Kemper System Hits the Right Note at Yehudi Menuhin School

Yehudi Menuhin School, Cobham, Surrey

Installation of a Stratex Warm Roof System at Yehudi Menuhin School's new practice rooms scheme as part of a green roof build up.

Amongst those who aspire to reach the highest standards of excellence in classical music, the Yehudi Menuhin School near Cobham in Surrey is almost as famous as the globally recognised violin virtuoso who established the school in 1964 and from whom it takes its name.

Set in spacious rural grounds with 'Music House', a former mansion, at its heart, the school provides expert tuition for musically gifted students from around the world between the ages of eight and 19. Most are boarders and recent improvements in the residential accommodation at the school have also included development of a new practice house, which will provide facilities for one-to-one tuition and musical practice in an acoustically controlled environment. The building also features external hard landscaping that creates an outdoor performance space with amphitheatre-style steps around a terrace to provide the seating.

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In addition to the practical considerations for the building's function - such as the extensive acoustic wall build ups that isolate the sound within each practice room – the scheme's Brighton-based architect, Miller Bourne, also had to consider the project's rural location; right on the periphery of the school's campus, adjacent to a neighbouring farm. The BREEAM 'Very Good' practice rooms development has been constructed as a contemporary building that blends in with its leafy surroundings with a modular green roof and rainscreen cladding and timber. It also delivers high standards of thermal performance thanks to its Stratex warm roof system from Kemper System, and these sustainability credentials are further enhanced by its solar PV panels.

Specification Considerations

Constructed by Sunninghill Construction, the 800m2 single storey music block comprises 11 practice studios, along with a teaching area, a library, offices, storage, toilets and a kitchen area. The flat roofed building has an 18mm ply roof with numerous rectangular roof lights and Miller Bourne specified the Kemper System warm roof having used the same combination of insulation boards and Kemperol cold applied liquid membranes on other projects. The design team worked closely with Kemper System's technical department to determine the optimum specification for the roof that will provide a BBA accredited 25 year service life.

While all of the roof is flat, various sections have been constructed at different levels, providing a terracing effect that works well with the finished green roof and, along with the glulam timber and glass canopy which reaches out from the main roof over the entrance, adds interest to the building.

The level changes were amongst the key drivers for specification of the Kemperol cold applied system as the liquid membrane cures to provide a seamless, monolithic and elastomeric membrane that adheres permanently to the substrate and cannot delaminate. As a result, any potential vulnerability to water ingress where the roof

steps up or down has been avoided and the system's proven root resistance as a base for green roof installations provided the client with further assurances that it would offer a robust solution for this application.

Warm Roof Build Up

Roofing contractor, Imperial Roofing, installed the warm roof on behalf of main contractor, Sunninghill Construction, applying a primer to the plywood substrate before laying a Kempershield vapour control layer (VCL). Kempershield is a reinforced aluminium, cold-applied, self-adhesive VCL, which can be used on concrete, profiled metal or timber deck substrates.

The installation team then fitted the standard 150mm Kempertherm insulation board, cutting various boards to size on site to fit the exact dimensions of the roof, including the apertures for the roof lights. The rigid PIR insulation board has a dense, closed cell structure that gives excellent compressive strength, along with low thermal conductivity, adding to the robust roof build up. The sections of Kempertherm were adhered to roof using Kemperfix adhesive, which has been especially designed to offer an exceptionally strong bond when used as part of the Stratex warm roof build up.

With the insulation in place and fully bonded to the substrate, Imperial Roofing could move on to installation of the Kemperol V210 membrane. Kemper System's D Primer was used to prepare the surface. The Kemperol V210 membrane was then applied in a single wet-on-wet process, comprising the cold applied liquid resin and a 200g flexible reinforcement fleece, which is manufactured using a 25% recycled plastic bottle content. This combination ensures both durability and flexibility of the cured membrane.

For the details, including the rectangular roof lights, the installation team cut the fleece to size during the installation process, enabling the system to be tailored to the exact dimensions before application of the resin.

Imperial Roofing began installation of the membrane by applying the Kemperol V210 resin to the substrate. The reinforcement fleece was then laid onto the wet resin, with more resin immediately applied on top and rollered to ensure complete saturation of the fleece and removal of any air bubbles or creases before the system was allowed to cure to ensure complete encapsulation of the roof with the reinforced membrane.

Pleasing Appearance

Once the waterproofing membrane was installed on the roof, Imperial Roofing was able to install the green roof elements.

The planting had been agreed early in the design process and had included research of local species to ensure that the roof was in keeping with its local landscape. Consequently, the prepared green roof planting was already at a mature stage of growth when the modules were installed, creating an aesthetically pleasing effect from completion.

The practice rooms building is now fully operational, helping to nurture the next generation of musical talent and provide an informal outdoor venue at this very special school.