

# National Digital Twin for Decarbonizing UK's Building Stock



3DStock provides a better understanding of the UK's building stock in the transition to carbon neutrality. [3DStock](#) is a method for modelling all buildings – domestic, non-domestic and mixed-use – in a locality, in three dimensions and located geographically. The primary purpose is the analysis of energy performance, but there are many other potential applications. It has been developed by the Building Stock Lab at UCL Energy Institute.

Models have been built to date of 18 London boroughs and the towns and cities of Sheffield, Leicester, Swindon, Tamworth and Milton Keynes. Data is available for extending the modelling to England and Wales.

## How 3DStock works

The models are assembled automatically from Ordnance Survey digital maps, commercial rating data from the Valuation Office agency (VOA), Lidar data from the [Environment Agency](#), and several other sources. Activities are recorded in detail, floor by floor and in many instances down to the room level. Floor areas are given by the VOA data, or are otherwise estimated from the external geometry of buildings. Actual metered energy data is attached at the premises/ building level where this is available, as in Display Energy Certificates, or aggregated to postcodes, LSOs or larger areal units. Energy Performance Certificates are also attached to premises/ buildings. Geometry and activity data can be passed from 3DStock to a second model, SimStock, with which energy performance can be estimated using dynamic simulation, for large populations of buildings.

[Find out more about 3DStock](#)

[Find out more about the Building Stock Lab](#)

