

BedZED Case Study

Introduction

Beddington Zero Energy Development (BedZED) is an environmentally-friendly-housing development near Wallington, England, in the London Borough of Sutton. It was designed by the architect **Bill Dunster**, who was looking for a more sustainable way of building housing in urban areas. The project was a partnership among BioRegional, Bill Dunster Architects the Peabody Trust, Arup and the cost consultants Gardiner and Theobald. The 99 homes, and 1,405 square metres of work space were built in 2000–2002. The project was shortlisted for the Stirling Prize in 2003.

Located in Wallington, South London, BedZED comprises 100 homes, community facilities and workspace for 100 people. Residents have been living at BedZED since March 2002.

BioRegional are working to show that eco-construction and developing green lifestyles can be easy, accessible and affordable, and provide a good quality of life. For example, the heating requirements of BedZED homes are around 10% that of a typical home. We have produced research reports and training to save industry professionals time and money.

The BioRegional team is keen to work with local authorities, developers and the construction industry on a consultancy basis in order to see more eco-village developments built in the UK and abroad.

Sustainable Transport

BedZED is accessible from the east side of London Road (A237), opposite New Road, approximately 500 metres north of Hackbridge station. Because of BedZED's low-energy-emission concept, cars are discouraged; the project encourages public transport, cycling, and walking, and has limited parking space.

The development is within about five minutes walk of Hackbridge station, which services trains from London Victoria and St Pancras International via London Blackfriars. There is a Tramlink service from Croydon or Wimbledon to Mitcham Junction station, which is within 15 minutes walk of BedZED.

BedZED is serviced by the 127 bus on the Purley–Tooting route, via Wallington railway station and Hackbridge.

Government Policy

The BedZED project introduced the first legally binding Green Transport Plan as a condition of planning permission. On-site charging points for electric cars are available in Sutton town centre.

Technology/Design Principles of BedZED

- Zero energy—The project is designed to use only energy from renewable sources generated on site. There are 777 m² of solar panels. Tree waste fuels the development's cogeneration plant (downdraft gasifier) to provide district heating and electricity. The gasifier is not being used, because of technical implementation problems, though the technology has been and is being used successfully at other sites.
- High quality—The apartments are finished to a high standard to attract the urban professional.
- Energy efficient—The houses face south to take advantage of solar gain, are triple glazed, and have high thermal insulation.
- Water efficient—Most rain water falling on the site is collected and reused. Appliances are chosen to be water-efficient and use recycled water when possible. A "Living Machine" system of recycling waste water was installed, but is not operating.
- Low-impact materials—Building materials were selected from renewable or recycled sources within 35 miles of the site, to minimize the energy required for transportation.
- Waste recycling—Refuse-collection facilities are designed to support recycling.
- Transport—The development works in partnership with the United Kingdom's leading car-sharing operator, City Car Club. Residents are encouraged to use this environmentally friendly alternative to car ownership; an on-site selection of vehicles is available for use.
- Encourage eco-friendly transport—Electric and liquefied-petroleum-gas cars have priority over cars that burn petrol and diesel, and electricity is provided in parking spaces for charging electric cars.

Performance

Monitoring conducted in 2003 found that BedZED had achieved these reductions in comparison to UK averages:

- Space-heating requirements were 88% less
- Hot-water consumption was 57% less
- The electrical power used, at 3 kilowatt hours per person per day, was 25% less than the UK average; 11% of this was produced by solar panels. The remainder normally would be produced by a combined-heat-and-power plant fueled by wood chips, but the installation company's financial problems have delayed use of the plant.
- Mains-water consumption has been reduced by 50%, or 67% compared to a power-shower household.
- The residents' car mileage is 65% less.

While attaining lofty environmental goals, some New Urbanists argue that the layout of this otherwise forward-thinking project reflects the neo-modernist "slab" architecture rather than contributing to the fabric of the streetscape.

Recycling2go at Rushcliffe

Introduction

Rushcliffe Borough Council is among the forerunners in adoption of Waste Collector and is a long-standing user of the system for collections of both residual waste and recycle.

Government Policy / Technology of the Recycling Works

Rushcliffe operates an alternate week, three-bin recycling service. Waste Collector gives the crews information about households as they drive the route, pointing out special requirements such as assisted collections or extra bins. Not only that, they can very easily record information about overloaded or contaminated bins, bins not presented and virtually anything else. This means party concerned can direct the communications messages to the right customers to persuade them to change their recycling behaviour and attitudes. The information also helps the operator deal with customer queries efficiently and can also use the management data to find out where customers are putting their bins out too late, areas where there are problems with contaminated bins or bins are too full, or whether refuse collectors have missed bins.

Rushcliffe has the second highest recycling/composting rate in the country and this new technology means we can use this information to find out those areas which are not recycling as frequently, so we can encourage them to adopt an even greener lifestyle.

Information and audit trails are central to the system, allowing Council staff to immediately understand and justify their actions. The crew can record deliberate missed collections where, for example, the bin was contaminated or inaccessible or occasions where bins are lost into the compactor. As the round progresses there's a complete picture of which bins were emptied, which not emptied and any which were missed by accident. With this information and the history of the customer's collections and with live data on the crew's location, management can decide on the spot whether the crew should return to collect the missed bins. All information can be shared immediately with managers and field-based inspectors as the system

sends SMS messages to their hand-held computers or mobiles.

The system is very tightly integrated with the Council's Local Land and Property Gazetteer (LLPG) and all messages and events are automatically linked to a Unique Property Reference Number (UPRN). This has allowed Bartec to create a near-real-time link into the council call centre system. Now when a resident phones in with any enquiry all the relevant information is already on screen without an extensive investigation trail back to the depot and / or vehicle.

It links up different technologies and thereby connecting the collector . By using the touch-screen, the crew can rapidly record reasons for failed collections whilst the GPRS data link means instant two-way communications are assured between head office and the RCV.

Community Involvement

The recycling2go team works hard to make sure that people of all ages understand the benefits of recycling, and we are often invited to speak at schools. If you would like to invite us to attend your school, please contact us.

We're happy to visit schools and help them with recycling education (and our colleagues from Streetwise can help with teaching young people about respecting their local area and not dropping litter). Young people are often very concerned about the environment, and benefit from hearing about what happens locally to help take care of it. At the same time, once school children have learned about recycling2go, they can help to ensure that their own families recycle everything they can.

Reference:

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