

# Kenilworth School & Sixth Form Relocation Project

Developing a Sustainable School



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ARUP

# Introduction

The new Kenilworth School & Sixth Form design has been progressed through design development, starting with the education footprint, curriculum and community requirements.

Working from the inside out, the education spaces were identified, followed by key adjacencies, functional spaces and zones of safeguarding.

The safety of pupils, staff and visitors is a key focus, with segregation of pedestrians and vehicles at the heart of the flows into and out of the site.



# Sustainable Design

The new school design incorporates significant sustainable design features which go above and beyond current UK standards.

The project is being developed on the basis of the United Nations Sustainable Development Goals.

The design for the new school aims to achieve an optimal balance between the requirements to deliver the functionality of an enhanced teaching and learning experience, and project delivery, programme and budget.

Aspects of sustainability which have influenced the design cover a range of parameters such as well being, user comfort, building performance, sustainable drainage, biodiversity and green travel.



# UN Sustainable Development Goals

From the 17 UNSDGs three Priority Improving Benefits were identified as key:



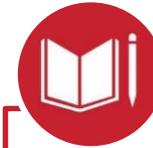
## Goal 3 Good Health & Well Being

- Removal of travel between two sites
- Improved facilities with enhanced learning environment, high-quality external spaces and improved social/sports
- Improved daylight/fresh air/acoustic performance throughout
- Greater cycling, electric vehicle facilities



## Goal 4 Quality Education

- Additional school places
- Enhanced educational environment and teaching facilities
- Sustainability and ecological areas, orchard, bat/badger/newt reserve, SEN garden
- Local apprenticeships and STEM support



## Goal 11 Sustainable Cities & Communities

- Positive impact on local travel
- Improved sports and facilities for the community to use, including running track, AstroTurf and floodlit pitches
- Sustainable drainage
- Renewable energy

The project also identified seven Secondary Improving Benefits:

Goal 1: No Poverty – positive impact on community and facilities, targeting local contractors/suppliers

Goal 7: Affordable and Clean Energy – improved energy performance, PV provision and impact of travel plan

Goal 9: Industry, Innovation and Architecture – Positive contribution to local infrastructure upgrades, sustainable travel, energy and water consumption

Goal 10: Reduced Inequalities – positive impact on the community, improved access for disabled, better SEN facilities

Goal 13: Climate Action – positive impact of travel and other sustainability measures including recycling of materials on site

Goal 14: Life Below Water – impact of sustainable drainage, filtering of rainwater plus newt reserve and impact of new trees

Goal 17: Partnership for the Goals – Overall impact of the project in increasing funding available for relevant items

# Green Travel



Travel Plan

250 secure sheltered cycle racks (784 total provision)  
Improved offsite pedestrian and cycle pathways to ensure connectivity  
Increased changing, shower and locker provision



11 Electric vehicle parking bays  
Provision for a further 11 future bays  
Dedicated bus drop off zones



Increased sustainable transport modal shift target of 70%  
Secondary pedestrian access from the future residential development  
Onsite school bus drop off zone  
Segregated pedestrian and vehicle routes



Onsite vehicle drop off zones  
Modifications to the highway to prevent congestion  
Introduction of a staff car share scheme

# Building Design



A holistic approach based on:

Reduce Energy Demand Through Passive Measures

Utilise High Efficiency / Low Carbon Technologies

Use Of Renewables Technologies



Insulation standards and air tightness are significantly better than Building Regulations

- 70% improvement in air tightness

- 27% improvement on building fabric U values

Solar performance glazing (blocks 60% of the unwanted heat from sunlight)

Shallow plan 'finger blocks' to optimise daylight penetration



Hybrid ventilation system with heat recovery (ensures fresh air in winter)

High efficiency boilers

High efficiency air source heat pumps

naturally ventilated spaces

Daylighting sensors to reduce electrical load based on occupancy and natural lighting

Photo Voltaic panels providing energy for over 50% of the classroom LED lights

# Biodiversity and Sustainable Urban Drainage System



Rainwater garden for harvesting and treatment of water  
Permeable paving for water treatment and storage in car parking area  
Dedicated School Allotment Garden Club  
Use of existing ordinary water course



Retention and enhancement of existing perimeter hedgerows and trees  
Protecting existing veteran trees  
Bird and bat boxes  
Creation of log piles for wildlife habitat  
Protection of badger and Great Crested Newt habitats



Biodiversity features for student education  
Creation of an Orchard  
Protection of habitat areas

# Summary

The new school has incorporated a wide ranging set of sustainable design features adopting a holistic approach to the design of the building, masterplanning, biodiversity and travel planning.

The hierarchical energy strategy proposed for Kenilworth School and Sixth Form is based on the following principles:

- Reduce energy demand using passive measures.
- Utilise high efficiency/ low carbon technologies.
- Use of renewable technologies.

The combination of demand reduction, energy efficiency measures and the inclusion of PV panels, enables the Carbon emissions to be as much as 10% less than the Target Emissions Rating permitted by Building Regulations.

The School also established a 'Green Team' which consists of students and staff who meet to develop their approach to sustainable aspects such as recycling, plastic free zones and more.

