

Net Zero Future Homes and Software Tools

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With **energy and carbon** in mind, let's build an ideal home.

How would we start?

Let's draw up a shopping list first...



The Haus - digital model created for Nineteen Group

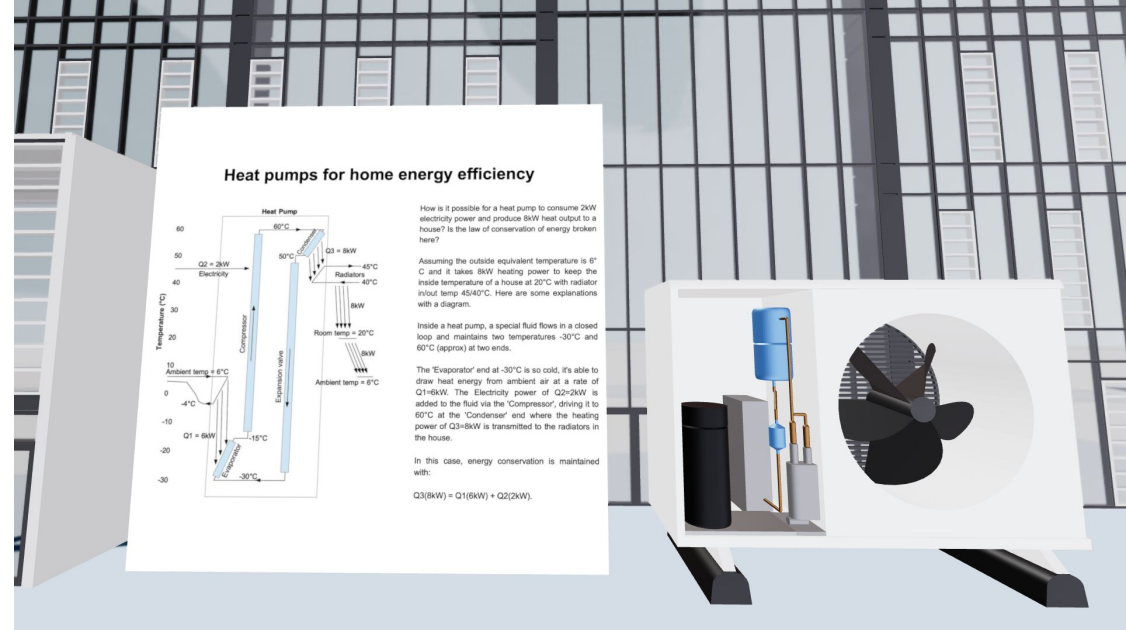
The **Building Regulations** were revised

Part F - Ventilation introduced new measures and standards

Part L - Conservation of fuel and power sets out minimum R-values and energy efficiency conditions

The **Future Homes Standard** is to be rolled out this autumn. It sets out carbon reduction targets and it's expected to cover:

- **Insulation**
- **Heat pumps**
- **Solar panels**
- **EV charging**
- **Ventilation**
- **Renewables**



The shopping list:

- **Good thermal resistance** of walls, windows and doors
- Choose **Heat Pump** rather than Gas Boiler for heating and hot water
- Opt for **Solar Panels**
- We'd need **EV charging**
- Efficient **ventilation and heat recovery**
- Wider use of **renewable materials**
and
- **Easy software tools** for design, control and monitoring of energy efficiency and carbon emission

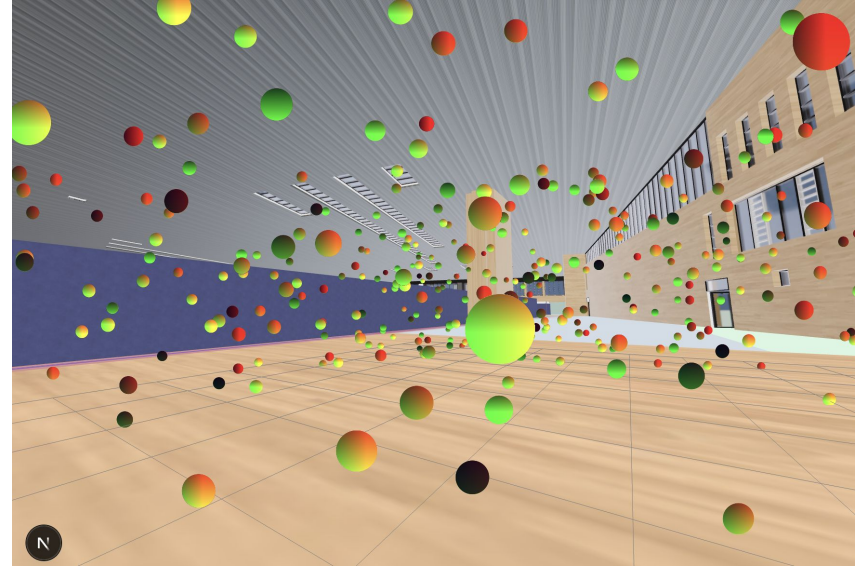
About Software Tools

For **Energy Performance** of domestic buildings, with Future Homes Standard, the **Home Energy Model (HEM)** replaces the **Standard Assessment Procedures (SAP)**

Existing **SAP** based software applications continue to be valid while new **HEM** based ones are being developed.

For **Carbon Assessment** of buildings and projects, the Whole Life Carbon Assessment (**WLCA**) methodology by RICS was revised last year and is becoming the standard.

Open source and commercial software applications are available for Life Cycle Assessment and Carbon Footprint calculations.



A CO2 capturing and storing game being developed using GPU technology

Digital Twin for Buildings and Projects

- Design
- Calculation
- Visualisation
- Operation
- AI and Decision Making

Every building and project can benefit from a lifelong Digital Twin

Retrofitting, Housing Stocks, Commercial Buildings and our participation in the Elemental London show

The **Future Homes Standard** is more about new homes, but certain aspects are applicable for **retrofitting**.

An example is that there is a drive to accelerate the adoption of heat pumps in existing homes.

A bit of what we do. We use our own 3D **Digital Twin** software product and third party tools to provide building design, energy and carbon consulting services.

In November, we take our software to **Elemental London** which is an event for built environment professionals on reducing energy use and carbon emissions in commercial and large-scale residential projects.

We seek opportunities to work with businesses to create exemplary cases for **housing stocks** and **commercial buildings** that we can present at the show and deliver collaborative benefits.

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