



The Ice Box Challenge closing ceremony will take place on Friday, August 6, 2021 in St Enoch Square, Glasgow from 12-1pm
© Passive House Institute

Who will win the Ice Box Challenge Glasgow?

After two weeks of baking in the sun at St Enoch Square, the winner of Ice Box Challenge Glasgow, a public demonstration and battle against the elements, will be declared this coming Friday, August 6, at the Closing Ceremony. There is still time to take the Ice Box Challenge and go into the running to win a weekend getaway for two at Malvern Passive House B&B in the Malvern Hills Area of Outstanding Beauty. The ‘Guess the remaining ice level’ contest, available on the Ice Box Challenge website: www.iceboxchallenge.org, will run until midday on Friday, August 6, when the Closing Ceremony begins.

On July 23rd, St Enoch Square, Glasgow, became home to two ice boxes, each filled with 917kg of ice, to demonstrate the benefits of energy-efficient buildings in the lead up to the UN Climate Change Conference, COP26, this November. One ice box meets the Scottish Building Standard, while the other has achieved the international Passive House Standard, a highly energy efficient building performance standard developed by the Passive House Institute in Germany and promoted locally by the UK Passivhaus Trust.

Passive House

Passive House buildings stay at a comfortable temperature year round with minimal energy input. They make efficient use of passive heat sources – such as the sun - so that conventional heating systems are rendered unnecessary throughout even the coldest of winters. During the summer, Passive House buildings make use of passive cooling techniques such as strategic shading to keep comfortably cool. To demonstrate how a Passive House building can reduce heating and cooling energy demand by up to 90%, the Ice Box Challenge uses ice to measure how well each box keeps out the heat.



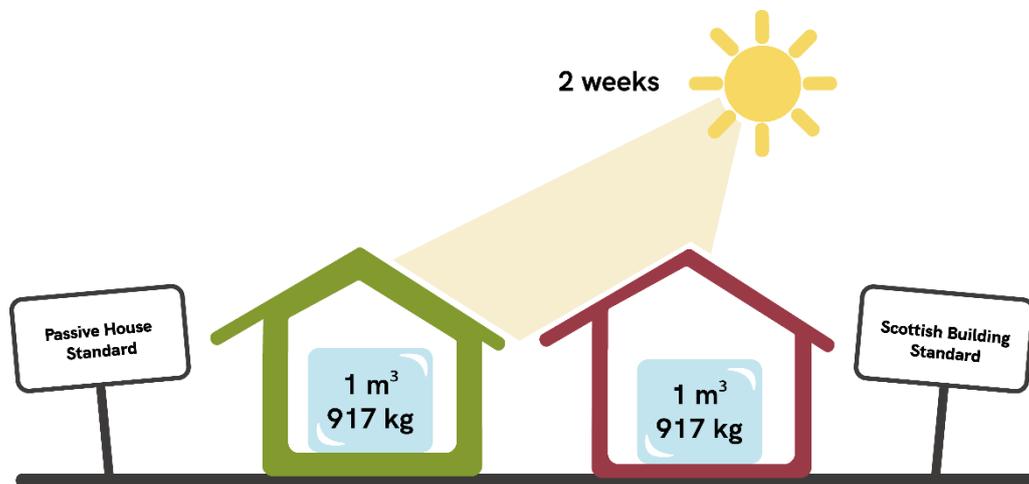
The Ice Box Challenge Glasgow is a public installation and contest taking place from July 23 until August 6. The event demonstrates the benefits of energy efficient buildings. © Passive House Institute

Closing Ceremony

At the closing ceremony from 12-1 PM on August 6, the amount of ice left in each box will be measured and announced. The event is free to the public, with prizes to be won including the announcement of the 'Guess the remaining ice level' contest. Speakers at the closing ceremony include Councillor Ruairi Kelly, Convener of the Neighbourhoods, Housing and Public Realm Committee at Glasgow City Council; Giorgia Tzar, Manager of the International Passive House Association; Sarah Lewis, Policy and Research Director at the Passivhaus Trust and the winning student team from Robert Gordon University, to discuss what they have learned from the student design competition and fabricating our winning design.

The Project

The Ice Box Challenge Glasgow is a joint effort from the International Passive House Association, Glasgow City Council, Passive House Institute, Edinburgh Napier University, Passivhaus Trust and Construction Scotland Innovation Centre and enjoys the patronage of the UNECE and Global Alliance for Buildings and Construction. The project began with a student design competition, which received entries from all over Scotland and was ultimately won by a team from Robert Gordon University. Their design was inspired by the Scottish Highlands and incorporated design features and materials that would minimise the structures' embodied carbon as well. The team has worked with Construction Scotland Innovation Centre to fabricate the boxes for display.



One ice box has been constructed to the Scottish Building Standard, while the other meets the Passive House Standard. Each box is filled with an equal amount of ice at the beginning of the experiment. After a fortnight, at the closing ceremony on August 6, the amount of ice left in each box will be measured. The level of ice remaining will demonstrate how well each ice box passively kept out the heat. © Passive House Institute

Efficiency: The First Renewable Energy

The Ice Box Challenge is a part of the International Passive House Association’s 2021 awareness raising campaign “Efficiency: The First Renewable Energy #EfficiencyFirst”. The United Nation’s IPCC highlights the substantial action needed to limit global warming. Currently, 35% of global energy consumption comes from the building sector alone. The operational stage is the largest contributor to carbon emissions, with most of this stemming from heating and cooling demand. Thus, the campaign asks people to think #EfficiencyFirst when tackling a new build or retrofitting project. It highlights existing solutions and provides local information on how to implement them.

Sponsors and Patrons

The Ice Box Challenge was made possible thanks to the generous donations from sponsors including: Construction Scotland Innovation Centre; John Gilbert Architects; Ecological Building Systems, OPEN Technologies, Glasgow Institute of Architects, Shettleston Housing Association, West of Scotland Housing Association, Southside Housing Association, Sanctuary Housing, Stewart & Shields Ltd, CCG (Scotland) Ltd, A.C. Whyte & Co. Ltd, Scotia Windows And Doors, Eskimo Ice Limited, Galt Transport, John White and Son and Green Building Store.

Find out more about the Ice Box Challenge on the event website: www.iceboxchallenge.org

Event organisers



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General Information

Passive House buildings

With the Passive House concept the heat loss that typically takes place in buildings through the walls, roof and windows is drastically reduced. With the five basic principles – high-quality thermal insulation, windows with triple glazing, avoidance of thermal bridges, an airtight building envelope, and a ventilation system with heat recovery – a Passive House building needs very little energy. Passive House buildings can therefore dispense with *classic* building heating systems. Such buildings are called "passive houses" because a major part of their heating demand is met through "passive" sources such as solar radiation or the heat emitted by occupants and technical appliances.

In a Passive House building, the heat is retained for a long time because it escapes very slowly. For this reason, active heating is needed only during extremely cold days and only a small amount of energy is required for this. A Passive House building also offers an advantage in the summer: the excellent level of insulation ensures that the heat stays outside, therefore active cooling usually isn't necessary in residential buildings. A Passive House building consumes about 90 percent less heating energy than an existing building and 75 percent less energy than an average new construction.

Passive House & NZEB

The Passive House standard meets the EU requirements for Nearly Zero Energy Buildings. According to the European Buildings Directive *EPBD*, all member states must specify requirements for so-called NZEBs in their national building regulations. These came into effect in January 2019 for public buildings and apply for all other buildings since this year 2021.

Pioneer project

The first Passive House in the world was built in Darmstadt-Kranichstein (Germany) 30 years ago by four private homeowners. Prof Wolfgang Feist was one of them. Ever since the homeowners moved in with their families in 1991, these terraced houses have been regarded as a pioneer project for the Passive House standard.

Passive House and renewable energy

The Passive House standard can be combined well with on-site renewable energy generation. Since April 2015, the new building classes "Passive House Plus" and "Passive House Premium" have been available for this supply concept.

Passive House Institute

The Passive House Institute with its headquarters in Darmstadt (Germany) is an independent research institute for highly efficient use of energy in buildings. The Institute founded by Prof Wolfgang Feist holds a leading position internationally with regard to research and development in the field of energy efficient construction. Among other things, Prof Wolfgang Feist was awarded the DBU Environmental Prize in 2001 for developing the Passive House concept.

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The world's first Passive House building in Darmstadt. © Peter Cook



Prof Wolfgang Feist.
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