

Architect	PTE Architects
Client & Main Contractor	United House
Structural Engineer	Knapp Hicks & Partners
Acoustic Consultant	Hoare Lea
Acoustic Design Lead	203MN

• Arundel Square is a new residential development in Highbury, London; only a couple of metres away from a cut-and-cover railway line. Hoare Lea Acoustics recommended the building be isolated on elastomer bearings with a natural frequency of 9Hz to meet Local Authority planning conditions.

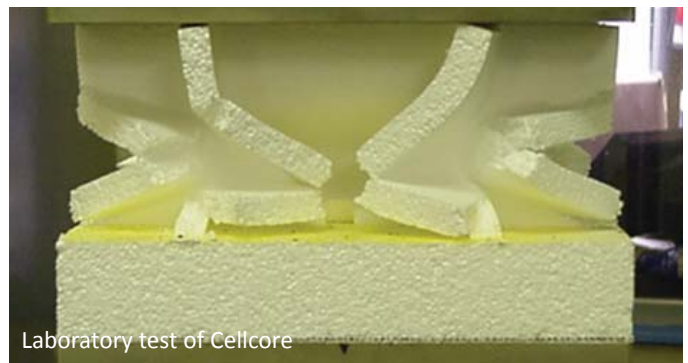
• The complex basement structure needed not only to support significant column loads but also shear walls, slabs, lift cores etc. The resultant design was installed on site using over 1000 different bearing panels but with a simple 'jigsaw' type installation plan.

• A major challenge for the project was the bearings could not be accessible and were going to be buried beneath the bottom basement slab. Many options were looked at but the most economical solution was found to be Cellcore. The product needed to support the wet concrete of the basement slab, in between bearings, but needed to collapse under the deflection of the bearings, and be able to accommodate up to 80mm of heave without compromising the performance of the bearings. Tests were carried out in the CDM laboratory and the collapse deflection was found to be 15.5mm. The static deflection of the bearings is 16mm and the minimum heave 20mm and therefore the Cellcore solution was adopted.

• Due to the isolation being under the bottom basement there was a significant amount of the building in contact with the surrounding ground. This contact area was predicted to increase the natural frequency of the overall system to ~10.5Hz. This amount of contact area was also predicted to add damping to the system and therefore reduce the reduction of vibration. However even with these reductions in performance the Acoustic Consultants confirmed the solution would deliver sufficient attenuation to meet planning requirements.



Installed bearing



Laboratory test of Cellcore



Bearings installed next to Cellcore



Pouring concrete on to bearings