



Upton Square, Northampton Ultra-sustainable housing development

Arup

Overview

Arup provided a range of engineering and design services for this groundbreaking 6.4 ha phased development of 345 mixed-tenure homes, in association with Metropolitan Housing Partnership and Mansell. In partnership, the team have designed a housing development that delivers:

- Over 60 % reduction in carbon emissions
- Use of 'future proof' MMC heavyweight construction in recognition of dealing with predicted temperature rises from global warming
- Innovative design combining the use of local vernacular and modern design

The concept blends private housing, affordable homes for first-time buyers and social housing. The scheme design applies sustainable materials selection and 'ultrasustainable' principles and technologies.

Heating & Ventilation

Exposed thermal mass combined with super-insulation and exemplary air-tightness levels were critical to minimising active heat input. South-facing sun spaces encourage passive heat gain.

Ventilation is provided using either ultra-low-energy fan units with heat recovery efficiency of over 95%, or tracking wind-cowls at roof level.

Around 2/3rds of the of the homes are heated using miniature district heating circuits powered by wood-pellet boilers. Around a dozen houses are heated using ground-source heat pumps with 45m deep closed -loop vertical boreholes, and many apartments are served by extract air-sourced heat pump units that remove heat from 'wetrooms' and convert it into usable heat. The scheme also generates electrical power through the use of 850m² of photovoltaic panels.

Water Conservation

The scheme features extensive use of SUDS techniques via open swale drainage. Water conservation measures include ultra-low-consumption appliances throughout, water butts in back gardens and buried rainwater harvesting tanks.

Award Winning

In addition to achieving an EcoHomes 'Excellent' rating, the scheme also achieved the UK's first occupied 'Code 6' under the Code for Sustainable Homes grading system.

The UK Green Building Council awarded Upton Square the Sustainable Development of the Year award (projects under £2m) in 2009.

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