

Nottinghamshire
County Council

Beacon Council Scheme: Sustainable Energy

Case Study: Sustainable Building Design

The County Council has an active capital programme; this consists largely of school extension/refurbishment and new builds, along with offices and social services buildings.

At early design stages we discuss sustainability with clients, specifying, with lifecycle costing in mind, the use of high quality roofing, toilets, doors and the like being a priority. We advise clients to look at the long term as well as short term, with many clients paying the running costs this helps a balanced view to be taken. We consider materials with respect to embodied energy, and energy in use.

We have led the formation of an inter-county sustainability measurement system with Derbyshire & Staffordshire. The announcement of BREEAM for Schools (part of Exemplar Designs) led to a review, and once more detail is published it is almost certain we will use this national yardstick on all major new buildings. Indeed as soon as the BRE run Assessor courses (due Feb/March 2005) we intend to have an architect and mechanical engineer trained as assessors. Measurement, which allows continuous improvement, is the best way of encouraging holistically sustainable buildings.

For the last decade we have been refining natural cross ventilation using mini atriums in the heart of

Primary schools (high level windows operated automatically, with users able to open lights to control each individual classroom). Nearly every new school has automatic lights that switch off when the classrooms are not occupied.

Sustainable drainage principles: We install rainwater harvesting where possible and use soak ways where appropriate.

Community involvement: Sport & Art centres (5 new centres as part of deprived area Primary schools) have been very successful. Not one has been vandalised to date, and all are in use most nights of the week with local activities - digital cinema, after school clubs, opera, brass bands, meeting places - the list is not far off endless and each is responding to local community needs so reducing travel and engendering a sense of community. Extended schools are another aspect of community use; in conjunction with schools we have numerous joint use agreements, to make maximum use of our building stock.

LCD Screens: Encouraging their use reduces the need for energy sapping air cooling. Additionally, they require less power in use.

Material recycling is encouraged on site. All quality indicators when choosing contractors take into account sustainability credentials, such as recycling and local procurement.

A feasibility study of the construction of an **autonomous classroom** (not connected to any mains supply) which would be directly linked to curriculum (geography, maths, science etc) is underway with a view to pursuing funding in 2005/6. It is intended this would be a countywide learning resource.

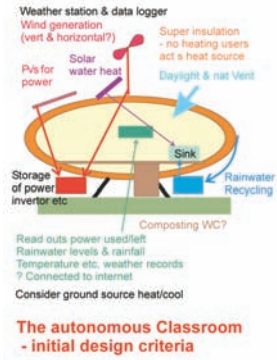
Nottinghamshire County Council have trailed a number of approaches. We use these where it is appropriate although funding also plays a part.

As we gain more experience it will allow better judgements to be made. Our future plans over the next two years (schemes are on drawing board) include:

- Wood heat boilers in a number of schools
- Small scale wind turbines at various sites
- Winter heat recovery on ventilation systems in schools - to reduce energy consumption due to large amounts of fresh air recommended in classrooms.
- Adoption of BREEAM for schools, aim for very good rating (inc Envest)
- Adoption of sustainable measures (above in all schools) where appropriate & affordable



Some of Nottinghamshire County Council's recent projects where sustainable features are being or have been incorporated are shown below:



Project	Re-use of existing buildings	Building orientation	Use of renewable materials	Natural ventilation	Re-use of on site materials	Low energy rating	Rainwater Harvesting	Wind turbine	PV	Woodheat/biomass boilers	High efficiency boilers	Water turbine	Ground Source Heat Pump	Heat Recovery	Solar water heating	Notes	
Gateford Primary		●	●	●			●				●					●	The first school with many additional sustainable items
Kimberley Primary			●			●				●							Part underfloor heat, economic build
King Edwin School		●	●				●			●							
Meadow Lane Primary	●		●						●	●							Integrated external learning spaces
Redlands Primary	●	●	●	●			●	●		●							Cross vent using acoustic baffles.
The Turbine Business Innovation Centre – Offices		●	●	●		●	●	●		●						●	Cross vent controlled by BMS. Very good to Excellent BREAM rating (self assessed)
Arnold View			●	●			●			●							Individual Passivent units
Mapperley Primary		●	●	●			●	●		●					●	●	Very high levels insulation, heat recovery on ventilation
Thrumpton Primary		●	●	●			●			●							
Kingston Primary	●		●			●				●							
Gotham Primary		●		●			●			●							Good environmental controls
Barnby Road Primary		●	●	●		●	●			●							Low external skin to volume ratio
Netherfield Primary		●	●		●		●			●							
Cotgrave Primary		●	●	●			●			●	●						Very high insulation level s
Ashfield Area Office		●			●	●	●	●		●			●	●			Aiming for BREEAM 'excellent' rating
Cuckney Primary	●	●	●	●		●				●	●						Local stone and timber external walls
Bowbridge Primary	●	●	●	●	●	●			●							●	Timber frame and curriculum link
Newark Business Innovation Centre – Offices		●		●		●	●			●							BREEAM 'very good' rating
Children's Centres	●		●	●		●				●					●		
Rufford Mill	●		●	●	●										●		Existing building re-used
Bishop Alexander Primary		●	●	●		●	●		●								
St. Johns Primary	●	●		●					●								School teaching pack
Retford Bus Station		●	●	●	●	●	●		●	●							Low energy input
Dorset View		●	●	●	●	●				●							Timber frame
Holles Street		●	●	●	●	●				●							Timber frame
Church Drive Primary			●	●		●			●	●			●	●			Low external skin to volume ratio



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