



Diagram showing heat and power network



Ventilating diagram

# Case Study: Crouch Hill Community Park

## Key Facts

Project name:	Crouch Hill Community Park
Location:	North London
Classification:	Exemplar Community Infrastructure project
Type:	Primary School, Nursery, Youth Centre and Park
Size:	Site area: 26,322m <sup>2</sup>
Total Capital Cost:	£13m
Client:	London Borough of Islington

## Project team

Architect:	Penoyre & Prasad LLP
Structural Engineer:	AKT
Services Engineer:	Ramboll
Main Contractor:	Wilmott Dixon
Third party certification achieved:	BREEAM Outstanding

## Project Summary

The vision for Crouch Hill Community Park is for an exemplary, Zero Carbon in-use, high quality learning and recreational environment to be created on a neglected piece of Metropolitan Open Land in North London.

The development provides spaces for childcare, children's and young people's services and community use all set within an ecologically rich, safe and accessible community park. New buildings are provided for Ashmount Primary School and Bowlers Nursery and an electrical substation is remodelled and extended to house a new energy centre, youth club and ecology centre. The development, when completed later this year, will be Carbon-Negative in-use with BREEAM Outstanding rating for the school.

Extensive engagement with all stakeholders, from those listed above, to Islington Borough Council Energy Team, Islington Housing, community and environmental groups - including wildlife trusts - and Local and Greater London Authorities has been fundamental in creating this exemplary sustainable community and infrastructure project for London.



## Environmental Impacts

### Site issues

- Site designated Metropolitan Open Land and of Special Ecological Significance, within the St Paul's viewing corridor.
- Brownfield site containing a collection of derelict buildings and structures, a nursery and a youth centre housed in an old electricity substation.

### Key moves

- Single access road moved to southern boundary to remove vehicles from centre of the site, improve pedestrian routes and sightlines, and create a heart to the park.
- New buildings have been positioned so as to enhance perception of public realm while creating designated play areas for school and youth centre.
- New buildings have been orientated in such a way as to strike the optimal balance between maximising daylighting, minimising solar gain, privacy and views.

### Transport

- No parking allowed on site other than for disabled and service vehicles.
- Bike racks provided in park; showers and lockers provided in primary school.
- No parking allowed on site for contractors and subcontractors during construction.

### Energy efficiency

- Gas CHP network delivers heat and power to the buildings and park lighting. Excess heat is exported off site to adjoining Islington owned blocks of flats (currently heated by very inefficient old gas boilers). During winter, a biomass boiler provides top-up heating.
- Buildings designed to be low energy and low carbon (115 kWh/m<sup>2</sup>/yr and 35 KgCO<sub>2</sub>/m<sup>2</sup>/yr).
- Use of low-energy lighting systems and electrical goods.
- Solar glazing and solar shading tailored to particular orientation of elevation.
- High levels of insulation.

### Water efficiency

- Ecoplay WC cisterns are used in the school to collect greywater from showers and wash hand basins in the toilets. This is then used for flushing toilets.
- Rainwater collected from the roofs and used for irrigation.
- Use of brown roofs to reduce rainwater run off.

### Materials

- In-situ concrete frame and precast concrete planks provide large spans, thermal mass and help future-proof building against climate change.
- 'Omnicores' precast concrete floors contain polystyrene to create depth while minimising use of concrete.
- Minimum 30% total recycled content used in construction materials.
- All timber FSC specified.
- Low VOC materials specified.

### Indoor environmental quality

- All habitable spaces in the new school building are naturally ventilated.
- All classrooms use the 'e-stack' low energy ventilation system which provides heat recovery in winter and safe night-time cooling. Controls monitor and respond to CO<sub>2</sub> and temperature levels.
- High levels of daylighting achieved throughout the building.

### Operations and maintenance

- Easy-to-use building controls.
- Use of Soft-Landings programme during construction and for three years post-completion.
- Extensive discussions with school, nursery and youth centre on types of controls and energy management of buildings.

### Waste reduction

- Contractor committed to minimum 90% site waste being reused or recycled.

### Biodiversity

- The site is an area of Significant Ecological Importance, with protected wildlife habitats, ecological diversity and a rare topography for London.
- Landscape design has been carefully considered to protect the existing ecology along the Parkland Walk, enhancing it where possible, and creating a new, biodiverse ecology where it has degraded.
- Use of brown roofs encourage biodiversity and reduce rainwater runoff.
- Use of bat and bird boxes incorporated into the external elevations.
- Location of new school, ecology centre and youth centre in this enhanced woodland park will help raise awareness of issues around ecology and sustainability.

## **Overarching sustainability achievements**

- First school building to achieve BREEAM Outstanding.
- Exemplar inner city community heat and power network linking up diverse mix of buildings and activities and exporting excess heat off-site to adjoining apartment buildings to create a carbon-negative in-use development.
- Land use maximised for the benefit of the greater community through the creation of a community park. Primary school incorporates facilities for use by the community after hours, youth centre houses an ecology centre, and a multi-use games area is provided in centre of the park.
- Improved accessibility and security across park.
- High levels of consultation with all stakeholders in the project – school, nursery, youth centre, local community and residents, as well as wildlife groups, police, and other interest groups.
- Use of innovative technologies such as Ecoplay greywater recycling and 'E-stack' ventilation system in primary school.
- Five disparate institutions brought into dialogue to explore new forms of management of the park and facilities.

## **What lessons were learned and what conclusions can be drawn from this project?**

While the project only completes in September 2012, the following lessons can be drawn so far:

- A tenacious client with a strong vision is critical to the success of a project like this, where competing interests, bureaucracy and protracted time frames can water down the final result.
- Setting ambitious targets at the outset drives innovation. The client set the design team the challenge of designing a zero-carbon in use development. We went back to them proposing a low carbon heat and power network that could link up the buildings on site with other Islington owned properties in the area and together we worked hard to realise this.
- This project is complex and intricate with many different vested interests, from each of the main end-users (school, nursery, youth centre) to Islington Homes, the wider stakeholders (planners, GLA, Environmental Agency, etc). The process demonstrates the importance of wide consultation to bring all these groups on board.
- Bringing different parties together to share a community heat and power network is complex. However councils are well placed, with their range of facilities and assets, to provide leadership particularly in inner city areas.
- Getting the right contractor – the site is complex and the planning and environmental requirements onerous. Appointing a contractor that works with the team and client, and buys into the vision and targets has been critical to the successful outcome of this project.

## **Awards won for the project**

New London Architecture awards 2011 – commendation.