“Our new schools are significantly more energy efficient. Low-carbon designs, renewable technologies and improved building comfort ensure that children are learning in healthy sustainable environments. There is increased knowledge and awareness; every school is better engaged with education for sustainable development. We are moving towards a low carbon future.”

Amrita Dasgupta, Sustainability Strategy Lead

Sustainability

Knowledge Partnership

The Knowledge Partnership (KP) was a collaborative project between De Montfort University and Leicester City Council (2009-2016) that aimed to embed knowledge of low carbon building design through the design, refurbishment and operation of schools under the Children's Capital Projects at Leicester City Council.

The partnership team worked with 17 of the 22 Leicester Building Schools for the Future (BSF) schools to drive innovation, to embed research knowledge and to promote collaboration and growth. Led by the KP associate the project has provided a clear vision for delivering low carbon schools through the Leicester BSF programme.

Under the leadership of the project, Leicester was one of the first Local Authorities to set forth a dedicated carbon reduction and sustainability contract for its schools' building programme. The project led on the design, delivery and operational support relating to energy management and carbon reduction. Its outreach has extended from politicians, design and construction teams to staff and students in schools. Tools, guidance manuals and resources created through the project have empowered users to become intelligent clients, has ensured buildings are designed to high energy efficiency standards and schools are better equipped to manage their new buildings efficiently.

Even with an 11% increase in overall building area, carbon emissions of new build schools have dropped significantly in their first year of operation. The 11 schools for which the first year of energy consumption data is available show a 30% reduction in energy use and could make savings of up to £4 million over the next 25 years. This document provides information about some of the key projects delivered through the knowledge partnership. It also provides useful links to resources for schools.

Designing Sustainable and Low Carbon Schools

THE DIFFERENCE

Reducing energy consumption in newly built and refurbished schools is important not only to positively impact our environment but also to reduce energy costs. Sustainable and low carbon designs are embedded in the heart of the schools built under Phases 2 to 6 of the BSF programme. This has been done by ensuring that wherever possible new buildings are designed to incorporate bioclimatic features and passive measures for heating, cooling and ventilating the buildings. The new schools are designed to have excellent quantity of natural daylight and natural ventilation wherever possible.

A predicted 30% carbon reduction is expected across the last 17 BSF schools against their 2008/09 carbon emission baseline. The annual energy consumption data from 11 of these schools shows that 20% reduction has been achieved in their first year of operation.

GET STARTED

Explore how you could make your school more energy efficient by asking the right questions, understand technical terminologies and read what makes excellent new build and refurbished schools. Explore ideas around what additional features and qualities you would like in your sustainable school.

BE INSPIRED

Guidance questionnaire to enable successful school designs
A design tracker to understand and ensure efficient design
Creating excellent primary schools
Creating excellent school designs
Relevant publications on school design
Consider reducing energy use and cutting carbon emissions in your school

A world of naturally lit schools with smart lighting solutions

THE DIFFERENCE

Driving sustainability into design decisions for our newly built BSF schools has ensured that almost 80% of all occupied spaces within new buildings has daylight levels surpassing regulatory requirements. This is a big jump for our schools in Leicester. Energy efficient lights automatically switch off when there is good daylight in the school building and also when classrooms are empty for more than 20 minutes. This not only ensures that energy is saved but also ensures that every corner of the room can be uniformly lit to allow maximum visual comfort. Daylight is proven to impact on learning performance, so ensuring our secondary schools have excellent levels of daylight ensures that students in Leicester are learning in healthy and positive environments.

GET STARTED

Read about daylight design standards and consider adopting them in your school design. Explore curriculum resources around using the lighting design of your building as a curriculum tool.

BE INSPIRED

Understanding daylight design for buildings
Links to Daylight standards and guidelines
Learning resources for schools

Using the building as an education tool

THE DIFFERENCE

New school buildings can be complex and require a shift in understanding about the way they are operated and managed. Operation and Maintenance manuals provided to schools at the end of the construction programme are complex and difficult to understand. We have worked with six of our new BSF schools (English Martyrs' catholic School, Babington Community College, West gate School, Nether Hall School, Hamilton Community College and Crown hills Community College) to create colourful, user friendly manuals so that students and staff can learn how their energy systems work and make the most of their new buildings and green features. This has empowered the schools to take control of their learning environment and ensure that they are operated energy efficiently. Schools are using their guides creatively – to drive the school energy reduction plan, to understand how sustainable features can help save energy and in classrooms to ensure that the learning environment is as comfortable as possible.

GET STARTED

Review building user guides created for the BSF schools and contact your NRO to involve technical experts who can create similar guides for your school. Explore curriculum resources to use your building as an education tool.

BE INSPIRED

View Babington Community College's user guide here
View West Gate School's user guide here
View English Martyrs' Catholic school's guide here

Energy Management Training & Developing your School Action Plan

THE DIFFERENCE

Energy monitoring technology (DYNAMATlite) installed in BSF Phases 3 to 6 schools allows schools to monitor their energy use in real time. An energy management guide and training event has enabled knowledge transfer and allowed schools to take control in managing energy all through the day.

Using this new tool and guidance document schools can now understand their energy performance, find savings, manage their energy use, create their own sustainability policy and energy action plan and even use the new tool within curriculum delivery and to promote student engagement.

GET STARTED

You can save energy in your school too and play a part in inspiring the next generation to shape a sustainable future. Look at the resources below to see how to develop your action plan, how to save energy and how you can bring sustainability into your curriculum.

BE INSPIRED

View the new schools' guide to "Energy management using the DYNAMATlite system" and explore resources at the end to develop your energy action plan and bring energy into your curriculum
Choose from this list of key performance indicators to help you identify softer targets to work to.
Contact our Environmental Education Co-Ordinator to find out how your school could benefit from the Eco-Schools programme
Find out more about carbon trust's support on saving energy and carbon in your school
Find financing and implementation support here for saving energy in your school

Eco-Martyrs' reveal a sustainable vision for the future

THE DIFFERENCE with ENGLISH MARTYR'S CATHOLIC SCHOOL

There is a growing awareness amongst young people about the importance of conserving our environment and addressing issues of climate change. The Eco-Martyrs team has a strong presence in their school and has been developing excellent projects to learn about, raise awareness of and protect the environment. Innersmile, a youth focused design company, worked with the Eco-Martyrs team to develop vibrant artworks that give a life to their sustainable values and vision.

GET STARTED

There is great strength in young people engaging other young people to develop a shared understanding and passion for a subject. Explore the internet for some of the many ways that environmental messages can be conveyed; engage LCC's Environmental Team to support your work; work directly with an artist to help you to present your ideas.

BE INSPIRED

View the final design

Commission or create artwork

Link to national curriculum

Developing energy benchmarking standards for Leicester schools

THE DIFFERENCE

Leicester City Council worked with researchers from University College London to develop energy consumption benchmarks for Leicester schools. The benchmarks are based on up-to-date operational energy consumption data collected from 6,593 primary schools and 1,034 secondary schools across England. To assess the performance of Leicester schools, the energy performance of individual primary and secondary schools was evaluated and compared to similar schools nationally.

For the new BSF schools 3 scenarios using good, average and poor operation of energy systems was produced based on actual construction, installation and operational scenarios specific to individual schools. Billing data from schools post-handover was used to indicate their current performance against the three scenarios. This highlighted the importance of good energy management. This data has been used to support schools to set energy targets and energy budgets for the new financial year.

GET STARTED

By saving energy in your school you can contribute to a greener future while also making cost savings for your school. Explore ideas on saving energy, find useful resources and consider independent funding routes. Find out how eco-schools can help you.

BE INSPIRED

Ask the energy team about the performance of your school

Register for Eco-Schools and make a difference

Explore Salix Finance to fund energy efficiency measures

Explore the Ashden CO2 project to reduce energy and carbon in your school

Explore Carbon Trust guidance

Meeting school energy demand through Renewable Technology

THE DIFFERENCE with SCHOOLS ACROSS THE CITY

Supporting maximum use of renewable energy and encouraging the use of low carbon fuels has been a key part of Leicester BSF's strategy for change. All new BSF schools in Leicester have the ability to meet a percentage of their energy demand through renewable technology. Renewable energy technologies installed include photovoltaic panels generating electricity, bio-boilers generating heat and combined heat and power units (CHP) generating both heat and electricity. The percentage of renewable energy generated from the technologies ranges from 11% to 40% of the total energy demand of that school. These technologies provide green energy and are also used as important educational tools for schools.

GET STARTED

Renewable technologies provide fuel security, are essential for achieving carbon reduction and reducing our reliance on fossil fuels. Explore resources to use renewable technology as curriculum tools. For information on checks and approvals needed from the Local Authority before installing renewable technology in your school, please contact your NRO to help you.

BE INSPIRED

Creative resources to include renewable technologies into your school curriculum
The Solar Schools project
The solar aid project

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