

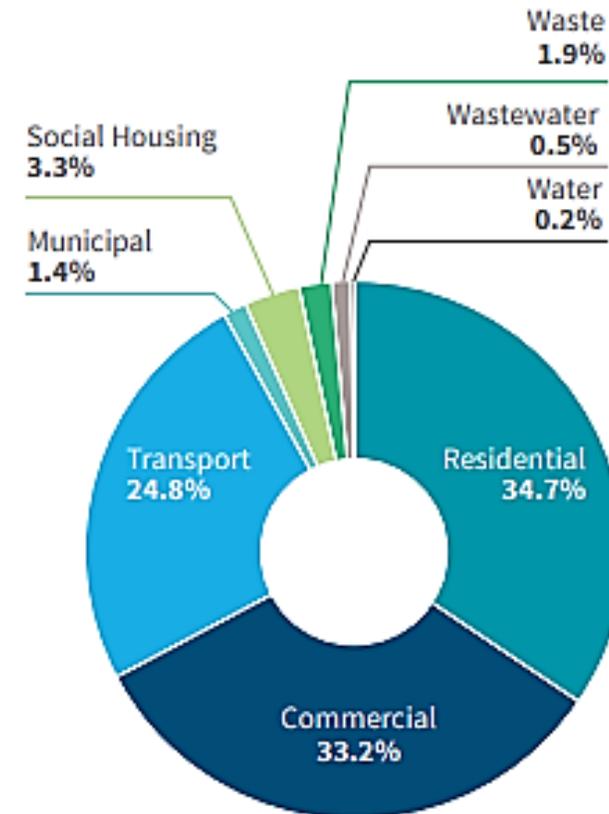


A Sustainable built  
environment for Dublin  
Planning and Urban form Committee

June 2020

# Aim of this presentation

- **Who are the IGBC?**
- **Net Zero Carbon Commitment.** What targets have other cities set?
- **What is Net Zero Carbon for new buildings.**
- **What is embodied carbon?** Why should it be included? What about demolition?
- **What are Green homes,** why is it important to go beyond energy efficiency?
- **Home Performance Index,** what are the benefits for public housing and for green gain in planning? who is using it?
- **Does sustainability cost more? Investment and sustainability.**



Total GHG Emissions for Dublin City per Sector  
Source: Dublin City Climate Change Action Plan

# About the IGBC

- The [IGBC](#), a **non-profit organisation** with charitable status, was launched in 2011 with organisations and businesses from the entire value chain of the built environment.
- We are a **membership organisation** that includes universities, professional institutes, NGOs, local authorities, contractors, architects, engineers, energy companies, leading national and transnational companies.
- All are united in **one common goal: to accelerate the transformation of the built environment, related industry and supply chain to one that is sustainable** through leadership, research, education, and providing policy input to national and local government.
- The IGBC is affiliated with the [World Green Building Council](#) as an established member. This is a network of over 75 national Green Building Councils worldwide.



Some of our Members

# What IGBC does

- We are a membership organisation [[170 members](#)] that conceive and deliver many innovative projects funded by our members, the European Commission, SEAI and EPA Ireland.
- We develop and run ratings and certification systems, including [Home Performance Index](#) and [Environmental Product Declaration Programme](#) Ireland.
- We educate the industry, through CPD webinars, conferences, in-house training on sustainable construction.
- We advocate to government and work with our member organizations on all aspects of the built environment and are invited to discuss proposals with the Department of Housing Planning and Local Government and Department of Communications, Climate Action and Environment.
- Finally we collaborate with many of our member organisations to transform the Irish construction and property sector into a global leader in quality and sustainability.



Some IGBC's events and training

# Making the Zero Carbon Commitment at the city scale



- The Net Zero Carbon commitment was launched in 2018 by World Green Building Council in response to the Paris Agreement to **restrict a global warming increase to below 1.5°**
- It is open to states, regions, cities and businesses.
- 28 cities have committed to Net Zero including cities as diverse as Helsinki, Stockholm, London, Vancouver, Valladolid, and Medellin.
- Helsinki has committed to carbon neutrality by 2035 and is implementing polices on new and existing buildings to achieve it.
- The city of Stockholm has committed to become a fossil fuel free organisation by 2030 and a fossil free city (heating and cooling) by 2040.



Some of the Net Zero Carbon Commitment signatories

# Making the Zero Carbon Commitment at the city scale

- The Commitment is more than words. It has been designed to **facilitate genuine action towards decarbonisation** of the built environment.
- To achieve this goal, the Commitment uses a framework made up of **five requirements**:  
Commit, Disclose, Act, Verify, Advocate.

## COMMIT



to an advanced trajectory for all new and existing buildings within direct control of the organisation to operate at net zero carbon by 2030; regulate and/or advocate for all buildings to operate at net zero by 2050

## DISCLOSE



and assess annual asset and portfolio energy demand and carbon emissions

## ACT



to reduce emissions by developing and implementing a decarbonisation roadmap outlining key actions and milestones towards energy efficiency and renewable energy

## VERIFY



enhanced energy performance, reduced carbon emissions and progress towards net zero carbon assets and portfolio

## ADVOCATE



for wider emissions reduction by acting as a catalyst through core organisation activities for further action within respective supply chains

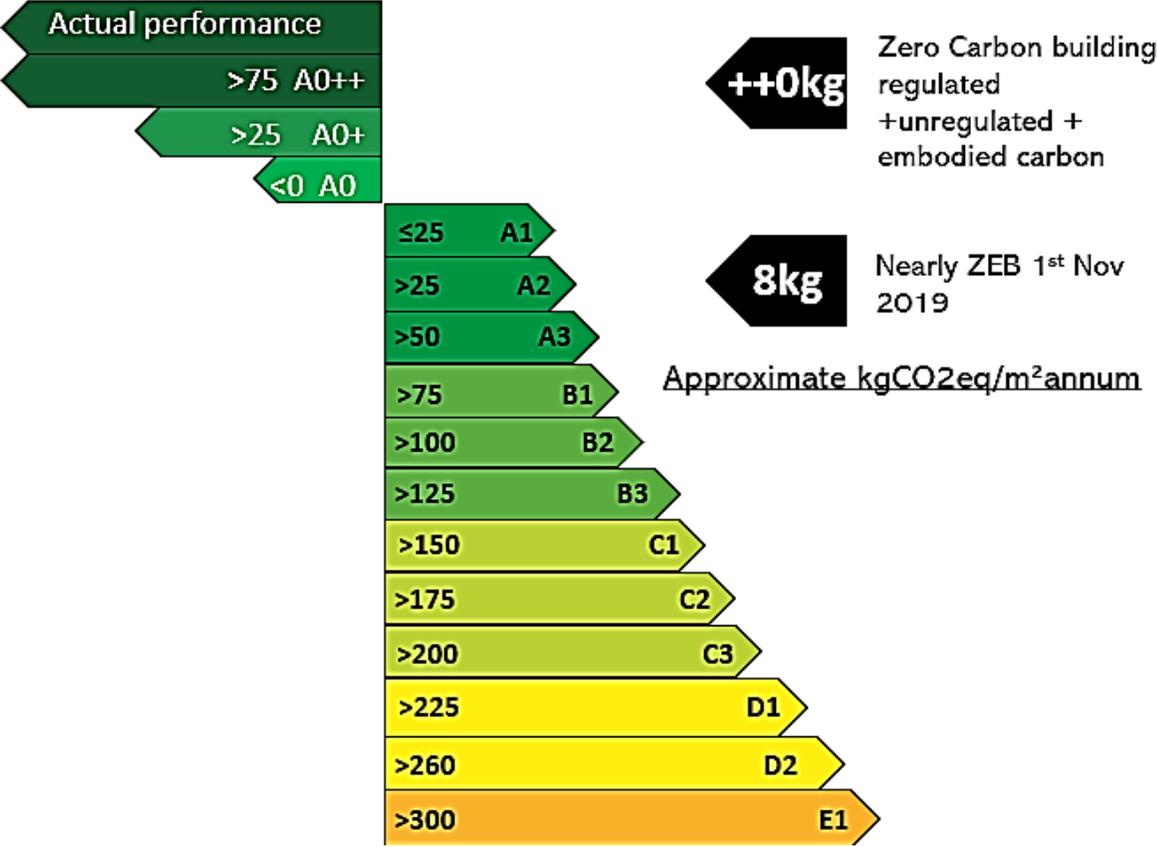
# What does Zero Carbon mean for buildings?

- As part of the commitment, **all new buildings** should operate to the Net Zero Carbon standard by **2030** and **all buildings** (new & existing) must operate to that standard by **2050** – *Paris proof buildings*.
- Net Zero Carbon standard is when the amount of carbon emissions associated with the building's operational energy on an annual basis is zero or negative.
- A **Net Zero Carbon building** is highly efficient and meets all of its energy requirements either with on site renewable energy or with off site renewable energy where not possible on site. However any off site renewable energy must be created specifically for the building.
- It **goes well beyond the current building regulations** as set out in TGD Part L Conservation of Fuel and Energy – Dwellings. This is the implementation of the Nearly Zero Energy Building(NZEB) requirement of EU



# What does Zero Carbon mean for new Building?

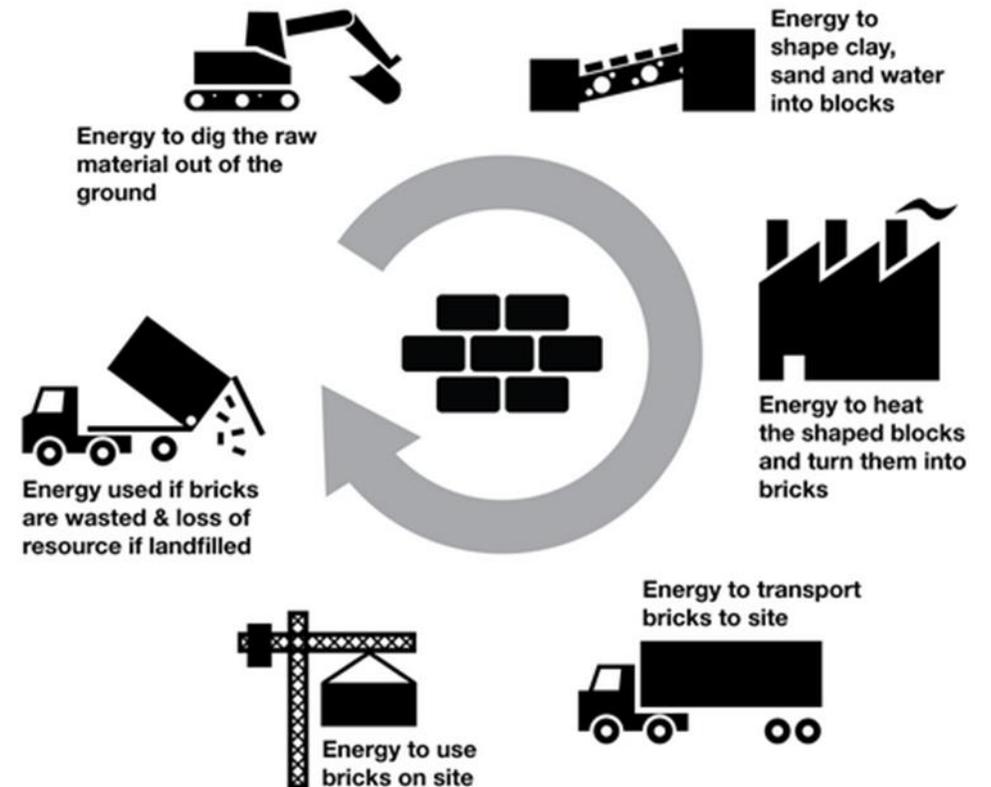
- Although not yet part of the commitment, the IGBC is also encouraging the industry, Irish local authorities and central government to also **take embodied carbon into account**.
- The full embodied carbon to manufacture the products and processes to construct the building should be optimised and reduced as far as possible. It should also be measured and offset at practical completion.
- In order to comply with the Paris agreement World GBC recommends that by 2030, all new buildings should reduce their embodied emissions by 40-50%. By 2050, all new buildings must have net zero embodied carbon emissions.



Source: Net Zero Carbon as defined in the Home Performance index mapped relative to nZEB in BER

# What is Embodied Carbon?

- Carbon and emissions associated with materials and construction processes throughout the whole lifecycle of the building or infrastructure.
- This includes the carbon to extract materials, transport them, manufacture them, transport to site, integrate into building, maintain, repair and replace, deconstruct and transport to end of life facilities.
- Embodied carbon emissions account for **11% of Global emissions**.
- It is not just about use of low embodied carbon products, but also about using less material and resources.
- **The best way of avoiding embodied carbon emissions is to reuse an existing building rather than demolish it.**
- What can the city do? It can review its planning policies around embodied carbon, policies on demolition, and reward developers to consider and reduce embodied carbon and penalise those who don't.
- There are now established standards EN 15978 at the building level and EN 15804 at the product level for measuring embodied carbon of building.
- IGBC operates the [EPD Ireland programme](#) for Irish manufacturers to declare the impact of their products. There are now easy to use tools integrating this data for calculation meaning it is no longer difficult to do.
- See report developed for cities - City Policy Framework for dramatically reducing embodied carbon.



An example showing the embodied carbon in bricks used for building

# Home Performance Index –What is it?

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- Certification developed by the Irish Green Building Council to **encourage improvement in the environmental, health and wellbeing, and economic quality of new homes.**
- It integrates the **Net Zero Carbon standard** as a voluntary standard for homebuilders to aim for.
- It rewards measurement and reduction of **embodied carbon**
- It requires **water efficient homes.**
- It encourages **biodiversity and efficient land use.**
- It measures the **connectivity of homes to cycling, walking, and public transport infrastructure,** and public services and amenities including healthcare and education, hence contributing to quality of life and transport CO2 emissions reduction.
- It is aligned with the [EU framework for sustainable construction Level\(s\)](#) and national policies on compact growth.



# Green Certified Home v Energy Efficient Home

- A Green Certified Home that has the HPI seal of approval is **more than just an energy efficient home.**
- HPI certification effectively **future-proofs** Irish homes by being aligned with the targets set out in the **Paris Agreement on Climate Change** and the EU's ambition for net zero carbon emissions by 2050.
- It also aligns with the UN Sustainability goals.
- Energy efficiency is of course one of the criteria.



HPI registered residential development  
Cherrywood Town Centre  
Hines & APG



# What is the added value of HPI compared to nZEB and Passivhaus[PH]?

	HPI	nZEB	PH
<b>Energy Efficiency</b> Energy use + CO <sub>2</sub> emissions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Energy savings</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<b>Indoor Air Quality</b> Ventilation, VoCs, Radon	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Water efficiency</b> Water quality and testing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Daylight Levels</b> Health + Wellbeing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Acoustic Comfort</b> Wellbeing + comfort	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Embodied Carbon</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Improving biodiversity</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Lifetime Homes</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Connected location</b> transport links, facilities, amenities	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Fully considered
- Partially considered
- Not considered

<b>Healthy and clean air inside</b> 	<b>Bright</b> 	<b>Good Energy Performance</b> 	<b>Low embodied carbon</b> 
<b>Connected location</b> 	<b>Acoustic comfort - reduced noise intrusion</b> 	<b>Water quality testing and water saving</b> 	<b>Reduced waste</b> 
<b>Low Volatile Organic Compounds (VOCs)</b> 	<b>Safe from Radon</b> 	<b>Biodiversity friendly</b> 	<b>Lifetime Accessible Homes</b> 

Watch [12 points](#) to consider in a green home

# Home Performance Index and well-known certification systems

## Residential



### HPI

#### Home Performance Index

Green building certification system created specifically for residential development in compliance with Irish Building Regulations and EU standards.

It is used by reputable investors and developers such as Hines, SISK and Durkan Residential in Ireland.

Home Performance Index is one of the two international systems approved for use as a Health and Wellness certification (WELL).

<http://homeperformanceindex.ie/>

## Commercial



### LEED

Green building certification system developed by the US GBC and is used widely in Ireland for commercial development such as in the commercial office market, data centres, Pharma and other non residential developments. It is particularly popular for investment by US multinationals for their facilities Google, Facebook, Hubspot, Salesforce. It shares many of the same indicators with BREEAM and Home Performance Index.

<https://www.igbc.ie/certification/leed/>

## Commercial



### BREEAM

Green building certification system developed by the BRE in the UK and is used in Ireland on commercial offices, industrial, institutional uses such as 3rd level educational facilities and health. For example many of the hospitals such as the Mater and National Children's hospital are or will be certified to this standard. It tends to be used in more Irish state funded projects than LEED. It shares many of the same indicators with LEED and Home Performance Index.

<https://www.igbc.ie/certification/breem/>

## Commercial



### WELL

Health and Wellness certification system developed by the International Well Building Institute specifically for buildings and focuses exclusively on these aspects. It has a particular focus on measuring actual performance such as air, water, light and acoustic quality. There are 12 registered projects in Ireland mainly in the commercial office market. Using HPI certification, Ireland's first registered WELL community is under construction in Cherrywood.

<https://www.wellcertified.com/certification/community/>

# Who is using Home Performance Index?



- **Dublin City Council** is implementing as standard on all of its social housing tenders.
- The **Land Development Agency** are using it on their schemes.
- **Sisk** are certifying bundle 1 homes for the NTMA for 550 homes.
- **Hines** are using it on the Cherrywood development.
- IGBC is developing a programme for banks to connect discounted green mortgages with Home Performance Index under an EU H2020 programme – Smarter Finance

Hines



Gníomhaireacht Bainistíochta an Chisteáin Náisiúnta  
National Treasury Management Agency



# Home Performance Index Specified by Dublin City Council in public housing tenders 2020



From 2019 Dublin City Council are specifying Home Performance Index Certification as standard in tenders to ensure a legacy of high standards of building, high quality of wellbeing and health and protection of the environment.

**2350**  
HPI Homes  
registered  
and growing



57 new HPI homes in Dublin 8, Bonham Park Bridgefoot Street by Dublin City Council

<https://libertiesdublin.ie/2019/10/22/bonham-park-57-new-apartments-set-for-vacant-site/>

# Does sustainability cost more?

- Sustainable homes and buildings can cost less to construct and certainly cost less to operate. The development plan can of course support a further reduction in cost, for the most sustainable buildings.
- Cost effective sustainability depends on targets being set early in concept design and on the skills and training of the developer and design team to make better choices and decisions.
- Planning for low car development can avoid costs of constructing expensive underground carparks saving €36,000\* per apartment and much more on difficult tight infill sites.
- Carefully planned homes designed to minimise heat loss, through simple shape and form mean less material use and ease of construction. When combined with 'Passive house' standard fabric, this results in simpler cheaper heating systems, and less maintenance.



Source: [The real cost of apartment delivery](#) SCSl



# Does sustainability cost more? Continued

- **Early consideration of low embodied carbon construction when considered early can result in less material use**, from simpler foundations, avoiding piling, less structure, unnecessary finishes and therefore less cost.
- **Water efficiency** integrated into apartments can result in need for smaller water storage areas and therefore need less space to be constructed.
- Careful planning such as **use of off-site construction results in less waste**, and time and money saved on the project
- **A development that is more compact and denser means less infrastructure saving on cost and maintenance.**
- Even better more sustainable home will **soon qualify for discounted green mortgages**. EU Green taxonomy rules means developers should soon be able to access lower cost finance from banks
- **So why does everyone not do it?** Not all design teams and developers understand the connection between sustainability and savings and start too late in the design process.



**Climate proof your mortgage book**  
Be the lender of choice to the greenest homes in Ireland

**Green Home Green Mortgage program**

- Increase Asset Values
- Reduce Mortgage Default
- Improve Cash Flow for Borrowers for their Green Homes
- Assure expected green performance through credible, HPI certification program
- Superior Building Quality
- Better Health for Families
- Greater Environmental Responsibility for our Planet

IGBC  
IRISH GREEN BUILDING COUNCIL

SMARTER FINANCE FOR FAMILIES

IGBC is working on the Smarter Finance to develop a programme with the Irish Banks linking Home Performance Index certified homes with discounted Green Mortgages

# Recommendations on development plan

- **Make a commitment on Net Zero Carbon at a city scale.**
- **Encourage the Net Zero Carbon Standard for private developers for new and existing buildings through incentives in the planning system**
- **Develop policies on low carbon construction and embodied carbon based on established standards for measurement.**
- **Insist on an evidence based approach to demolition of existing buildings that demonstrates measurable benefits**
- **Encourage reuse of buildings and reuse of materials and make this easier in the city.**
- **Further reduce minimum car parking standards for buildings or eliminate altogether.**
- **Encourage use of a wider sustainability certification through Home Performance Index for 3<sup>rd</sup> party confirmation of compliance with policies on housing quality.**
- **Reward developers who demonstrate enhanced sustainability.**



Launch of HPI Version 2, November 2019

[l-r]: Brian Dolan Managing director of Saint-Gobain [companies Gyproc and Isover], Minister of housing Eoin Murphy T.D., Marion Jammet, IGBC manager, Kevin O'Rourke IGBC Board director

## Additional reading

- Irish Green Building Council – [www.igbc.ie](http://www.igbc.ie)
- Dramatically reducing embodied carbon – Policies for cities.  
<https://www.embodiedcarbonpolicies.com/download-city-policy-framework>
- What is the Nearly Zero Energy Building? -  
<https://www.igbc.ie/nzeb/>
- Advancing Net Zero – World Green Building Council  
<https://www.worldgbc.org/advancing-net-zero>
- Net Zero Carbon Commitment -  
<https://www.worldgbc.org/thecommitment>
- [Bringing Embodied carbon upfront – World Green Building Council](#)
- Home Performance Index [www.homeperformanceindex.ie](http://www.homeperformanceindex.ie)
- Environmental Product Declaration Programme Ireland –  
[www.epdireland.org](http://www.epdireland.org)
- [The real cost of apartment delivery](#) - Society of Chartered Surveyors Ireland.



[Rathmines Crescent](#) - the first project in Ireland to be awarded with [Home Performance Index](#) label which allows housing providers and private developers to highlight the quality and sustainability of their homes

Source: <http://www.dublincityarchitects.ie/social-housing-at-rathmines-crescent/>



**Thank you.**

If you'd like to know more, contact

Pat Barry

[pat@igbc.ie](mailto:pat@igbc.ie)

Marion Jammet

[marion@igbc.ie](mailto:marion@igbc.ie)