

Passive House Canada Ice Box Challenge

Design Competition

17 May 2017

Passive House Canada is pleased to announce that we have been invited by the City of Vancouver to coordinate an **Ice Box Challenge** event in Vancouver this summer. Inspired by a similar event held in Brussels, the challenge requires the design and construction of two small structures that will be placed in a public location in Vancouver to create awareness and demonstrate the **benefits of high performance buildings**.

One structure will be built to local Building Code and the other to the **Passive House Standard**. **One tonne of ice** will be placed in each structure and allowed to melt. The differential in time taken to melt will demonstrate to the public the thermal benefits of a high performance building envelope.

A collaborative team process is integral to Passive House construction, and in that spirit we are reaching out to our members in Vancouver to provide ideas, designs and construction expertise for this project.

The initial step is an open competition to establish the appearance and design of these structures with a prize of **\$500** for the winning design.

Judging and submissions are to be made by **June 5, 2017**.

Objective

Provide designs for two small structures of approximately 5 sqm (50 sqft) gross area to enclose 1 tonne of ice (approximately 1m x 1m x 1m). Each structure should be similar in massing and include a single viewing window.

The designs should be **eye catching, draw public attention** and **reflect the unique aspects of building culture** in Vancouver.

Location

To be advised but may include: Robson Square, Olympic Village Plaza, Queen Elizabeth Theatre Plaza. Where possible the proposed design should reflect the urban environment in which it is located.

Constraints

- One structure to be designed and built to Part 9 of the BC Building Code, **Energy Step Code Level 1**, Zone 4 (Effective R-Values: Cathedral Ceiling/Flat Roof R26.5, Walls R15.8, Floor (above Frost Line) R11.1, Glazing max 1.8 W/m²K (min. R3).
- One structure to be designed and built to the **Passive House Standard** including 'thermal bridge free' detailing.
- Each structure to be provided with at least one viewing window to allow ice to be viewed, duplicate window provided to each structure to duplicate solar gains (if any).
- Provide a floor drain for each structure.

Considerations

- Structures are to be secure so as not to allow entry.
- External elevations to include a vertical face for the application of infographics.
- No power or ventilation system is provided.
- Offsite prefabrication is under consideration

Submission Requirements

Concept sketch, plan, section, elevation. (2 pages of 11"x17")

Written Description, with further illustration if required, and Envelope Heat Loss Calculation for each structure (1 page of 11"x17") in the format:

Opaque Transmission (Qt) = Element Area x U-Value x Ft x Gt

Transparent Transmission (Qt) = Element Area x U-Value x Ft x Gt

(Where Gt = 73 kKH/a (Vancouver) and Ft = 1 (ambient air) or 0.7 (ground))

Please do not provide any form of identification on submission documents as judging will take place blindly and based on the merits of the design alone.

Submissions to be made electronically, in .pdf format, to katie@passivehousecanada.com by **9am** on **Monday 5 June 2017**.

Judging

Judging will take place at an open evening to be held on 5 June 2017 at City Hall. Representatives of the City of Vancouver will review and pick a winning design which best meets the challenge objectives and addresses the constraints of the project.

Construction

The winning design will be built, installed and tested over a three-week period in Summer 2017.

Questions

Please submit questions or queries to katie@passivehousecanada.com

Please confirm your interest in taking part in this competition katie@passivehousecanada.com so that any changes in requirements can be communicated to you.

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Head Office: 210-620 View St.
Victoria, BC V8W 1J6
passivehousecanada.com