

# BATTLE McCARTHY

Consulting Engineers & Landscape Architects



## PROJECT:

Shenley Redevelopment, Bourneville

## CLIENT:

Bourneville Trust

## ARCHITECTS:

Bourneville Architects

## BM SERVICES:

Multi-disciplinary Engineering  
& Sustainability Appraisal

## VALUE:

£2.3million

## DESIGN BRIEF

To provide sustainability appraisal and multi-disciplinary engineering for the redevelopment of Shenley, part of the Bourneville Estate, Birmingham. The redevelopment aims to continue the traditions established by George Cadbury over 100 years ago at Bourneville, whilst seeking to accommodate both the needs of today and those of future generations through the use of sustainable design.

## DESIGN INITIATIVES/ACTIONS UNDERTAKEN

A sustainable approach was adopted in the treatment of the whole site, with particularly innovative approaches demonstrated on part of the site. Detailed community consultation was carried out, as well as community participation exercises, to ensure that the development addresses the needs and desires of the whole community.

The site wide approach to sustainable development included the following:

- Site issues - redevelopment of a brownfield site.
- Energy - building design and layout to achieve high levels of efficiency.
- Landscape and ecology - design of functional and secure space that is easy to maintain.
- Access to transport - minimise the use and impact of the private car, encourage sustainable modes of transport.
- Infrastructure - investigate the potential for sustainable urban drainage systems (SUDS).
- Pollution - explore opportunities to minimise air and noise pollution, in particular CO<sub>2</sub> emissions.
- Consultation/participation - involvement of local authorities and community in design process.
- Environmental policy - guidance for building design, construction and operation.
- Health and well-being - good internal and external conditions.
- Water management - conservation and harvesting mechanisms.
- Materials - use of sustainable materials.
- Construction/demolition - waste management plan to encourage efficient use of resources.
- Waste - waste management and recycling mechanisms for operation of site.
- Access - mix of accommodation/tenures, buildings constructed to 'Lifetime Homes' standards.
- Local needs - local labour and training provision.
- Amenity and leisure - provide adequate facilities.
- Security and safety - apply 'Secured by Design' standards throughout.

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Battle McCarthy had particular responsibility for the demonstration project, exploring different approaches to sustainable design:

- Construction

Built according to sustainable construction methods, providing a pre-engineered solution comprising prefabricated floor and wall cassettes, constructed from low embodied energy material. Buildings constructed from light gauge steel frames with many benefits such as reduced waste, improved thermal and acoustic performance and improved efficiency.

- Low Energy

Increased ventilation, natural ventilation, design for solar gain and energy efficient appliances and installations.

- Renewable Energy

Innovative renewable energy mechanisms incorporated into the design, with a range of different options applied to different buildings in order to monitor and review performance e.g. photovoltaic panels, solar thermal collectors, wind turbines, small scale CHP.

- Materials

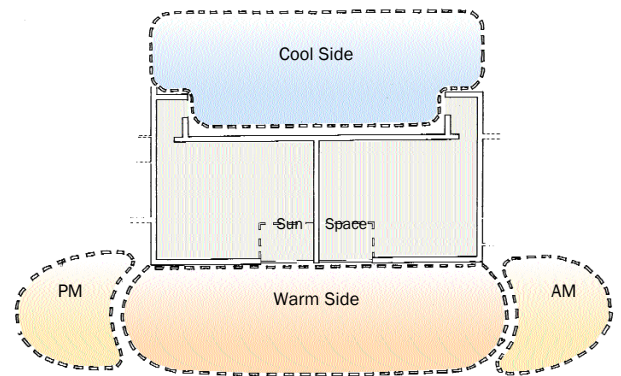
Opportunities to re-use materials from demolition explored. Units prefabricated off site to reduce wastage. The use of sustainable materials sought, including locally sourced, low embodied energy and recycled products.

- Water

The economic viability of on-site treatment for grey and foul water currently very limited. Water conservation and recycling mechanisms included, where appropriate, e.g. water harvesting/recycling facilities, efficient fixtures and fittings.

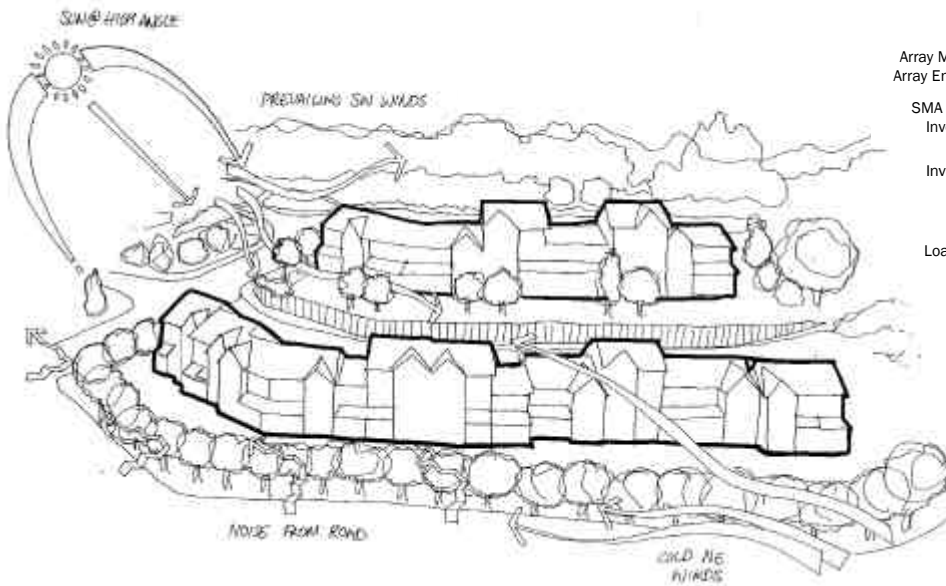


Planning for Real

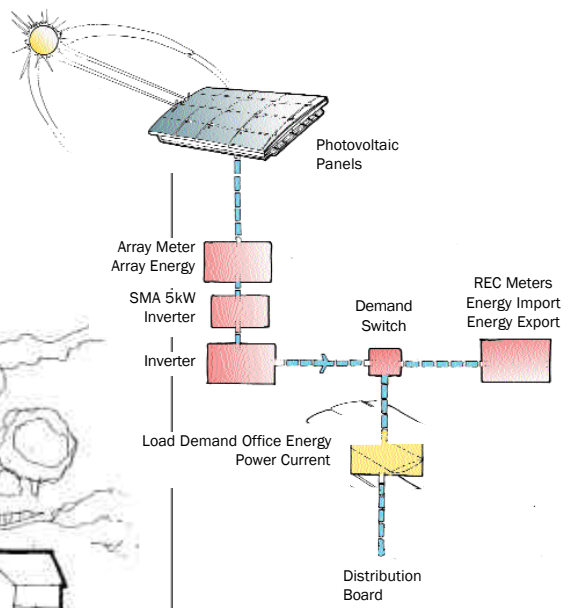


Sun Space on south side to maximise solar gain with living/dining area adjacent to facilitate heat transfer into the occupied zone.

Control/Massing Strategy



Site Analysis



Photovoltaics