

JACOBS®

RED HILL PRIMARY SCHOOL WORCESTER

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Project Description/Services Provided

The project extends capacity of the school from a one form entry primary to two forms of entry, extending the school to the rear with a two-storey block of six new classrooms, and to the front with an extension which houses a multi-use community space for a SEN group and after school clubs. Jacobs provided a full service for the implementation of the project, including architect, QS, structural engineering, mechanical and electrical engineering, arboricultural consultant, transport consultant and clerk of works services.

Challenges

The school is on a tight, awkwardly shaped site with many mature trees. The existing school is just ten years old and the school leadership were keen that any extensions should feel part of the original school, including blending with its curved geometry. Because local authority budgets under pressure, the design seeks to marry the school’s ambitions for strong design with value and environmental sensitivity.

Solutions/Outcome

The design process involved extensive consultation with the headteacher, premises governors, staff, parents, residents and the Project Manager at Place Partnership Ltd., as well as Worcestershire County Council. A public pre-planning consultation was held at the

school which also shaped the design response. Other consultation contacts include the Planning Authority, the Transport Planning Unit, Sport England and the City Archaeologist.

The classroom block extension continues the spine layout of the existing school which curves gently to allow mature trees to be retained. It is built on the site of a hard play area, which has been replaced further up the site. The new hard play is created by cutting and filling a sloping grassed area.

Elsewhere on the site new parking has been created for the additional staff, and new playground space has been created for younger children. By careful phasing of the works, the new parking and play areas were created first before the main hard play was lost. The replacement hard play was created towards the end of the works in the area the contractor had used for their site compound.

The building has a steel framed structure with timber stud infill for both external walls and the roof, with the stair-cores at either end of the building providing stability. The steel elements are mostly relatively short without very long span elements. First floor construction is of a composite slab arrangement. The timber framed walls are built up as a ‘breathable wall’ construction using recycled newsprint insulation (‘Warmcel’) providing very good U-values and continuity of insulation. The brick and cedar cladding used externally match the existing school.

The original Sustainable Drainage System from 2007 was extended to accommodate the new buildings, the hard play and parking areas. It is designed by Robert Bray Associates around keeping rainwater as close to the surface as possible and using it to create habitat and areas for Forest Schools including using swales and ponds.

The County Council requires a BREEAM environmental assessment for school projects of this size. The scheme achieved BREEAM ‘Very Good’ at Design stage with a score of 61% and is currently being assessed for the post-construction stage. The sustainability emphasis is to reduce energy use by ‘fabric first’ principles, i.e. by designing the building to have higher levels of insulation and airtightness than required by current building regulations. The new classrooms have Mechanical Ventilation and Heat Recovery Units semi-recessed into the ceiling voids. The units will control CO₂ levels by the supply of fresh air and the extraction of stale air. The fresh air is heated by the outgoing extracted air, via a counterflow. To offset energy needs, a photovoltaic array of 6.05kWp was installed for the project. The project also included reinstatement of the school’s rainwater harvesting system which is used for flushing toilets in the existing school.

To maintain the environmental benefits of the installed heating and ventilation and other systems they are monitored via the BEMS (Building Energy Management System) which optimises the performance of the plant systems and monitors for faults.



▲ The new classroom block



▲ New Classroom Block seen from the hard play area



▲ One of the six new classrooms



▲ Practical area



▲ Staircase



▲ New pupil entrance

▲ Site Overview



▲ 3D View of the new Classroom Block. The classrooms face away from the noise of the adjacent railway line, with toilets and practical areas on the opposite side of the corridor.



▲ Community Room by Main Entrance



▲ Rear of new classroom block towards the Hall



▲ Community Room



▲ Community Room and Main Entrance

KEY PROJECT FACTS

Client: Worcestershire County Council

Architect: Jacobs - Worcester. Project Architect: Robert Lewin-Jones

Other Consultants: Jacobs - M&E, Quantity Surveyors and Clerk of Works

Completed: November 2018

Contract Value: £2.3M

Contract Type: JCT Standard

Contractor: Interclass Ltd