UK PASSIVHAUS AWARDS 2015

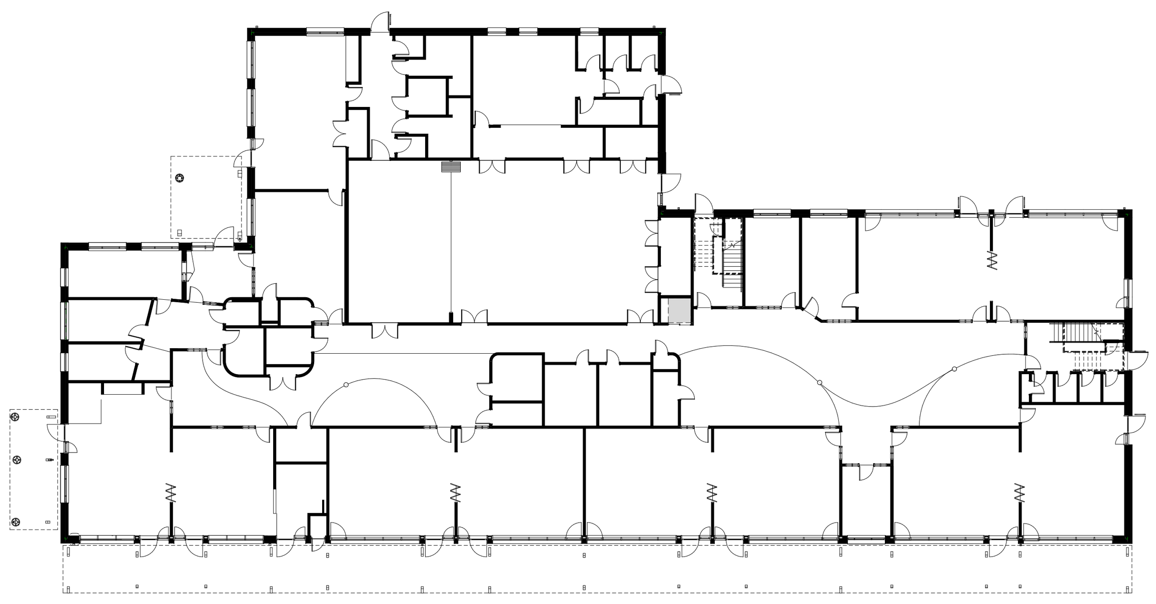
WILKINSON PRIMARY SCHOOL

ARCHITYPE

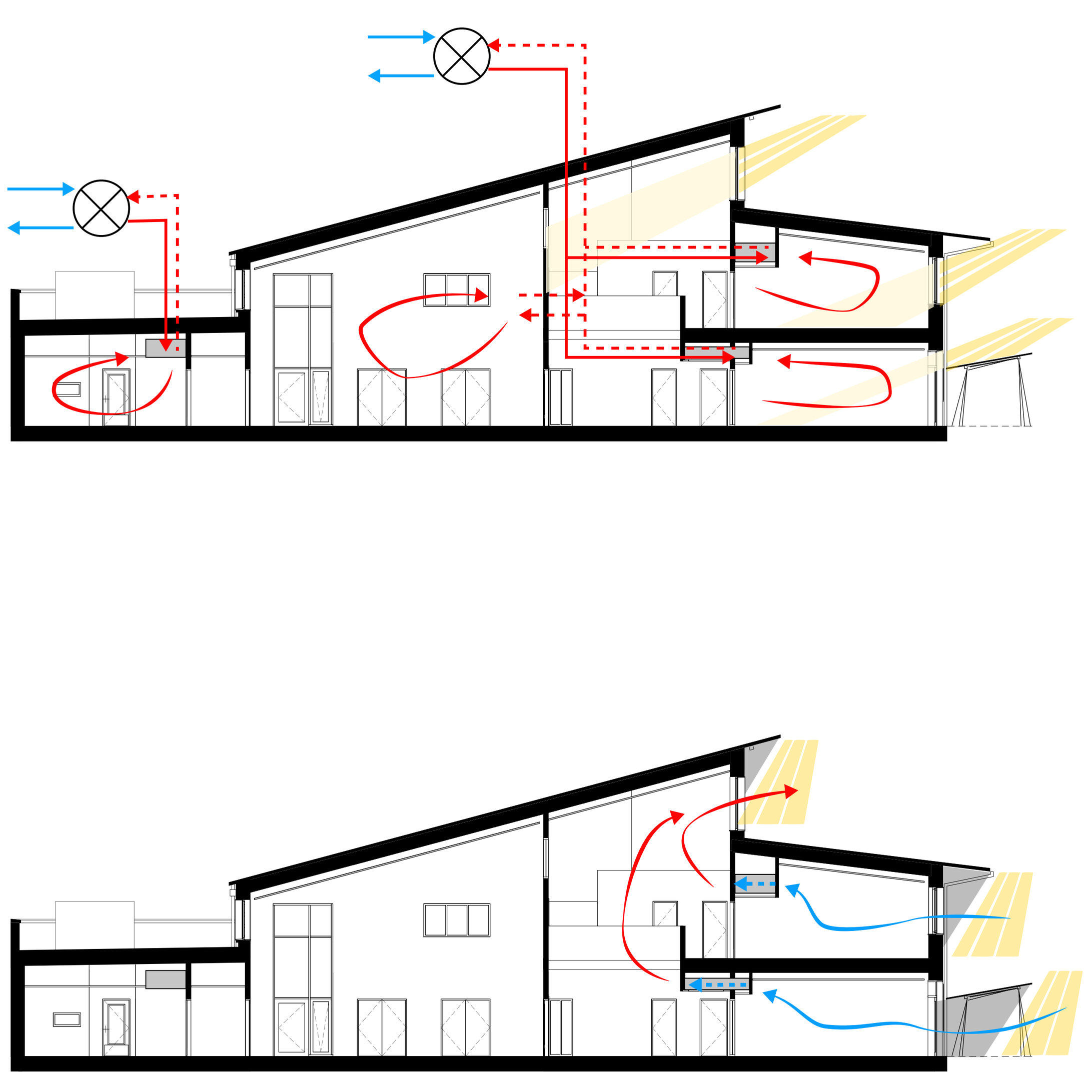
Passivhaus Trust Awards 2015

SOUTH VIEW OF WILKINSON PRIMARY SCHOOL

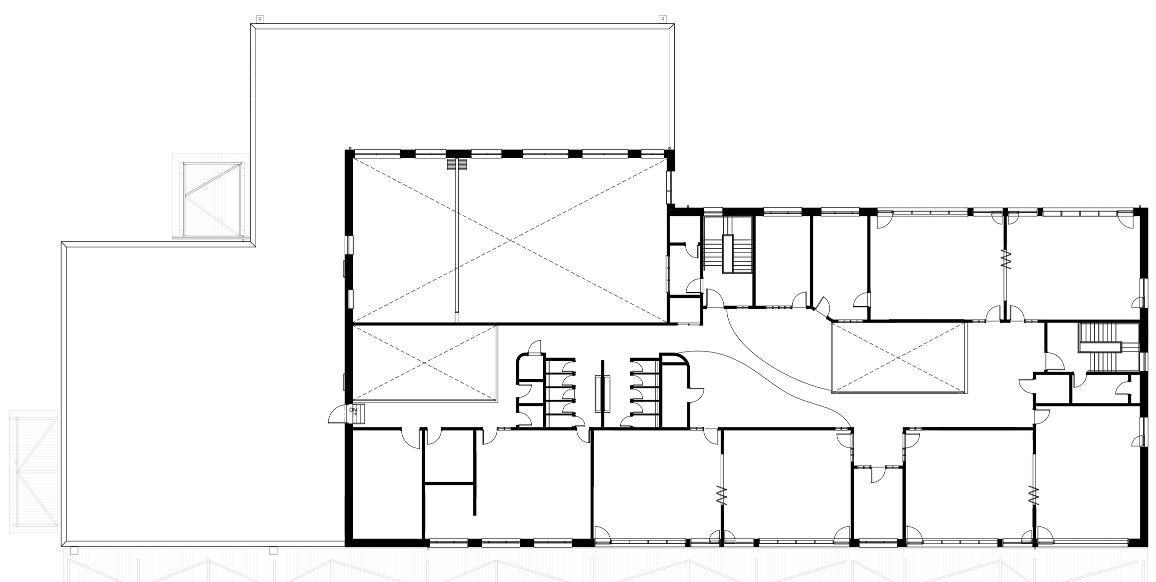
Architype's successful history of delivering schools for Wolverhampton City Council led to a repeat commission to replace Wilkinson Primary School; the existing school had fallen victim to an arson attack in 2010. Passivhaus was a fundamental requirement by the client who has good knowledge and experience of the standard. We have designed a school that is not only our most energy-efficient school to date, but also encourages 21st century learning, modern pedagogies and community involvement. The choice of cladding materials offers a contemporary answer to the area's rich Black Country industrial heritage. Architype has been able to employ a number of lessons learned from previous projects to refine the design, making it more accessible and yielding even better results for Passivhaus, including reducing actuators, improving window detailing and a new sprinkler tank design.



GROUND FLOOR PLAN / PROVIDING SPACE FOR KS1 CLASSES AND A 30 PLACE NURSERY WITH MULTIFUNCTIONAL HALL AND HUB SPACE.



SECTIONS SHOWING SHADING, HEATING AND COOLING STRATEGIES IN THE WINTER AND SUMMER MONTHS



FIRST FLOOR PLAN / KS2 CLASSROOMS AND STAFF PROVISION IN LIGHT AND AIRY DOUBLE HEIGHT SPACE

Project Overview

Name: Wilkinson Primary School
Location: Wolverhampton
Building Type: 2 form-entry Primary School
Construction type: Timber frame
Completed in: February 2014 (landscaping incl.)
Occupancy status: January 2014
Construction Cost (£/sqm): 1870
TFA: 2494.3 m^2

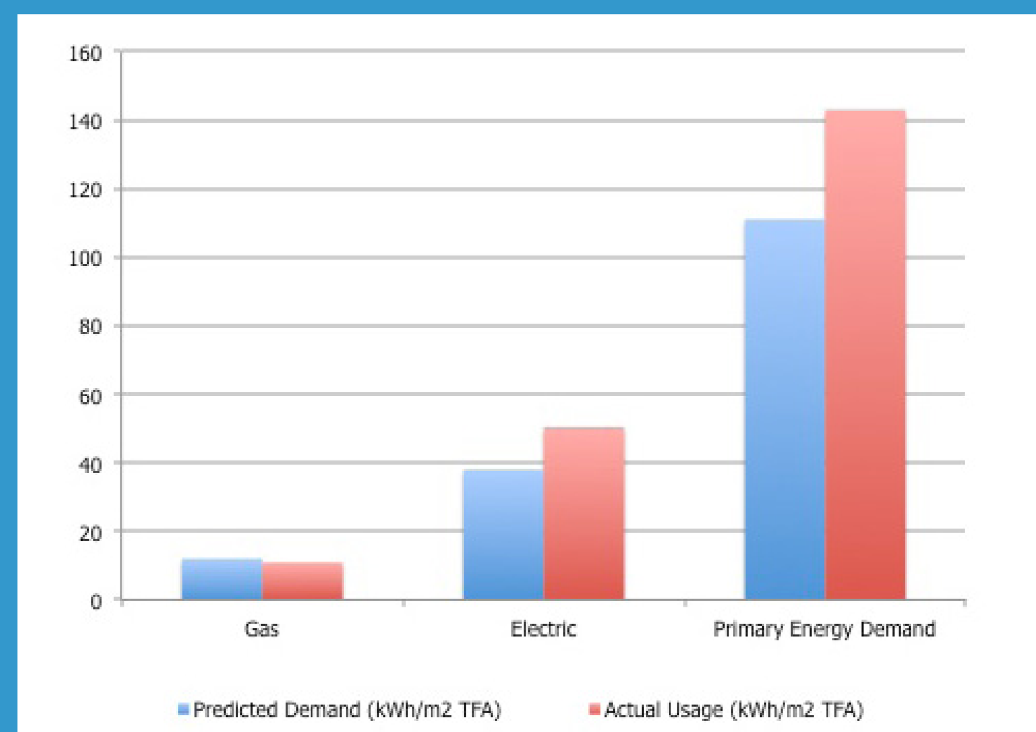
Sustainability Features

Air pressure result: 0.34ach @50Pa
Heating and Cooling Load: 11 / m2
Ventilation strategy: MVHR with bypass and natural ventilation in the summer
Heating strategy: Local low surface temperature radiators and one condensing gas boiler
Shading strategy: Roof overhangs and canopies
U values expressed in W/(m2K): Exterior wall = 0.133, Flat Roof =0.153, Pitched Roof = 0.103, Floor = 0.152 , Windows = 0.8, Doors= 1.1

Measured Performance

Architype's most efficient Passivhaus School to Date:

	Predicted Demand (kWh/m2 TFA)	Actual Usage (kWh/m2 TFA)
Gas	12	10.96
Electric	38.08	50.4
Primary Energy Demand	111	143



Currently undertaking post occupancy monitoring, we have been focussed on and have started to resolve with the users the reasons behind the Primary Energy Demand being slightly higher than predicted. We are confident we will improve results for 2015-2016.

Lessons learnt: Improvements on previous our Passivhaus schools have included alterations to the BMS system with regards to actuators, window details and the design or a new 'passive' sprinkler tank to eliminate the most prevalent sources of waste.

Quote:

'The finished school is an absolute delight for staff and pupils, who moved in to a school they were already familiar with, given the involvement they had all had in the design and construction phases. The building flows perfectly with everything to hand.' *Mark Webb, Client, Wolverhampton City Council*

TEAM CREDITS

Client: Wolverhampton City Council

M&E: E3 Consulting Engineers

Certifier: Peter Warm

Architect: Architype

Contractor: Thomas Vale

Structural Engineer: Price and Myers

Other: Elemental Solutions