

eHome2

CARBON FOOTPRINT ASSESSMENT

In 2022, Saint-Gobain partnered with Barratt Redrow, the University of Salford and other stakeholders, to build a 3 bedroom, detached house with a Gross Internal Area (GIA) of 92 m², designed to meet the envisaged requirements of the Future Homes Standard. The house - called eHome2 - featured elements manufactured offsite, including the ground floor and external walls.

eHome2 was constructed at the new, state of the art, testing facility called Energy House 2.0, located at the University of Salford.

Whole life carbon assessment methodology

A whole life carbon (WLC) assessment was carried out by Focus Consultants and Saint-Gobain following the RICS WLCA methodology (first edition), published in 2017.

The study and its findings were independently panel reviewed by eLoop against the RICS methodology requirements.

This summary focusses on eHome2 as-built, featuring Saint-Gobain's EnveoVent structural frame/external wall solution, compared with traditional onsite construction with clay brick cavity walls and polyisocyanurate (PIR) insulation.

Both options were designed to be net zero carbon with respect to regulated energy use (for example, heating, hot water, lighting, ventilation), and based on SAP, have a Dwelling Emission Rate (DER) of -1.9 kg CO₂eq / m². Since this is the same for both options, this summary's focus is on embodied carbon.

The WLCA considered upfront embodied carbon (up to practical completion ^{Note 1}) as well as whole life embodied carbon over a 60 building service life. ^{Note 2}

Note 1. Upfront embodied carbon results in this study comprise modules A1 - A5 as defined by the RICS WLCA methodology.

Note 2. Whole life embodied carbon results in this study comprise modules A1 - A5, B2 - B4, C1 - C4 and, separately D.



The summary of findings below reflect eHome2 relative to traditional construction. Note that percentages are calculated based on embodied carbon only.

Key Findings:



21% lower upfront carbon emissions (without biogenic carbon)

eHome2 reduces upfront carbon emissions by 21% **saving more than 10,000 kg** CO₂ eq during construction.



57% lower upfront carbon emissions (with biogenic carbon)

eHome2 reduces upfront carbon emissions by **57%** when biogenic carbon is included



On a whole life embodied carbon basis, eHome2 has an 11% lower embodied carbon footprint

Biogenic carbon includes carbon dioxide sequestered from the atmosphere by growing trees from sustainable forestry that are harvested to make timber and engineered woods used in construction.

Saint-Gobain only procures 100% Forest Stewardship Council (FSC) certified timber to manufacture EnveoVent.

Upfront embodied carbon



57% lower upfront carbon emissions
(with biogenic carbon)

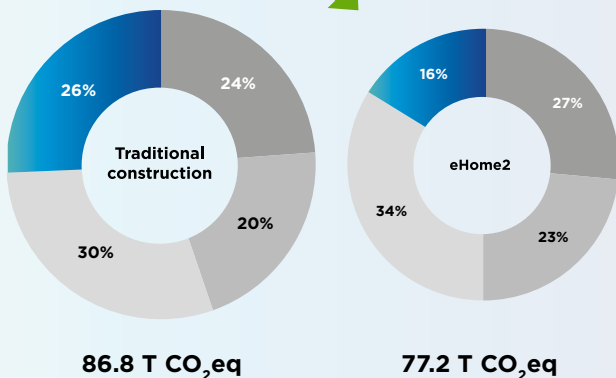


The upfront embodied carbon footprint of eHome2 is 423 kg CO₂ eq / m² GIA ^{Note 3}

Whole Life Embodied Carbon

Whole life embodied carbon (over 60 years)

11% reduction for eHome2 = **9500 kg CO₂eq saving** ^{Note 4} per house



Services e.g. MVHR
Other fixed e.g. windows, doors
Internal finishes e.g. carpets
Varied (external walls, foundation)

1000 kg CO₂eq of savings are due to the need for smaller foundations arising from use of lighter EnveoVent external walls



eHome2 whole life embodied carbon footprint (CFeHome2) is 839 kg CO₂eq / m² GIA ^{Note 3}

Note 3. Excluding potential benefits e.g. from recycling.

Note 4. 8,000 kg saving compared to concrete or sand lime bricks.



eHome2



Saint-Gobain Limited

registered in England
Company No. 3291592

Registered Office: Saint-Gobain House
East Leake, Loughborough
Leicestershire, LE12 6JU

www.saint-gobain.co.uk/eHome2

For more information about eHome2, EnveoVent
or this study, please contact
sgukcomms@saint-gobain

[EnveoVent website](#)

[EnveoVent brochure](#)

[Whole Life Carbon Executive Summary report](#)



University of
Salford
MANCHESTER

