Somerset West and Taunton

# Low Carbon Affordable Homes (HRA) for Somerset West & Taunton

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# What will we cover?

- What does SWT want from new build affordable homes?
- Climate Change and New Homes - direction of travel
- Local authority case studies and exemplar schemes
- Developing and delivering a SWT low carbon standard
  - 2020/2021
  - 2021+
- The next steps / step change

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# What does SWT want from new affordable homes?

Low Carbon Homes (zero carbon, zero carbon +, Passiv, LETI, Code 6, etc.) (Homes in Somerset account for approx. 27% of carbon release compared to 20% of UK)

New Homes now or ASAP (sites, scale, specification, procurement, HRA or all SWT new build)

Homes supporting Health & Wellbeing (environment, light, quiet, comfort)

Sustainable tenancies & homes in sustainable communities (connected, affordable, locality, etc.)

Reduced levels of Fuel poverty (who saves and who funds)

Affordable homes (social rent v affordable rent, capital investment v revenue, increased or decreased maintenance costs, SPV)

Homes resilient to future climate change (over heating, flooding, more intense weather)

Well designed homes reflecting the local character (space standards, design guide, Garden Town)

Homes which use modern methods of construction/modular (what are the advantages/are the advantages relevant)

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# Climate Change and New Homes - direction of trav


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# limate Change Agenda and direction of travel for ew homes

The Intergovernmental Panel on Climate the world needs a **net zero global economy by 2050.**

2019 UK **first major economy to pass a net zero emissions target into law**. (All greenhouse gas emissions to net zero by 2050)

Commitment by **2025** the Government will **introduce a Future Homes Standard**

Consultation on changes to the **Building Regulations parts F & L**

- Fabric First approach
- Low Carbon Heat - Heat Pumps, Heat Networks, Direct Electrical Heating, Decarbonisation of the network (green tariffs)
- 31% reduction in carbon emissions compared to the current standard.

The UK housing sector has reduced overall total of **emissions by about a fifth since 1990** despite there being approximately a quarter more homes

The "greening" of the national electricity grid via renewable and low carbon energy sources has reduced carbon dioxide emissions, approx. **50% reduction for the carbon intensity of electricity**

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# Local authority case studies and exemplar schemes


- The **Greater London Authority** (GLA) already requires all new homes to achieve a **zero carbon target**
- Many local authorities are leading the way in delivering **exemplar housing** developments to a zero carbon or zero carbon plus standard – Exeter, Cambridge, Plymouth, Norwich, etc.

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# XETER CC / Exeter City Living (SPV/Corporate Company) - Passivhaus

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# XETER CC / Exeter City Living (SPV/Corporate Company) - Passivhaus

- Passivhaus buildings meet exceptionally high environmental and energy efficiency standards developed by the Passivhaus Institute in Germany. This means excellent air quality inside with very little heating or cooling needed, whatever the weather. The homes are built to meet rigorous standards throughout
- Every element of the design is meticulously planned, from the aspect of high-performance windows to harvest warmth and light from the sun to high levels of insulation. This holistic passive design strategy results in homes with exceptionally clean air that always feel comfortable
- Passivhaus homes can reduce the energy demand of a building by up to 75% of that of a standard UK building (if built to current Building Regulation requirements).

# RAYNE PARK, NORWICH

- The largest low-energy Passivhaus development in the UK – and one of the largest in Europe, brought forward by Norwich Regeneration.

- The scheme will see 112 of the 172 new homes certified to the Passivhaus standard. The homes will benefit from 70 per cent reduction in heating bills.

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# MARMALADE LANE, CAMBRIDGE

- A custom-built cohousing community delivered by GHA developer member TOWN.
- 42 custom build homes complemented by first-class shared facilities
- Marmalade Lane has been designed with a fabric-first approach delivered with offsite manufactured closed timber panels supplied by Swedish builder Trivselhus, combined with heat pumps to supply heating and hot water.

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# ETOLPIA HOPMES, CORBY

- 47 modular homes that are equipped with energy saving technology to deliver a net zero carbon standard on site.
- A combined solar photovoltaic and thermal panel, heat pump, inter-seasonal storage and smart home equipment

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# ALLACK ROAD, LAYTON

- Comprises a mix of 50 new affordable and private flats and houses.
- The development, delivered under the London plan policy for low carbon homes
- It is the first to use a large-scale communal air source heat pump feeding an ambient temperature heat network and individual heat pumps, together with solar photovoltaic panels to provide a predicted 57% reduction in carbon emissions on site.

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# Developing and delivering a SWT low energy affordable homes standard

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# A few headline SWT opportunities

- The HRA business plan has a target or 1000 new homes over 30 years
- This means new homes will increase from 0.07% of SWT stock up to 20% of stock over by 2050
- 30% of HRA 1000 unit target are live/on site
- Sites identified for an additional 35% of 30 year target
- High demand for affordable homes for rent
- Councils have some freedoms to tackle challenges – SPVs, corporate companies, borrowing, partnerships , Joint Ventures, etc.
- Large Town Centre regeneration increasing volume and opportunity circa 800 units

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# earning through doing - start small prepare for the big

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# 020 / 2021 - 6-19 units as Pilots;
## mall, quick, learning, testing, refining, promoting

6-19 new homes zero or zero +units

- ✓2-6 surplus HRA garage sites
- ✓Mainly zero carbon modular 2 bed bungalows (likely to be mobility friendly)
- ✓Fabric First approach
- ✓Onsite renewable energy
- ✓Garden Town menu of external environment enhancements
- ✓Design Code principles to reflect local character/materials to external environment
- ✓Procurement and performance measured against exiting standard (LETI)
- ✓Procure through exiting Framework
- ✓RtB Receipts to support 30% cost of small schemes
- ✓Create in District Low Carbon show homes
- ✓Continue to learn from others and apply learning to medium sites

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# 2022+ More volume, more modular, more refined

## RA Medium sites – 170 units

- ✓Benefit from our learning through doing
- ✓Benefit from community buy in through show homes and pilots
- ✓Homes England subsidy £40k-£60k per unit, RtBR (cannot be used with HE funding), mixed tenure cross subsidy schemes where required
- ✓Potential for modular approach & bulk purchase discount
- ✓Potential to deliver directly or through SWT own SPV/Corporate Company or buy services from other public company
- ✓Establish LETI, Passivhaus or other carbon standard
- ✓Garden Town menu of external environment enhancements
- ✓Design Code principles to reflect local character/materials to external environment
- ✓Opportunity for energy networks or reduced build cost through grid connection and deferred enhancement

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# 2022+ More volume, more modular, more refined

## NTWP – 226 units

- ✓Bespoke approach with Engie (main contractor)
- ✓Learn from Engie exemplar schemes and core companies energy business
- ✓Apply learning in phases B-D

## Continue with infill approach on small sites – 60+ units

- ✓Develop small schemes on HRA surplus land / garage sites as per 2020/2021 programme
- ✓1 x small regeneration refurbishment (8-12 units) and new build (6-12 units)

## Town Centre - circa 800 units

- ✓Align HRA medium site delivery and standards where possible
- ✓Greater purchasing power with modular build homes
- ✓Consider SPV opportunities as an energy company, development agency PRS landlord supporting homeless agenda

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# Benchmarking SWT procurement against published standards

Choices on standards

- Passivhaus – House and use only
- LETI (London Energy Transformation Initiate) – Whole House and process
- Code 6 sustainable Homes – sustainability other elements
- ….and there are more

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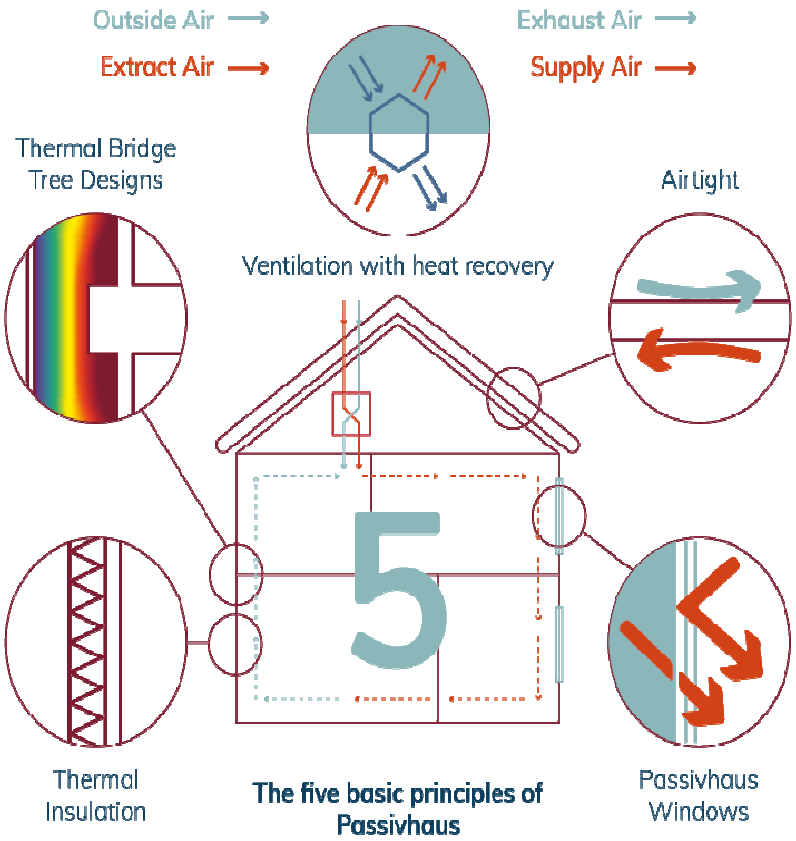
# Passivhaus homes

## his means excellent air quality inside with very little heating or cooling neede
## hatever the weather




- A mechanical ventilation system with highly efficient heat recovery.
- Natural, recycled and locally and sustainably sourced materials where practical.
- Non-toxic organic paints, waxes and stains.
- Timber from sustainably managed woodlands.
- Reduced use of materials such as PVC and heavy metals.
- Radial electrical wiring in bedrooms to lessen electromagnetic fields (EMFs).

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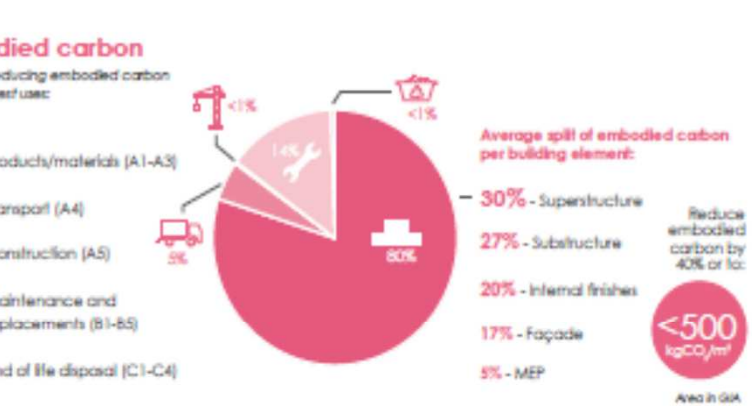
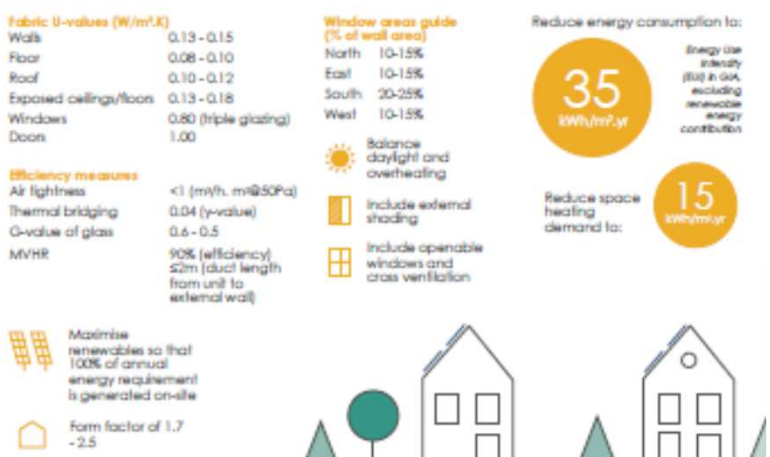
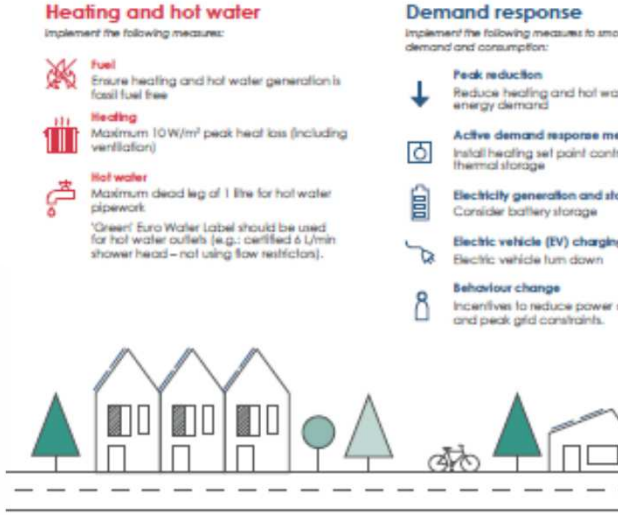
# ondon Energy Transformation Initiative (LETI) tandard (Small Homes) –Fabric, Energy/Heat/Power, Embodied Carbon, Data Disclosure






## disclosure

disclose energy consumption as follows:

**Metering**

- eter renewables for energy generation
- eter electric vehicle charging
- eter heating fuel (e.g. heat pump umption)
- nuously monitor with a smart meter
- der monitoring internal temperatures
- ultiple properties include a data logger gside the smart meter to make data g possible.

**123 Disclosure**

1. Collect annual building energy consumption and generation
2. Aggregate average operational reporting e.g. by post code for anonymity or upstream meters
3. Collect water consumption meter readings
4. Upload five years of data to GLA and/or CarbonBuzz online platform
5. Consider uploading to Low Energy Building Database.

Please use this link for a clearer graphic
[LETI Climate Emergency Design Guide]

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# ustainable Homes Code 6 2006-2015 – Net ZERO oint Based Systems (2006-2015)

Completely zero carbon (i.e. zero net emissions of carbon dioxide ($CO_2$) from all energy use in the home). This could be achieved by:
Improving the thermal efficiency
Reducing air permeability
Installing a high efficiency condensing boiler, or being on a district heating system;
Carefully designing the fabric of the home to reduce thermal bridging
Using low and zero carbon technologies such as solar thermal panels, biomass boilers, wind turbines, and combined heat and power systems (CHP).
The home will have to be designed to use no more than about 80 litres of water per person per day.
30% of the water requirement of the home was provided from non-potable sources such as rainwater harvesting systems or grey water recycling systems.

- Surface water management
- Materials – this means a minimum number of materials meeting at least a 'D' grade in the Building Research Establishment's Green Guide
- Waste management – this means having a site waste management plan in place during the home's construction, and adequate space for waste storage during its use.
- But to get to Level 6 you need a further 64.9 points. So the builder/developer must do many other things to obtain the other points. In fact they will need to do 90% of everything in the Code to achieve Level 6, including:
    - Energy efficient appliances, and lighting;
    - Supplying accessible water butts;
    - Reducing surface water run-off as much as possible;
    - Using highly environmentally friendly materials;
    - Minimising construction waste;
    - Maximum, accessible provision for recycling;
    - Improved daylighting, sound insulation and security;
    - Building to the Lifetime Homes standard;
    - Assessing and minimising the ecological impact of the construction of the home.

# Next Steps

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# Next Steps

Early pilots with a strong pipeline **6-19 zero carbon +** homes

**Engagement** on low carbon objectives with Members, colleagues and Community – guest exemplar speakers

- Workshops
  - with Planning & Asset Teams
  - with Town Regeneration Team
- Study trips
- NTWP main contractor exemplar schemes/products

**Procurements using the LETI standard** as a benchmark against bids

- Fabric First, On site renewables (No Gas), Carbon Capture, Data Capture
- Environment – consideration of the Garden Town & Design Guide (Area Character/Materials)

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# Next Steps

**Show homes/houses, publicity**

Reflection and **learning from pilots**

- Refine procurement approach and standard for medium and large developments

**Sustainable Funding**

- Capital investment v lower running cost to household
- Social rents v affordable rents
- The role of a corporate company / SPV

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