Home of 2030

Exemplar housing development case studies

About Home of 2030

Home of 2030 sought to encourage the development of homes that will help tackle the key challenges facing our society. It focused on solving multiple issues, to generate new typologies and products that are age friendly and inclusive, address health and wellbeing and at the same time harness new and evolving technologies for a low carbon and energy efficient future.

Home of 2030 was focused on deliverability, cost-effectiveness and design quality, addressing gaps that may exist in the market. It was a cross-departmental initiative funded by HM Government, with a steering group that included the Ministry of Housing, Communities and Local Government (MHCLG), the Department of Business, Energy and Industrial Strategy (BEIS) and the Department of Health and Social Care (DHSC).

The programme was managed by a multi-faceted consortium led by BRE, the world's leading building science centre. RIBA Competitions managed the design competition element of the initiative. Design Council providing public and SME engagement, and educational charity MOBIE were responsible for outreach to young people.

www.homeof2030.com

About BRE

BRE delivers innovative and rigorous products, services, standards and qualifications which are used around the globe to make buildings better for people and for the environment. For a century we have provided government and industry with cutting edge research and testing to make buildings safer and more sustainable.

BRE's ambition is to be the world's leading innovation, science and data hub for the built environment. By developing science-led solutions to urgent challenges, we will build a thriving and sustainable world.

https://www.bregroup.com/

Case study 1: Hanham Hall, Bristol

This Barratt development was one of the Carbon Challenge schemes promoted by the Homes and Communities Agency (HCA). It was built on a nine-hectare site located 7km from Bristol city centre and completed in 2015. It was one of the first large-scale housing schemes to achieve the 2016 zero carbon standard. There are 186 homes for sale and rent. Shared spaces include the Grade II* listed Hanham Hall, which has been restored and provides amenities for use by the local community, including a café, crèche, gym and small business units.

Healthy Living

- Homes combine stack and cross ventilation, large openings, deep roof overhangs, balconies and shutters.
- Volume of the homes extended allowing for an increase in the height of living room ceilings.

Age Friendly and Inclusive Living

- Shared allotments, play area and orchard
- Site managed by residents through a Community Interest Company (CIC)
- Larger balconies and verandas are included to help create stronger connections with the surrounding communal gardens and countryside

Low Environmental Impact

- A range of industry benchmarks exceeded with the development including, Code for Sustainable Homes Level 5, Building for Life 12 & CEEQUAL Excellent
- Larger windows oriented to maximise solar collection
- Energy centre on site

Deliverable and Scalable

- Each house type was designed with a flexible plan, so that the living spaces could be rotated to achieve maximum daylight.

References: https://www.barrattdevelopments.co.uk/showcase/hanham-hall-bristol; https://smartercommunities.media/hanham-hall-a-low-carbon-anomaly/; http://urbanitarian.com/portfolio/hanham-hall-hta-bristol/; https://www.hta.co.uk/project/hanham-hall; https://www.siniat.co.uk/en/knowledge-centre/reference-cases/hanham-hall-eco-village-hanham

Case study 2: Cannock Mill, Colchester

Cannock Mill is a cohousing scheme started by a group of ~ 30 people (all aged over 50)with the aim of creating a development based on a commitment to cohousing and shared values around environmentally friendly living.

The site is based around an existing Grade II listed 17th Century mill and two acres of surrounding land. It was purchased in July 2014 and construction began in May 2017.

The site was designed by Anne Thorne Architects LLP and includes 23 new homes including 17 two / three bedroom houses (with some garages) and mixture of one and two bedroom flats. It is one of only a handful of purpose-built cohousing communities in the UK. The project was awarded 'Best community self build project 2019' by 'Build It' magazine.

Homes Healthy Living

- The focus of the development is to provide homes where the group's members can live independently but with shared facilities and providing mutual support to each other.

Age Friendly and Inclusive Living

- The management of the site is undertaken by the members of the cohousing group who meet on a monthly basis to discuss building upkeep, finance, communications, memberships and social activities.

Low Environmental Impact

- Recycled newspaper and wood fibre insulation
- Renewable bamboo flooring
- Bespoke kitchens that avoid using MDF
- Green roofs
- Solar PV installed

Deliverable and Scalable

- Timber frame cassettes, have been used, an MMC option for ease of construction

References: http://cannockmillcohousingcolchester.co.uk; https://www.gazette-news.co.uk/news/18089316.eco-friendly-homes-old-mill-complete; **https://www.communityledhomes.org.uk/sites/default/files/resources/files/2019-08/cannock-mill-cohousing-colchester-long-search-site.pdf ;** https://ukphc.org.uk/wp-content/uploads/2018/08/UKPHC2018_Cannock-Mill-Presentation.pdf; https://www.passivhaustrust.org.uk/news/detail/?nId=796; https://www.15-40.co.uk/cannock-mill-cohousing; **https://www.jerramfalkus.co.uk/wp-content/uploads/2020/02/JF_Case_Study_Cannock_Mill_Passivhaus.pdf**

Case study 3: Priors Hall Park, Corby

Project Etopia (Etopia) has developed a pilot modular housing project site at Priors Hall Park in Corby, Northamptonshire within 965 Acres of countryside. Work at the site began in December 2018 and is ongoing.

The development comprises 47 factory-build homes, including a mix of 31 3 -/4-/5- bedroom houses and 16 2-bed apartments.

The scheme is one of five ‘Building for 2050’ research projects that have received funding from BEIS. The development was shortlisted under the RESI Awards 2020 for ‘Development of the year’ and ‘Eco initiative of the Year’

Homes Healthy Living

- The homes are designed and built to be 25% larger than government home space standards with the smallest 3-bed home at 1,384 sq.ft and the 4-bed home at 1,820 sq.ft.

Age Friendly and Inclusive Living

- The housing design allows for the future option of installing a 2/3 storey lift to allow for increased accessibility in future.
- Allocated off street parking and garages for houses and allocated parking for apartments.

Low Environmental Impact

- The scheme is the only one in the UK to use a Combined Heat System using Solar Energy and Heat Pumps (CHESS SETUP)
- The panelised build system for the homes is designed to exceed Passivhaus energy efficiency standards and all windows are triple glazed for additional building efficiency and sound insulation
- Etopia claim that on average their modular construction system leads to a 39% reduction in carbon emissions compared to traditional construction methods.

Deliverable and Scalable

- The modular panelised sections for these homes, which are assembled on site, are constructed at Etopia's factory in Ellesmere Port
- The factory built modular designs of the homes allowed for fast construction timescales on site. For example, a time lapse video from the Corby site shows that four modular homes were built in 34 days.

References: https://www.projectetopia.com/?pgid=k5fh739x-ae80d658-190c-4172-807b-fc8e9fb096df; https://www.etopiacorby.co.uk/; https://www.pbctoday.co.uk/news/modular-construction-news/project-etopia-modular-eco-home/61968/; https://www.housingtoday.co.uk/news/footage-shows-modular-housing-built-in-34-days/5099026.article; https://labmonline.co.uk/news/first-completed-modular-eco-home-unveiled-at-etopia-corby/; https://www.renewableenergymagazine.com/energy_saving/first-six-houses-at-etopia-corby-found-20200617; https://www.showhouse.co.uk/news/groundwork-to-begin-on-londons-first-modular-commuter-village/;

Case study 4: Goldsmith Street, Norwich

Goldsmith Street is a multi-award winning £17 million council housing scheme located in Norwich. Norwich City Council were the developer, with design by Mikhail Richer and construction by R.G Carter. It is the UK's largest Passivhaus social housing development. It consists of 105 homes, comprising 40 two-bed houses, 5 four-bed houses, 57 one-bed flats, 3 two-bed flats and 1 three-bed flat.

Goldsmith Street won the Housing Design awards 2019, the RICS East of England Residential Award 2019, the NCEC Sustainability Award 2019, the HCA Overall Award 2019, the RIBA East Sustainability Award 2019 and become the first ever council housing scheme to win a RIBA Stirling prize in 2019.

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Healthy Living

- The parking provision for the homes has been sited nearer the perimeter of the development to allow for greater pedestrian access to the streets.
- Existing green links have been enhanced with a landscaping scheme that extends beyond the site boundaries to a local park.

Age Friendly and Inclusive Living

- The council housing is rented from Norwich Council with secure tenancies and fixed rents.
- The scheme includes a shared alley garden to encourage small children to play and communal gardening with secure access for residents only.

Low Environmental Impact

- All the homes are built to meet Passivhaus standards, resulting in a 70% reduction in fuel bills for tenants.
- The homes have cellulose insulation, triple glazing and a mechanical ventilation heat recovery system.
- Solar warming and shading have been carefully considered in the design to maximise winter warming whilst minimising summer heating.

Deliverable and Scalable

- The properties were partly constructed using timber insulated panels manufactured offsite by Cygnum. This allowed for an economic design delivered with less materials.

References: https://www.theguardian.com/artanddesign/2019/oct/08/stirling-prize-architecture-goldsmith-street-norwich-council-houses; https://ukphc.org.uk/wp-content/uploads/2017/09/Achieving-Passivhaus-at-Scale-David-Moorcroft-Norwich-City-Council-James-Turner-Mikhail-Riches.pdf; https://woodforgood.com/case-studies/goldsmith-street; https://www.darringtonarchitects.com/goldsmith-street-wins-all-the-awards/; https://www.architecture.com/awards-and-competitions-landing-page/awards/riba-regional-awards/riba-east-award-winners/2019/goldsmith-street; https://cygnum.co.uk/case-study/goldsmith-street-norwhich-stirling-prize-award-winner-2019/; https://www.architectsjournal.co.uk/news/riba-stirling-prize-2019-goes-to-goldsmith-street-council-housing-scheme; http://www.ecosutton.co.uk/housing-exemplars-relevant-to-langley-sue-energy-efficiency-at-goldsmith-street-norwich/; https://langleydesign.co.uk/projects/goldsmith-street-norwich/

Case study 5: Monmouthshire Housing Association (MHA), 'Start Up' 'Slim Down' homes, Monmouthshire

The rightsizing project consists of two separate housing developments at previously derelict garage sites in Caldicot and Abergavenny, Monmouthshire, comprising a total of eight homes. The scheme was created by the MHA as a project seeking to focus a design on two distinct groups of house buyers: older buyers looking to downsize and younger buyers looking for a first home.

The scheme aimed to demonstrate principles of good design. Two different house types were developed: a terraced mews with patio and an 'interlocking' courtyard house. The designs were developed following studies and market testing. The scheme has received an innovation award from the Constructing Excellence in Wales Awards.

Healthy Living

- The homes include terraced mews with patios and an ‘interlocking’ courtyard house in response to needs for spaciousness and manageable private outside amenity spaces.

Age Friendly and Inclusive Living

- The homes have been designed to eradicate the risk of household fuel poverty by including increased energy efficiency measures to make the homes affordable to run and heat.
- The homes have been designed to be healthy and comfortable allowing for integration within the existing neighbourhood and creating a place with character.

Low Environmental Impact

- The design of the homes aimed to be carbon conscious in terms of both construction and lifecycle.
- The homes were designed to meet Passivhaus standards, with use of onsite renewables.

Deliverable and Scalable

- The design can be constructed using several different construction methods / materials e.g. traditional block, clay block, timber, modular etc. which means that the design is also future proof and can benefit from emerging construction techniques.
- Both developments have been built by MHA’s own building services team, utilising local skills, resources and equipment wherever possible, to help develop local skills in housing construction with apprenticeships.

References: https://www.wales247.co.uk/homes-for-the-future-come-to-abergavenny/, https://www.monmouthshirehousing.co.uk/news/mha-win-constructing-innovation-award/, http://whq.org.uk/the-magazine/issue/115/homes-for-the-future/st-t-ent/, http://orca.cf.ac.uk/copyright.html

www.home of 2030.com

For more information, contact:

advisory@bregroup.com

0333 321 88 11

www.bregroup.com/services/advisory