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Byron House, Nottingham Trent University

Background

The Byron House redevelopment was a mixed development joint venture between UPP (Universities Partnerships Programme) and Nottingham Trent University and was based on students' vision for the new Byron House. The scheme provided 5,500 square metres of social, leisure and wellbeing facilities, plus living accommodation. Facilities include a sports hall, entertainment area, fitness studio, shop, bars, social space - with a feature 20 ft climbing wall - and health centre. The sports hall meets Sport England standards and the fitness studio will have approximately 100 stations. The facility also provides bespoke accommodation for the University's Students Union, making its facilities among the best equipped in the country. In addition to this, nearly 900 new student bedrooms extended up to nine storeys.

Challenge

SRL's brief was to provide a full acoustic design for sound insulation to the student rooms above the music venue and the likely noise from the surrounding roads as people left. We took guidance from the British Standard 8233:1999 "Sound Insulation and noise reduction for buildings - code of practice" that directed us to consider suitable criteria which provide: reasonable conditions of study and work requiring concentration, and reasonable resting/sleeping conditions.

Solution

To achieve acceptable noise levels in the proposed student accommodation above the music venue, we suggested the use of a software based sound limiter, in the music venue. This allowed the octave bands to be individually tuned so that the best "sound" was achieved within the venue without causing disturbance to residents above. We also reviewed the proposed different floor build- ups to check that the required insulation level would be met. The other challenge was from noise break-in to rooms from the roads outside as people left the venue. To address this, we looked at the acoustic design of the facades facing the roads and the ventilation strategy. A combination of double glazing with trickle ventilation and secondary glazing with mechanical ventilation was proposed.

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