

## Kemper Keeps Kids Safe, Warm and Dry Without Razing the Roof

Redhills Primary School, Exeter



Generally UK school buildings fall into one of three categories: imposing Victorian school houses; 1960s/1970s classroom blocks or state-of-the-art 21st century schools that benefitted from the flood of public spending before the age of austerity dawned. While Victorian school buildings might not be the most thermally efficient, they are solid 'don't-make-them-like-that-anymore' structures that have withstood the test of time. Meanwhile many contemporary schools demonstrate the best of architectural talent and eco-friendly specification. Which leaves the 1960s & 1970s school stock that can no longer be left to decay but is unlikely to be replaced any time soon either.

The challenge now, therefore, is not just to design the 'school of the future' but to find a way of helping the legacy of old-style school design increase its longevity and match the performance of contemporary buildings. One key area where this can be achieved is on the roof: the flat roofs so typical of 1960s & 1970s school building stock represent both a vulnerable design element in need of protection and an opportunity to enhance the building's aesthetics and thermal performance.

### Repair Required

This was certainly the case at Redhills Primary School in Exeter, where the 30+ year-old school's original three-layer felt roof was widely failing, despite repairs in several places. Devon County Council's building surveyor, NPS (SW) Ltd, was brought in to specify the best approach to renewing the 2,500m<sup>2</sup> roof and, having used Kemper System's Kemperol 2K-PUR solvent-free wet-on-wet waterproofing membrane successfully on other roof

refurbishment projects, NPS specified the system for Redhills School along with Kempertherm PIR insulation board.

The cold-applied wet-on-wet system is quick to install and avoids the need for any hot works on site, a key advantage in a live school environment. Its solvent-free castor oil formulation, derived from sustainable sources, means that it is both environmentally-friendly and fume-free and the liquid resin is used in combination with a non-woven fleece material manufactured using recycled plastic bottles, adding to the refurbished roofs eco credentials.

The Kemper system insulation and waterproofing is installed on top of the existing substrate, effectively recycling the old roof by using it as a vapour control layer in the upgraded roof build-up. Contractor, Stormforce, began by carrying out minor preparation work to the original felt roof to allow adhesive bonding of the Kempertherm insulation board which successfully enhanced the building's thermal performance in line with current Part L requirements to achieve a u-value of 0.18W/m<sup>2</sup>K. The insulation board is cut to shape (as required) and, following application of the Kemperfix polyurethane adhesive, is laid directly onto the existing substrate (vapour control layer). The Kemperol 2K-PUR liquid waterproofing system is then applied, fully saturating the reinforcement fleece, the resin cures to form a durable and seamless waterproof membrane that will not delaminate.

### Flexible Options

The Kemperol 2K-PUR system was also used to protect the guttering system at Redhills and the contractor also installed weirs and increased the height of up-stands to provide further protection from overflows caused by obstructions in the guttering. The system has 20-year warranty and a BBA certified service life of at least 25 years, and a can even be used as a base for green or brown roofs, demonstrating that specification can play a central role in prolonging a building's lifespan, enhancing its sustainability and raising its environmental performance.



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