
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<td>8:30 AM</td>
<td>Refresh Break</td>
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<tr>
<td>9:00 AM</td>
<td>Move it forward - Part A</td>
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<tr>
<td>9:30 AM</td>
<td>Healthy &amp; Comfortable - Part B</td>
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<td>10:00 AM</td>
<td>Networking Break</td>
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<td>10:30 AM</td>
<td>Costs Matter</td>
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<td>11:00 AM</td>
<td>Refresh Break</td>
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<td>11:30 AM</td>
<td>Once Moved In - Part B</td>
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<td>12:00 PM</td>
<td>Networking Lunch</td>
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<td>12:30 PM</td>
<td>Big Buildings Case Study 3: In Cold Climates</td>
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<td>1:00 PM</td>
<td>Big Buildings Case Study 4: At UBC</td>
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<td>1:30 PM</td>
<td>Footprint</td>
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<td>2:00 PM</td>
<td>Refresh Break</td>
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<td>PH in a Changing Climate</td>
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<td>Sustainable Reuse</td>
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<td>Networking Break</td>
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<td>4:00 PM</td>
<td>Closing Keynote: PH Design &amp; Construction</td>
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<td>4:30 PM</td>
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About Passive House Canada

Passive House Canada is a national non-profit professional association advocating for the Passive House high-performance building standard. Passive House is recognized internationally as the proven best way to build for comfort, affordability and energy efficiency of residential, institutional and commercial buildings, through all stages of design, construction, and livability.

Our mission is to make the International Passive House standard of building performance understood, achievable and adopted by government, industry, professionals, and homeowners across Canada through education, advocacy, events, and building projects.

We were founded in 2013 as the Canadian Passive House Institute West (CanPHI West) and became Passive House Canada | Maison Passive Canada in 2016 in response to demand from the building community to form a single national organization. We facilitate the adoption of the Passive House Standard through our advocacy work, education program, and nation-wide events.

Our head office is in Victoria, BC, with course conductors, volunteers and members across Canada. We are an affiliate of the International Passive House Association and a member of the North American Passive House Network, working in collaboration with local governments and other organizations to transform our built environment.

Greener buildings, from low rise to the largest and tallest Passive House development in the world.

What can we do for you?

- Passive House Consulting
- PHPP Modelling
- Step Code Consulting
- Green Building Certification

604.669.4940 recollective.ca
Membership Information

Passive House Canada has membership services available to assist individuals, companies, governments and corporations to increase their knowledge, capacity, and training in the Passive House standard.

By joining Passive House Canada as a member, you become part of a global community of professionals who are committed to designing, engineering, and building a future that will better serve communities and environments across the planet.

As a member you will enjoy many unique benefits including, but not limited to:

- Discounts for your team on our courses, events and PHPP software;
- Access to technical resources and forums through the International Passive House Association;
- Membership with the International Passive House Association;
- Add your Passive House projects to the Projects map on our website with exclusive publishing of full contact details; and
- Showcase your professional series on Passive House Canada’s Member Directory.

Become a Passive House Canada member today and join a community of like-minded professionals who are dedicated to a more sustainable future through the transformation of Canada’s built environment and development of high-performance buildings.

For more information on becoming a member, contact Sacha, Manager of Member Services at sacha@passivehousecanada.com
BUILD IT RIGHT
BUILD IT TIGHT

Join us on the mission to achieve a world of zero energy loss buildings
Letter from Conference Chair

Dear Friends and Colleagues,

It is an honour to welcome you to Vancouver for the inaugural Passive House Canada Conference. Vancouver is a vibrant oceanfront city with a rich and diverse culture which includes an incredible backdrop of natural beauty, music, theater, architecture, gastronomy, and outdoor activities to embrace and enjoy. I hope Vancouver will provide you with enjoyable opportunities in addition to the educational sessions that are central to our gathering.

The conference theme “Partnering for Transformation” highlights how recent advances in Canadian policy, combined with the dedication of industry leaders like you, are driving the transformation of Canada’s built environment. We consider these partnerships as bridges for sustainable impact and innovation.

I would like to thank the Program Committee who have worked diligently to deliver a full compliment of captivating and informative speakers, topics and projects, and to the staff who worked night and day to make this conference a reality, and everyone who took the time to submit session proposals. I would also like to take the opportunity to thank our sponsors who have been instrumental in making this conference possible. Their innovation in providing the industry vision, products and efficiencies that are an incredible contribution to the future of the Passive House standard and high-performance buildings.

I have no doubt that our conference will result in what is has set out to: an opportunity to Partner for Transformation. We encourage you to take advantage of all the opportunities to expand your practices and make connections with new industry professionals locally and beyond.

Sincerely,

Scott Kennedy

Conference Chair,
2018 Passive House Canada Conference
Letter from Board Chair

Dear Colleagues and Friends,

It is my pleasure to welcome you all to the inaugural Passive House Canada Conference in Vancouver. This year we celebrate the second anniversary of our organization and the remarkable growth that we have achieved in just a couple of years.

The concept for Passive House Canada started on the front porch of a few passionate trailblazers who were committed to raising awareness of the Passive House standard. Just a few years later we stand here with the privilege of having taught over 3500 students in 17 communities across Canada, created a membership of over 850 individuals, and worked with governments from local municipalities to the United Nations – and our work is just beginning.

We are all part of a global community that is being called to take action to reduce the impact of climate change. As members of an industry that significantly contributes to carbon emissions, we have a personal and ethical responsibility to reduce the environmental impacts of Canada’s built environment.

Thank you for joining us on this journey of market transformation. As industry professionals, you are the leaders of today, and we could not do this work without you.

We hope that you enjoy the conference and that it inspires growth and innovation in your building designs, your philosophies and your firms and practices.

Sincerely,

Deborah Byrne
Board Chair,
Passive House Canada
Participant Information

General Conference Information

Conference Venue
Vancouver Convention Centre EAST
Suite 200 – 999 Canada Place
Vancouver, BC V6C 3C1

All conference education sessions will take place at this location. Social events take place at various offsite venues – see event listings for more details.

Registration and Information Desk Hours
The Registration and Information Desk, located in the lobby of Room 1/2/3 will be open during the following dates and times:

- Wednesday  November 7  7:30am – 5:00pm
- Thursday  November 8  7:30am – 5:00pm

If you need assistance during the conference, please visit the registration desk.

Registration
Conference registration fees include access to all education sessions, grazing lunches, coffee breaks and access to the Solutions Centre expo. The conference is SOLD OUT. Only those with existing registrations will be able to access the learning sessions.

Name Badges
Your name badge is your admission ticket to all conference sessions, lunch and coffee breaks. Please wear it at all times as you will need to scan into the session rooms. There is a $25 fee for the replacement of lost badges. At the end of the conference, we ask that you recycle your name badge at one of the name badge recycling stations or leave it at the Registration Desk.

Continuing Education Credits
Passive House Canada is an AIBC and BC Housing continuing education provider offering accredited activity for continuing education learning units. In order to qualify for learning credits, your name badge must be scanned as you enter the seminar room at the beginning of each session.

AIBC: Up to 10.75 Core LUs and 1 Non-core LU
PHI: ID: V159-2018-CA - 16 credit points
BC Housing (HPO): Up to 11 Hours
WIFI Information
WiFi is available throughout the east building:

Network: **PHCC 2018**  
Password: **WesteckPH**

Thank you to our WIFI sponsor Westeck Windows and Doors.

Social Media

Follow the official conference Twitter handle @PHCconf for conference highlights. We are excited to share the work that we are doing with our community and encourage you to share your photos on social media using the following hashtags.  
#PHCconf  
#Passive-HouseCanada  
#PassiveHouse  
#buildbetterfeelbetter

Photography and Video Notice

When you enter a Passive House Canada (PHC) event or program, you enter an area where photography, audio, and video recording may occur. By entering the event premises, you consent to you and your likeness being photographed, audio recorded, video recorded and its/their release, publication, exhibition, or reproduction to be used for news, web casts, promotional purposes, telecasts, advertising, inclusion on websites, social media, or any other purpose by Passive House Canada and its affiliates and representatives. Please review the Photography and Video Notice on our website at [https://conference.passivehousecanada.com/participant-information/](https://conference.passivehousecanada.com/participant-information/)
Passive House Canada Social Functions

These events are external events and require advance ticket purchase.

**Tuesday November 6: Making Connections for Transformation: Networking Reception**

5:00pm – 7:00pm, WEST Building, Vancouver Convention Centre

Join us for an evening of Partnering for Transformation with our friends from the Wood Solutions Conference and the ECE Committee on Forests and the Forest Industry (COFFI). This networking reception requires advance ticket purchase ($20 plus taxes & service fee) and ticket includes hors d’oeuvres and one-beverage ticket. Tickets must be purchased directly through the [Wood Solutions Website](https://www.wood.ca).

**Wednesday November 7: Passive Into Action! BCIT Building Lab Demo Night**

6:00pm – 9:00pm, BCIT High Performance Building Lab – 3700 Willingdon Ave, Burnaby

**TICKET HOLDERS:** Please Meet in the Lobby of the EAST Building of the Convention Centre at 5:10pm. Buses will depart at 5:30pm sharp!

This is sure to be an evening of hands-on fun as you put into practice what you have learned at day one of the Passive House Conference! Hosted by BCIT at the High Performance Building Lab, the evening will provide an opportunity to take part in several stations where you can get your hands dirty – maybe even get a blister on your thumb! Tickets ($40+tax) include dinner & wine and transportation to and from the convention centre. A big thank you to our sponsors Roofing Contractors Association of BC (RCABC).
Conference Program

Tuesday, November 6th

5:00 PM - 7:00 PM

Making Connections for Transformation: Networking Reception (External Ticketed Event)
WEST Building, Vancouver Convention Centre

Join us for an evening of Partnering for Transformation with our friends from the Wood Solutions Conference and the ECE Committee on Forests and the Forest Industry (COFFI). This networking reception requires advance ticket purchase ($20 plus taxes & service fee) and ticket includes hors d’oeuvres and one-beverage ticket. Tickets must be purchased directly through the Wood Solutions Website.

Wednesday, November 7th

7:30 AM - 8:00 AM • South Foyer

Registration & Networking Breakfast

8:00 AM - 8:30 AM • Meeting Room 1/2/3

Conference Welcome & Kick-Off

Join us as we hear welcome remarks from our conference chair, conference collaborators and updates from PHI.

8:30 AM - 9:30 AM • Meeting Room 1/2/3

Putting the Active in Passive: Creating Transformational Organizations & Roles

Coro Strandberg

What does it mean to be a transformational professional? What are the qualities of a transformational company? Are there strategies for system change that can impact the individual and organizations? Coro will share her experience as a transformational leader and engage participants to seek answers to the above questions.

9:30 AM - 9:50 AM • South Foyer

Networking Break

Please be sure to visit the PH vendors in the Solutions Centre. Thank you to Buildex for sponsoring today’s coffee breaks.
9:50 AM - 10:50 AM • Meeting Room 11/12

Healthy & Comfortable - Part A

Moderator: Marcel Studer, Principal, Econ Group Ltd.

Elimination of Interior Overheating of Multi Unit Residential Buildings using Passive Cooling Measures

Michal Bartko, National Research Council of Canada

In Ontario, the number of days with summer outdoor air temperature above 30°C is rising. Also, the values of maximum daily temperatures are increasing. As a result, overheating of interiors in MURBs and room temperatures elevating above the thermal comfort levels is becoming a significant concern. At the NRC, long-term hygrothermal behaviour of a couple of diffusely open assemblies with Passive House levels R-values was evaluated using the Field Test facility. Also energy models are being developed to evaluate thermal comfort and measures effective to eliminate the interior overheating problem in residential buildings, such as high R-value envelopes, shading, natural ventilation and occupant behaviour.

Modulating Ventilation Airflow to Meet the Needs of Passive House Designs

Hugh Crowther, Swegon

One of the 5 pillars of Passive House design is dedicated ventilation air through an ERV. Being able to modulate the airflow to the different zones serviced by the ERV offers both opportunities and challenges to enhance the Passive House design. This presentation will focus on variable ventilation airflow.

9:50 AM - 10:50 AM • Meeting Room 1/2/3

Big Buildings Case Study 1: A Passive House Office


A family of efficient, smart HRVs and ERVs for commercial buildings from Ventacity Systems:

VS500 SQ • VS1000 RT • VS3000 RT • VS500 SQe • VS1000 RTe • VS3000 RTe

The first PHI-certified commercial capacity ERVs in the world!

(888) VENTI8 • www.ventacity.com
Passive House Goes to Work: Western Canada’s First Passive House Office Building
Graeme Verhulst, Waymark Architecture
This will be a case study of the Charter Telecom Head Office, a four storey, 15,000 square feet project that will be the first office to meet the Passive House standard in Western Canada.

Passive House Design for Commercial Offices - Scaling Up, Design Tools, Overheating, and a Client’s Motivation
Andy Chong, Integral Group Ltd.
This presentation will discuss the application of Passive house design for commercial office projects, supported by a case study of the Charter Telecom Headquarters project on Vancouver Island, BC. Andy Chong will address the implications of applying Passive House design to large, complex buildings, as well as commercial client incentives to choosing Passive House.

11:00 AM - 12:00 PM • Meeting Room 1/2/3

Knitting the Sweater
Moderator: Marcel Studer, Principal, Econ Group Ltd.

Application of Advanced Thermal Insulation Materials in Energy Efficient Buildings
Phalguni Mukhopadhyaya, University of Victoria
Building energy code updates and stringent energy efficiency requirements arising from global movement towards heavily insulated net-zero or net-positive building construction

INTRODUCING
THE DEFENDER
88PH System
PASSIVE HOUSE CERTIFIED
AVAILABLE JANUARY 2019

we believe in exceeding performance standards

And so do our building partners.
The new Defender 88PH System combines decades of fenestration knowledge to deliver a robust window system. Manufactured in BC, the Defender 88PH System is a PHI Certified Passive House Window that is engineered and tested for projects in the Pacific Northwest.

Learn more about the Defender 88PH System at innotech-windows.com/passive-house
have created a historic opportunity to integrate advanced thermal insulations, primarily aerogel and vacuum insulation panel (VIP), in building envelope construction. Aerogel has about 2 to 3 times higher insulating capacity than traditional thermal insulations and the same for VIP is about 5 to 10 times. However, uptake of these insulations in the Canadian construction industry has been extremely slow due to a number of technical, economical and regulatory issues. This presentation will highlight how these issues can be and are being addressed in Canada and around the World.

**Doing it Right with Out-Board Insulation**

Derek Snitynsky & Raymond Belanger, Quik-Therm Insulation Solutions Inc.

In our quest to become energy efficient and meet Passive House requirements, we have both moved insulation to the out-board side and have significantly increased the thickness of the insulation. This creates a number of challenges associated with fire compliance, moisture management, structural integrity and cost. Our team has engaged numerous building experts to deal with these challenges and has incorporated these building practices into building design. This process is essential to avoid horrific mistakes as experienced with the Leaky Condo Syndrome and more recently the Grenfell fire in London.

This presentation will discuss the most current science to evaluate the pros and cons of different wall assemblies and address the related cost/benefits. Presentation will draw on knowledge gained from participating in 20 different Passive House projects that involve about 10 different architectural firms.

11:00 AM - 12:00 PM • Meeting Room 11/12

**Urban Density**

Moderator: Cillian Collins, Senior Architect, Perkins+Will

**Passive House Child Cares (Made Easy!)**

Mary On, Integral Group, & Adam James, Ryder Architecture

Designed by Acton Ostry Architects, the City of Vancouver Child Care project provides two Passive House certified child care facilities atop two existing parkades in downtown Vancouver, both designed to LEED Gold certification with a 30% energy usage reduction and a net zero energy focus. This presentation will review the challenges and opportunities of designing and building two identical Passive House buildings several stories above a
below-grade parking structure in a dense urban environment.

**Scaling New Heights: Passive House at Scale**

Ciaran Garrick, Allies and Morrison (CPHD)

The Passive House movement has gained considerable momentum in recent years, evolving from a niche standard adopted by passionate self-builders and emerging into mainstream focus on the agendas of large developers. But with an ever increasing majority of Passive House certified buildings being single-family homes, have we reached the limit of its application? How can we test the limits of the Passive House standard to higher scale and density applications with more complex procurement methods? Allies and Morrison set out to address many of these perceived limiting factors through a year long research study, examining implementation of the standard on an active project prototype - a 48 storey residential tower in London, UK.

12:00 PM - 1:00 PM • South Foyer

**Grazing Lunch**

1:00 PM - 2:00 PM • Meeting Room 1/2/3

**Creating the Seal**

Moderator: Marcel Studer, Principal, Econ Group Ltd.

**Lessons from a Decade of PH Airtightness**

Paul Jennings, ALDAS

The UK’s most experienced active airtightness tester discusses what is required to deliver PH airtightness. Strategies for delivering airtightness and lessons from a several projects.
where delivering PH airtightness proved problematic. PH airtightness doesn’t happen by accident, it requires a strategy, attention to detail, and above all needs to be managed. Product discussion & demonstration, an exercise in identifying the Air Barrier Strategy on a project. Tapping a decade of experience of delivering airtightness on UK PH projects - and sometimes failing to achieve the PH target.

Airtightness Testing & Implementation at Scale: Analysis of New Strategies Within a Constrained Project

Marine Sanchez, RDH Building Science Inc.

Achieving PH levels of airtightness on large-scale projects start with a “good” design. However, key elements such as buildability and testability are integral to delivering it on site and have to be considered early on to ensure a successful outcome of the project. Lessons from one of the UK large-scale projects are shared here, highlighting the difficulties met due to some key elements not being considered at the onset of the project, and how partial testing was used during construction to better understand the building’s performance when whole building testing wasn’t a possibility.

1:00 PM - 2:00 PM • Meeting Room 11/12

Big Buildings Case Study 2 - A Community Centre

Moderator: Michael Nemeth, Principal, Bright Buildings, Consulting

Charting New Territory in Passive House: Clayton Community Centre

Melissa Higgs & Zina Berrada, HCMA Architecture + Design

While the Passive House standard is experiencing spectacular growth, over 80% of certified buildings are residential. How can Passive House chart new territory and be applied to more sectors? In this session, HCMA will share their experience working on
the largest Community Centre in North America targeting Passive House certification: the 76000 sqf Clayton Community Centre located in the City of Surrey, BC. Through sharing their Passive House journey, the presenters will highlight the potential that an integrated design approach offers in overcoming wide-ranging challenges to achieve Passive House Certification in a community, library, recreation, and arts and culture centre.

**Integrating Natural Ventilation and Mechanical Systems in Passive House**  
**Joe Quad & Thomas Bamber, Integral Group**

Clayton Community Centre in Surrey, BC is a 76,000 sq ft community-focused building combining recreation, arts, a library, and a gym in an integrated design that once completed, will be the largest community centre in North America targeting Passive House certification. In this session, Integral Group will present on the integration of natural ventilation and mechanical systems in Clayton Community Centre, as discuss additional local projects focusing on the successful implementation of natural ventilation for achieving Passive House targets.

2:10 PM - 3:10 PM • Meeting Room 11/12

**Northern PH**


**Passive House in the North: Feasibility and Case Studies in Northern Communities**  
**Elyse Henderson & Graham Finch, RDH Building Science**

Achieving Passive House buildings in the North may be an effective strategy to help underserved northern communities minimize their dependence on fuel shipments, lower their energy costs, and improve public safety during the coldest months of the year. In this study, energy modelling and incremental costing are used to assess the feasibility of reaching Passive House in Northern Canada. Technical challenges will be discussed, including the availability of cold-climate products and high-performance building enclosures. Additionally, best practices and lessons learned will be shared through case studies of three Passive House buildings currently under construction in Northern British Columbia.

**Valleyview Town Hall - Ultra-Low-Energy Building**  
**Oscar Flechas, Flechas Architecture**

The Valleyview Town Hall is the result of extensive collaboration between the municipality and the design and builder teams to achieve the standard in a northern climate. Upon completion, this building is aiming to become the First Passive House certified commercial building in Alberta. This presentation is aimed at sharing the challenges our team overcame and the strategies that led us to success. Some of the challenges include the design-build contract approach, availability of commercially PH rated components, the application of the standard in a region where winter temperatures can reach -40°C.
2:10 PM - 3:10 PM • Meeting Room 1/2/3

**Once Moved In - Part A**

Moderator: Evelyne Bouchard, Founder, tandem architecture écologique

**A Post Occupancy Review of Vancouver’s Largest Passive House Certified Building**

Kevin Welsh, Integral Group, & Scott Kennedy, Cornerstone Architecture

The Heights is one of Canada’s largest Passive House certified projects, and one of the first to deliver Passive House in line with the City of Vancouver’s rezoning policy objectives. This presentation will explore: the building’s thermal comfort throughout the summer; overheating issues which often affect Passive House residential buildings; a critical analysis of occupant building usage; and the post-occupancy evaluation strategy of the building.


Albert Rooks, Small Planet Supply

This session contrasts two different approaches to ventilating two 50+ unit Passive House buildings completed and occupied in Vancouver BC: The Heights (85 units using semi distributed HRVs and risers), and Brixton Flats (56 units using primarily HRV’s in every suite). The presentation considers the challenges and benefits of using individual HRV’s (heat recovery ventilators) in each unit versus a semi-distributed approach of mid-sized HRV’s over risers. The session will end with IAQ data on the monitored and occupied units.

3:10 PM - 3:30 PM • South Foyer
Networking Break

Please visit our Solution Providers in the Solutions Centre. Thank you to our coffee break sponsors Buildex.

3:30 PM • Meeting Room 1/2/3

Lessons Learned

Moderator: Evelyne Bouchard, Founder, tandem architecture écologique

Shoot for the Moon: First and Largest

Pete Rackow & Samuel Rupp, Spire Construction Inc., & Shaun St-Amour, Footprint Sustainable Housing Corp.

Go big or go home! We didn’t expect some of the obstacles that we have encountered when building Spire Landing, Canada’s largest multi-unit passive house project! In this interactive panel discussion, we look at some hard lessons learned and key takeaways of building passive.

Two Big Affordable Housing Retrofits in Pittsburgh - Lessons Learned

Andrea Detweiler, Nicholson Kovalchick (NK) Architects

Morningside Crossing and Glassport Retirement Residence are two Pennsylvania Housing Finance Agency-funded affordable Passive House retrofits that will be completed this summer. Both will provide affordable housing to seniors in working class neighborhoods. Both involve a Passive House retrofit of an abandoned elementary school, with the addition of a new Passive House wing. And both will be delivered at or near construction cost parity with conventional affordable housing. How did the project team accomplish...
all this, not once, but twice? This presentation will explain, providing lessons for practitioners of Passive House retrofits, multifamily buildings, and affordable projects.

3:30 PM - 4:30 PM • Meeting Room 11/12

PH University Initiatives

Moderator: Cillian Collins, Senior Architect, Perkins+Will

The Deep-Performance Dwelling: Canada’s entry in the 2018 Solar Decathlon China competition

Michael Jemtrud & Philippe St-Jean, McGill University

McGill and Concordia Universities have teamed up to form TeamMTL, Canada’s sole entry into the 2018 Solar Decathlon China competition to be held in Dezhou, Shandong province July 11-August 19. Based on the classic Montreal row house typology, the “Deep-Performance Dwelling” (DPD) is an affordable, smart-grid capable, factory-built (panelized) design for the urban context that is constructed to Passive House standards. The DPD is TeamMTL’s answer to pressing global needs for flexible, affordable, and sustainable urban housing. ‘Deep-Performance’ implies a socially, culturally, and technologically advanced architecture that embodies qualitative and quantitative notions of performance in addressing energy efficiency, comfort, wellbeing, affordability, environmental sustainability and ecological awareness.

University of Toronto Scarborough’s 750-bed PH Student Residence

Jonathan Kearns, Architect & Deborah Byrne, Chartered Engineer, Kearns Mancini Architects Inc.

With the new Canadian net-carbon mandates and rising energy costs, more building owners are interested in High Performance Buildings. Toronto Green Standard has al-
ready acknowledged PH as a means to meeting Net-Carbon Targets. We created a Project Output Specification for an exemplar PH Student Residence using a P3 Procurement Model. This exemplar of a large-scale PH Student Residence complete with a commercial kitchen (North-American Style Food Court) is currently the largest of its kind in North America. The tested PH exemplar provides the university with a specified minimum design standard, that any chosen design-build team can use to meet the PH design and construction requirements.

6:00 PM - 9:00 PM • 3700 Willingdon Ave. Burnaby

**BCIT High Performance Learning Lab Demo Night (Ticketed Event)**

A great networking event at BCIT’s High Performance Learning Lab. **Participants with tickets to the event are asked to meet at 5:10pm in the lobby of the East Building of the Vancouver Convention Centre. The bus will depart at 5:30pm sharp.** If you have any questions, please visit the registration desk.

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**Thursday, November 8th**

7:30 AM - 8:00 AM • South Foyer

**Networking Breakfast**

Thank you to our breakfast sponsors Williams Engineering Canada.

8:00 AM - 8:50 AM • Meeting Room 1/2/3

**Passive House Canada Annual General Meeting**

9:00 AM - 10:00 AM • Meeting Room 1/2/3

**Move it Forward - Part A**

Moderator: Sandra Rohler, Architect AIBC, Cornerstone Architecture.

**Policy, By-Law, and Focus on using Passive House as a tool to transition to a 100% renewable city.**

Chris Higgins, City of Vancouver, Allison Holden-Pope, ONE SEED Architecture + Interiors

This panel session will give an overview of Vancouver latest and greatest policy, bylaw, and regulation improvements to encourage Passive House projects.
Passive House and Architectural Expression
Sailen Black, City of Vancouver, & Cillian Collins, Perkins+Will Architects

Explore the intersection of architecture, city policy, and Passive House performance from two different perspectives. Review how the exterior form and expression of a building affects the ability of buildings at three different scales to achieve PHI requirements while meeting the expectations of developers, designers and planners.

9:00 AM - 10:00 AM • Meeting Room 11/12

Healthy & Comfortable - Part B
Moderator: Deborah Byrne, Chartered Engineer, Kearns Mancini Architects, Inc.

Mechanical Systems for Multi-residential and Commercial Buildings
Martino Fanfani, NORR Architects and Engineers Ltd.

As the Passive House standard gets applied in a larger scale to different typologies of buildings, like condominiums, tower and commercial applications, there is the need of a more customized approach to this kind of projects. Starting from understanding the main features that the mechanical building systems should have to properly fulfill their scope and meet mandatory (Building Code) and voluntary (Passive House Design Standard) requirements this short presentation will provide a glimpse on to design the systems to be more effective and efficient and how to avoid common mistakes.

Earth Tubes performance in Canada as part of the Passive House solution
Trevor Butler, Archineers

This session will explore the application of earth tubes as a means of tempering outdoor air as part of the overall passive house solution. The presenter will draw from numerous experiences and case studies to illustrate the benefits and challenges of earth tubes in Canada.
monitored installations in BC and Alberta on both residential and non-residential applications. The projects will include PH certified non-residential and PH ‘certification in progress’ residential buildings.

10:00 AM - 10:20 AM • South Foyer

Networking Break

Please visit our vendors in the Solutions Centre. Thank you to our coffee sponsors ALDES.

10:20 AM - 11:20 AM • Meeting Room 1/2/3

Costs Matter

Moderator: Deborah Byrne, Chartered Engineer, Kearns Mancini Architects, Inc.

Intro to Cost-Effective Passive House Engineering for Larger Buildings

Brandon Nicholson, Nicholson Kovalchick (NK) Architects

To deliver cost-optimized Passive House buildings our industry needs a paradigm shift in how we approach the engineering and design of building mechanical systems. Project teams need to think differently, re-envisioning how systems come together in a new low-load paradigm. Fortunately, this shift is underway. Learn how through a system-by-system tour of proven, low-cost engineering solutions for larger Passive House buildings. Drawing on real world design of multifamily and commercial Passive House projects across North America, Brandon Nicholson, founding principal of NK Architects, will share the firm’s low-cost engineering solutions for Passive House buildings.

Mistakes Were Made - A Sad Story of Passive House Screwups and Their Costs
Mark Bernhardt, Bernhardt Contracting Ltd.

A light-hearted review of the mistakes made during the design and construction of high performance buildings. Mistakes of all kinds in all areas will be included, where possible the emotional and financial costs will be discussed. Bring tissue the presenter may need to cry or get a hug.

10:20 AM - 11:20 AM • Meeting Room 11/12

Move it Forward - Part B

Moderator: Sandra Rohler, Architect AIBC, Cornerstone Architecture.

Resource Conservation and Energy Efficiency as the Leading Strategies for GHG Emissions Reduction in Parks Canada Operations

Sonia Zouari, Parks Canada

Parks Canada administers a diversified portfolio of protected heritage and contemporary assets with a broad geographic distribution. It contributes to the greening government agenda through reduced GHG emissions and increased resiliency of assets, services and operations. The approach to greening operations builds primarily on resource conservation for new construction and major building rehabilitation projects. This approach will be discussed in relation with feasibility studies on the Passive House standard in few national parks, climates and topographies. The passive house design of Lake Superior national marine conservation area discovery centre in Nipigon/ Northern Ontario, will be presented. NRC Research Project Updates.

11:30 AM - 12:30 PM • Meeting Room 1/2/3

Once Moved In - Part B

Moderator: Philippe St-Jean, McGill University

The Opportunities and Challenges of Building to Passive House Standards in a Remote Community: Lessons Learned from a Post Occupancy Evaluation Study

Alex Hutton, Fraser Health Authority, & Ghazal Ebrahimi, Fraser Health Authority

Vancouver Coastal Health (VCH) Authority rebuilt a staff-housing complex, which was damaged by fire to Passive House standards to reduce GHG emissions and energy costs. Combining modular construction techniques with Passive House standards helped achieving a time-sensitive, sustainable, and cost-effective solution to housing demand in a remote community in Northern BC. The results of the post-occupancy evaluation of this facility and the co-benefits of moving towards zero-carbon design will be discussed. The presenters explain how the organization’s strategic framework and commitment to innovation and sustainability resulted in overcoming the challenges and realizing a high quality, energy efficient building in a remote community.

High Performance Measured: Modelled Versus Measured Energy Use
Brittany Coughlin, RDH Building Science Inc., & Eric Catania, RDH Building Science Inc.

Passive House has become known as a standard that delivers measured performance. Post-occupancy evaluations are demonstrating heating energy demand in line with modelled results for numerous Passive House buildings that have been in operation for several years. This presentation will provide a summary of measured energy use for a variety of Passive House buildings. Measured energy use will be compared to modelled use for building types including single family, multifamily, and commercial buildings. The presentation will summarize lessons learned to inform future PHPP models and Passive House building designs.

11:30 AM - 12:30 PM • Meeting Room 11/12

**Big Buildings Case Study 3: In Cold Climates**

Moderator: Deborah Byrne, Chartered Engineer, Kearns Mancini Architects, Inc.

**The Wood Innovation Research Laboratory, a certified industrial Passive House in Cold Climate**

Guido Wimmers, UNBC, & Andrea Frisque, STANTEC

The University of Northern British Columbia has together with our project partners build an industrial/institutional Passive House in Prince George. Given the unfavorable ratio between the envelope area and the TFA and the rather cold climate, this is an extraordinary achievement. Even though we had to incorporated a large overhead door for semi-truck access and a large dust extraction unit we achieved a North American record for air tightness following the international Passive House Standard. A comparative Life Cycle Assessment was parallel to the design and construction phase done to optimize the performance, showing some interesting results.

Join the conversation at zebx.org
World’s First Passive House Car Dealership
Lukas Armstrong, Cover Architectural Collaborative Inc., Andrew Peel, Peel Passive House

This session will explore the design challenges and solutions of the first Passive House Car Dealership in the world. The client sought a low impact building that would support its growing business. Being located in a very cold, dry, windy climate, the improved efficiency, comfort, and durability that Passive House buildings deliver were crucial in convincing the client to commit to the standard. Strict corporate design standards, specific client requirements and operational realities forced the design team members to continually re-evaluate proposed solutions in order optimize the design. What resulted is an innovative building that will serve as a beacon for commercial Passive House buildings in the region and province.

12:30 PM - 1:30 PM • South Foyer

Grazing Lunch

1:30 PM - 2:30 PM • Meeting Room 11/12

Footprint
Moderator: Scott Kennedy, Cornerstone Architecture

Comparing Embodied and Operational Carbon Emissions
Chris Magwood, Endeavour Centre

Reducing greenhouse gas emissions is a key motivation for pursuing Passive House certification. This presentation argues that designers and builders should be looking at the combination of embodied emissions and operational emissions, as some building typologies can have embodied emissions that far outweigh their operational emissions. The presentation is based on detailed analysis of a model home using a wide variety of material options, and points toward solutions that greatly reduce (and even reverse) embodied emissions while maintaining the low operational emissions expected from Passive House designs.

The Importance of Being Electric
Brandon Wilbur, Ryerson University

Why do we want to reduce building energy use? The real purpose of energy standards is to minimize building life-cycle costs for homeowners/ratepayers (mortgage + util-

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ity bills), and greenhouse gas emissions from that energy use—both direct emissions from heating fuels, and indirect emissions from electricity generation. Whole-building design optimization accounting for local construction and equipment costs, climate, natural gas and electricity costs, and electricity emissions intensity indicates that, in most Canadian provinces, the least-cost pathway to deep emissions reductions from houses is to mandate the use of heat pumps for space and water heating.

1:30 PM - 2:30 PM  •  Meeting Room 1/2/3

**Big Buildings Case Study 4: At UBC**

Moderator: Michael Nemeth, Principal, Bright Buildings Consulting

**Passive House (Planning), Action, Results**

Brian Wakelin, Public Architecture + Communication, Shannon Dunn, UBCO Student Housing and Hospitality Services, & David Kiloh, UBC Student Housing and Hospitality Services

UBC Okanagan is building Canada’s first Passive House student residence (confirm). The 6900sm Skeena House will be the latest addition to UBC’s living laboratory. It will be next door to two existing residences of comparable size, one built to 1992 building code standards, and another certified LEED Gold in 2012. This session will be the first of three sessions in which the client and design team describe the planning and design process. Subsequent presentations will be describe what was built followed by results compared with two baseline buildings.

**The Road to Passive House Design: Mechanical Design Considerations, Code Implications and the District Energy Discussion**

Kevin Shea & Matt Younger, The AME Consulting Group

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**Small Planet Supply ULC**

Building the World of High Performance

Small Planet Supply ULC is a North-American company dedicated to the mission of building both classic and modern high-performance buildings. Our company supplies and educates building-industry designers and builders in the use of toxin-free, energy-efficient building materials. Our partners include: SIGA, Zehnder ventilation, Sanden, Hanno Band, Thermacork 100% natural cork insulation, Prosoco, and Roxul mineral wool insulation. More information about our products and trainings can be found at our website: www.smallplanetsupply.com.
Presented with the opportunity to complete two Passive House buildings simultaneously, design began on Skeena Residence - a student housing project located at UBC Okanagan campus in Kelowna, BC; and Corvette Landing - a multi-family housing project located in Esquimalt, BC. While developing these two complex projects in different municipalities brought many unique challenges, such as a heating only system high-rise compatible while meeting Passive House thermal comfort criteria, and district energy Passive House design in the Lower Mainland and Okanagan.

2:40 PM - 3:40 PM • Meeting Room 1/2/3

PH in a Changing Climate

Moderator: Michael Nemeth, Principal, Bright Buildings Consulting

How to Assess Passive House Projects in a Changing Climate

Monte Paulsen, RDH Building Science

Passive House buildings are finely tuned for the climate zone in which they are constructed. But how will these buildings perform when the climate changes? This presentation will introduce the study of future climate scenarios, will introduce sources of data for predictive future climate files, will review a procedure for creating predictive PHPP climate files, and will present an example of how the performance of a specific Passive House project may vary according to future climate scenarios.

The Design, Construction, and Post-occupancy Performance of a Passive House in the West Coastal Climate

Guido Wimmers, UNBC

This presentation will cover the design, construction, and post-occupancy performance of a single-family house built to the Passivhaus standard in the Lower Mainland of Brit-
ish Columbia. The design/construction challenges faced by the team and the solutions provided will be elaborated by the project architect. Sensors were installed during the construction to measure the hygrothermal performance of south- and north-facing exterior walls and indoor environmental conditions. The monitoring over a period of five years shows overall good durability performance of the double-stud walls used. Utility data is analysed to compare the actual space heating energy consumption with the design targets.

2:40 PM - 3:40 PM • Meeting Room 11/12

**Sustainable Reuse**

Moderator: Alex Hutton, Energy Manager, Fraser Health

**EnerPHit retrofit of a derelict Multi-family building**

Andrew Peel, Peel Passive House

This seminar explores the deep energy retrofit of a derelict building to the EnerPHit standard. Numerous project constraints and site conditions presented substantial challenges to realising the project. What emerges is a highly efficient, comfort, affordable multi-unit residential building that rehouses at-risk tenants: a true model of social, environmental, and economic sustainability. The seminar offers two perspectives. The first is the design perspective: how can the building be designed to achieve such an ambitious performance target. The second is the developer perspective. What approaches, processes, and tools are required to actually deliver the performance targets on time and on budget.

**Transformational Change: Adopting the EnerPHit Approach for Social Housing Tower Retrofits**

Tom Hunter, CityHousing Hamilton, Ya’el Santopinto & Graeme Stewart, Centre for Urban Growth and Renewal | ERA Architects

CityHousing Hamilton Corporation (CHHC) is embarking on a ground-breaking project to rehabilitate an aging 17-storey apartment tower using the ultra-low energy Passive House standard. The Ken Soble Tower transformation will convert this asset, built in 1967, into state-of-the-art housing. The first of its kind in North America, this project will bring together innovations in ultra-low energy retrofit, financing, and community benefit.

3:40 PM - 4:00 PM • South Foyer

**Networking Break**

Please visit the Solutions Centre vendors. Thank you to our coffee sponsor Aldes.

4:00 PM - 4:50 PM • Meeting Room 1/2/3

**Closing Keynote: Gernot Vallentin**
Closing Session

Friday, November 9th

9:00 AM - 5:00 PM

Passive House Project Tours (Ticketed Event)

Whistler Passive House Project Tours
Ticket holders please meet at 7:45am in the lobby of the East Building. Bus will depart at 8:00am sharp!

Vancouver Passive House Project Tours
Ticket holders please meet at 8:45am in the lobby of the East Building. Bus will depart at 9:00am sharp!
Exhibitors

SIGA – TABLE 1
SIGA is a leader in the development and production of high-performance adhesive tapes and membranes for air- and weather tight building envelopes. SIGA’s vision is a world with zero-energy loss buildings. Today, approximately 50% of the world’s energy requirements are consumed to heat and cool buildings. With smart design and SIGA’s innovative products, this energy requirement can be massively reduced.

SIGA operates in 22 countries and employs 470 people working together to shape the future of the building industry. Find more information about SIGA’s innovative approach to air and weather tight construction at www.siga.swiss

RAICO Bautechnik GmbH – TABLE 2
RAICO Bautechnik GmbH develops and distributes high-performance glazing systems for aluminum timber and steel curtain walls, aluminum windows, aluminum doors, and glass roofs. A technology leader in the industry, RAICO was the first company to receive Passive House certification for THERM+ curtain wall and glass roof systems, as well as FRAME+90/120 window systems.

RAICO products and services set the standard for sophisticated design solutions, enabling Blackcomb Façade Technology to fully meet our customers’ individual requirements.

TALIUS – TABLE 6
For over 30 years, Talius has earned the trust of our clients and the reputation of being

“We have a monumental task in front of us, but it is not impossible. This is our chance to decide what the world is going to look like.”

Cornell University climate scientist Natalie Mahowald
IPCC Special Report 2018 on Global Warming of 1.5°C

Our industry is part of the solution.

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architecture / urban design / interior design
an industry leader that consistently delivers excellent value and peace of mind by protecting our clients’ homes, businesses and institutional properties from nature’s harshest elements and crimes of opportunity. Designed to perform well in any climate and resilient enough to withstand forced entry, Talius products are the trusted choice to provide shade, security and storm protection for residential, commercial and institutional clients.

HVAC Systems & Solutions – TABLE 4

We specialize in product-based solutions for Healthcare, Commercial, Industrial, Data Centres, Residential and Hotels. We provide guidance to engineers, contractors, property managers, owners and architects. Knowing that energy is a precious resource, HVAC Systems focuses on innovative and energy efficient products. Our experience allows us to select products that meet the industry demands while planning for the needs of the future.

475 High Performance Building Supply – TABLE 11

475’s mission is to supply essential knowledge and critical building components that will lead a transformation of the North American construction industry toward making durable high-performance, Passive House and zero-energy buildings. We excel because we offer best-in-class products delivered in a timely manner from regional fulfillment centers based near Vancouver and Toronto, and support them with intense attention to customer service, bountiful knowledge resources and local on-the-ground support.

SOPREMA – TABLE 5

SOPREMA is an international manufacturer specializing in the production of innovative products for waterproofing, insulation, soundproofing and vegetated solutions for the roofing, building envelope and civil engineering sectors. Founded in 1908 in Strasbourg, France, SOPREMA now operates in over 90 countries.

SPIRE Development Corporation – NO TABLE

Spire Development Corporation is a fully-integrated real estate company offering a comprehensive package of services for residential, office, retail, and industrial projects. Specializing in design, construction, development, and marketing, Spire proudly partners with clients to deliver an end result that encompasses everyone’s best interests. A vision is always realized beyond the expectations of the client, with quality and timeliness being of utmost importance.

CONVOY SUPPLY – TABLE 3

Convoy Supply is Canada’s leading wholesale distributor of roofing, insulation, siding, and building envelope materials. Our commitment to exceeding expectations among our customers is the foundation of the company. We are proud of the relationships we have...
built over the past four decades with customers and suppliers alike, and are honored by the friendships we share. Since we opened for business in Prince George, BC in 1972, Convoy has grown to 34 locations across Canada, 9 in the Pacific Northwest USA, and a new training and distribution center in Maryland.

RECOLLECTIVE – TABLE 7

Recollective is a values-driven green building consulting firm focused on high-performance integrated design facilitation, Passive House, Step Code, LEED, Living Building Challenge and advanced building simulations. We have experience working on over 500 green buildings in North America. We’ve successfully completed over 70 LEED certifications, over 200 energy models, and are currently consulting on over 100 active green building projects, amounting to over 25 million square feet of development.

VENTACITY – TABLE 12

Managing ventilation is the key to achieving healthy, comfortable and efficient buildings. As building spaces have become tighter and the connection between air quality and productivity is better understood, it is more important than ever to achieve both energy efficiency and building health. Ventacity Smarter Ventilation Management provides decreased building energy usage, resulting in lower operating costs, and improved building health and occupant comfort for better productivity, satisfaction and building value.

METRIC MODULAR – TABLE 8

As one of North America’s largest commercial modular construction companies, Metric Modular (previously Britco Construction) specializes in housing, hotels, offices and other types of permanent modular solutions. We’re able to de-risk projects by using innovative
modular construction techniques, resulting in shortened project timelines, increased quality control and an accelerated return on investment for our customers. Metric Modular offers leading in-house design capabilities, unrivaled project management expertise and exceptional production facilities to bring to life customized solutions.

INNOTECH – TABLE 15
At Innotech, performance is our passion. We firmly believe in manufacturing only the highest quality windows and doors with superior performance. Discover why so many progressive building professionals and homeowners specify our windows and doors for single family, low rise and high rise projects.

GLASCURTAIN – TABLE 14
Buildings account for 75% of all energy consumption in North America. Leveraging new materials, GlasCurtain helps to deliver higher performance building envelopes that improve occupant comfort while reducing environmental impact, reducing energy costs, and making better use of limited resources. GlasCurtain is an innovator in the field of curtain wall framing, seeking to improve the world we live in through quality research and development.

FENSTUR – TABLE 10
Fenstur Windows and Doors is a family owned and operated company, located in Duncan, BC. We specialize in custom window and door packages using high quality components and have been in business for more than 30 years. Fenstur was the first company in Canada to Passive House certify wooden windows and doors, offering a full line of windows and doors with certification since early 2018. All of our windows and doors are...
built to order in either solid wood, or wood with aluminum cladding custom finished to your projects unique specifications

**SMALL PLANET SUPPLY – TABLE 9**

Small Planet Supply ULC is a North-American company dedicated to the mission of building both classic and modern high-performance buildings. Our company supplies and educates building-industry designers and builders in the use of toxin-free, energy-efficient building materials. Our partners include: SIGA, Zehnder ventilation, Sanden, Hanno Band, Thermacork 100% natural cork insulation, Prosoco, and Roxul mineral wool insulation.

**ZEBX – PARTNER’S AREA**

ZEBx is a collaborative platform and a catalyst for market transformation in buildings. Our mission is to accelerate the implementation of attractive and exemplary zero emission buildings at scale. We are a trusted advisor that connects industry to solutions, increases capacity and drives economic growth in “clean” buildings. We leverage our network and partners to offer opportunities for knowledge exchange, research, and training through a neutral, coordinated lens, from single family homes to high rise residential, institutional and commercial buildings.

**EUROLINE – TABLE 13**

EuroLine Windows Inc. is an innovative designer and manufacturer of distinctive windows and doors for private residences, multi-family, commercial and institutional buildings. For over 25 years we have been manufacturing custom made, high quality, high performance window and door systems, specializing in European-style tilt & turn windows. Our
ThermoPlus PHC tilt & turn window was the first window manufactured in Canada to be certified as a Passive House Component by the international Passive House Institute in Darmstadt, Germany.

**STICH – TABLE 16**

stich consulting & design Inc. offers a variety of services around Passive Houses (PH). We are specialized in 3D design with Dietrich’s CAD/CAM software, create conceptual, structural, architectural design with focus on Passive House design criteria and offer energy modelling, PHPP (passive house planning package). We provide building science analysis and evaluation of materials as well as planning and supply of CLT, wood fibre board and PH certified windows. Stich consulting & design Inc. is an accredited course provider for “certified passive house designer” courses by PHI. We offer yearly manufacturing European tours along with the international PH conference.

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**Great engineering starts with great engineers.**

At Williams Engineering, our team of engineers, leaders and professionals proactively search for the greatest answers to our clients’ biggest questions.

Contact us to find out how we’re contributing to a sustainable future using Passive House design.

FIND OUT MORE: [www.williamsengineering.com](http://www.williamsengineering.com)
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