



Corus Panels and Profiles Structural Case Study

Sir William Ramsay School, Buckinghamshire

Sir William Ramsay School is a thriving specialist Arts College for the visual arts, with a community of over 900 students aged between 11 and 18 in Hazlemere, Buckinghamshire.



Project details

Client:	Buckinghamshire County Council
Architect:	Jacobs UK Ltd
Main contractor:	Trak
Sub contractor:	PJB Cladding
Corus products:	D158 and D200 decking profiles



The architect specified over 2000m² of Corus D158 and D200 perforated structural decking for all the roof elements.

In 2005 Buckinghamshire County Council decided to build the school a much needed new hall for assemblies and other activities. The new 1280m² assembly hall/ performing arts facility, in part single-storey and in part two-storey, incorporates an assembly hall, a dance/performance space, music suite, and six general teaching classrooms. The new building is free-standing and not physically linked to other school buildings.

With large numbers of students and staff using the hall for assembly and other meetings at different times during the day, the building needed to be column free, light and airy, but at the same time, able to cope with some quite noisy activities in a manageable fashion.

The new building is approximately 8.5 metres high at the highest roof apex (7m at the underside of the eaves line) to take into account the need for a clear 7 metres internal height for the assembly hall. This large new building clearly required structure and materials that would allow it to be erected within the timeframe required by the client. It was also important to visually minimise the height and impact on the immediate neighbourhood. To do this, horizontality was emphasized by introducing a 900mm high facing sand colour brick plinth around the building, closely matching the school's existing main brick to provide a visual link.

The staircases, clad in structural glazing separate the hall from the teaching areas, and introduce the only vertical elements into the composition.

The architect specified over 2000m² of Corus D158 and D200 perforated structural decking for all the roof elements. With sound absorption a key issue, the design team opted to span the wide volume of the hall and performance space with Corus structural roof decking, specified in two different widths of profile, D158 and D200mm. With fabrication depths of 158mm and 200mm respectively, the decking system was able to enclose the spaces while also providing the structural strength to carry the loads of the lighting systems specified by the architect.

In order to maximise sound absorption, the steel liner trays were perforated, a technique that successfully allows sound to be baffled and absorbed, rather than reflected back upon audiences below.

The Dance Performance space has a calm but 'industrial' aesthetic, with Corus Panels and Profiles roof decking in white exposed to view, and exposed ceiling mounted services. In a large open space, this extra performance from the building envelope is not just highly desirable, but essential, in order to reduce possibility of the volume of the building acting like a drum.

With the ability to integrate acoustic performance into the roof decking, the Corus Panels and Profiles steel tray roof lining system meant that the architect did not have to design a separate sound baffle system, saving the client money and construction time on site.

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For further information, contact

Corus Panels and Profiles

Severn Drive

Tewkesbury Business Park

Tewkesbury

Gloucestershire GL20 8TX

T +44 (0) 1684 856600

F +44 (0) 1684 856601

contact@coruspanelsandprofiles.co.uk

www.coruspanelsandprofiles.co.uk