

The Shard, London, UK

The Challenge

Distinctive, unconventional and controversial, the Shard in London is, undoubtedly, the work of a visionary. Renzo Piano, the architect behind the Shard, currently the tallest building in the European Union, is no stranger to controversy, having designed buildings like the Pompidou Centre in Paris, with its exposed pipes, ducts and cabling. It's unsurprising that Piano has an expanding collection of architectural awards, including the Royal Gold Prize, the AIA Gold Medal, and the Pritzker Architectural Prize, as well as the Sonning Prize, recognising his broader contribution to Europe's cultural life. But for every architectural visionary there are whole armies of technicians and tradespeople striving to turn the architect's vision into a practical reality.

“... the thinner the floor, the harder the soundproofing material has to work acoustically and the more physical punishment it has to endure.”

When BSW was engaged by Progressive Group to ensure the Shangri-La Hotel's 42 floors in the Shard were effectively soundproofed, it wasn't a straightforward assignment. From the very first sketches drawn on a napkin by Piano during dinner with entrepreneur and property developer Irvine Sellar, the Shard was always intended to be 'all about the windows', with expressive façades of angled glass reflecting sunlight and the sky, and affording 360° views of the city.

Unfortunately, when the glazing is central to the design, floors can get in the way of the overall effect, and the temptation is to minimise floor heights. This presents a significant challenge to acoustic insulation installers. In short: The thinner the floor, the harder the soundproofing material has to work acoustically and the more physical punishment it has to endure.

The Solution

For approximately 70 % of the floors, Progressive applied a "Gyvlon" liquid screed at a 40 mm minimum thickness. The screed was pumped from ground level, with the largest pour in excess of 80 m³ covering an area of 1,680 m². In approximately 30 % of the floor areas, however, the floor screeding level could not be raised because of the existing floor-level transom in the curtain walling. This meant that there were instances of screed thicknesses of approximately 25 mm in places.



BSW's high-performance screed insulation material **Regupol® E48** with the European Technical Approval (ETA) was specified. **Regupol® E48** was perfect for those 'thin screed' areas, with its maximum load bearing capacity of 3,000 kg/m² (30 kN/m²), combined with a mean average impact sound insulation performance of $\Delta L_w = 20$ dB. This value wells in excess of the requirements of UK's building regulations.

Regupol® E48's 'over-performance' is crucial for a hotel as exclusive as the Shangri-La. The award-winning, globe-spanning hotel group prides itself on providing a customer-focused experience, with the emphasis very much on luxury. Intrusive noise from above or below a guest's accommodation would almost certainly undermine those efforts. Plus, with this being a flagship project for the Shangri-La – their first hotel in Europe – 'fit for purpose' simply wasn't an option.

Regupol® E48 has already been rigorously pre-tested to ensure it achieves a minimum performance of 5 dB over and above the national building regulations, thus eliminating the need for Pre-Completion Testing. However, BSW and Progressive, having worked together successfully on the exclusive One Hyde Park development, preferred to adopt a partnership approach, with the emphasis on planning and testing, giving absolute certainty to all parties and making full use of all the skills, expertise and experience at their disposal. Only once both parties were satisfied with every aspect of **Regupol® E48**'s acoustic performance in a 'real world' situation did the installation proceed.

Regupol® E48 was installed over a period of approximately 3 months, with Progressive and BSW maintaining their close working relationship throughout.

Results

Tony Cooney, Estimating Manager at Progressive Group, said, "The completion of the screed and insulation work on the Shangri La Hotel development was a fantastic achievement and it presented a number of very challenging situations – both technical and logistical. Solutions to these challenging situations are achieved by the co-operation of all parties involved – including material suppliers. The technical assistance provided by BSW on this Shangri-La project and other prestigious contracts in the London region in recent years has been exceptional and we look forward to continuing our excellent relationship."



Regupol® E48