Case Study - Kinetics RIM-C Floating Floor

CMS VIBRATION SOLUTIONS

Clapham Junction

Client	Clapham Junction health centre
Contractor	Osborne
Isolation Area	308m²

In brief

To help take pressure off local GP surgeries, a new walk-in health centre was required within a high footfall area close to Clapham Junction. As a densely populated area, the only available space for the development was within five railway arches located directly beneath the railway track beds.

To ensure the building was fit for purpose, main contractor, Osborne required a bespoke anti-vibration solution that would deliver superior performance at very low frequencies. Moreover, planning conditions demanded that the vibrations generated from the passing trains be isolated and the area effectively damp proofed to achieve long-lasting sound abatement.

Project scope

Considering the project constraints and performance requirements, CMS Vibrations undertook a value engineering exercise on behalf of main contractor, Osborne, which led to the bespoke design of Kinetics RIM-C (Rollout Isolation Material) system – a high performance acoustic floating floor. As well as specifying and supplying the Kinetics RIM-C system at the health centre, CMS Vibrations was also contracted to manage the installation.

Adapting the standard build-up of the Kinetics RIM-C to decouple the health centre from each of the five railway arches, CMS Vibrations isolated a total area of 308m². This system was constructed by first positioning 1500 KIPs (Kinetics Isolation Pads) at predetermined centres on the slab. The remaining floor area was then covered with a layer of 'CMS Quiet Slab' mineral wool board.

Boasting excellent airborne and impact noise ratings, the Kinetics RIM-C system effectively 'floats' the concrete floor slab to create an air void between it and the vibrating structure. Critical to the performance of the system are the KIPs, as these precompressed fibreglass isolators maintain a constant natural frequency over a wide range of static and dynamic loads.

To ensure system longevity and tackle damp issues at the health centre, CMS Vibrations further created a watertight formwork using plywood and damp proof membrane on top of the KIP isolators, with a removable formwork around the perimeter. After casting the slab the perimeter formwork was then removed to create a 'French Drain'.

Kinetics RIM-C system was installed to deliver superior anti-vibration performance at Clapham Junction health centre.

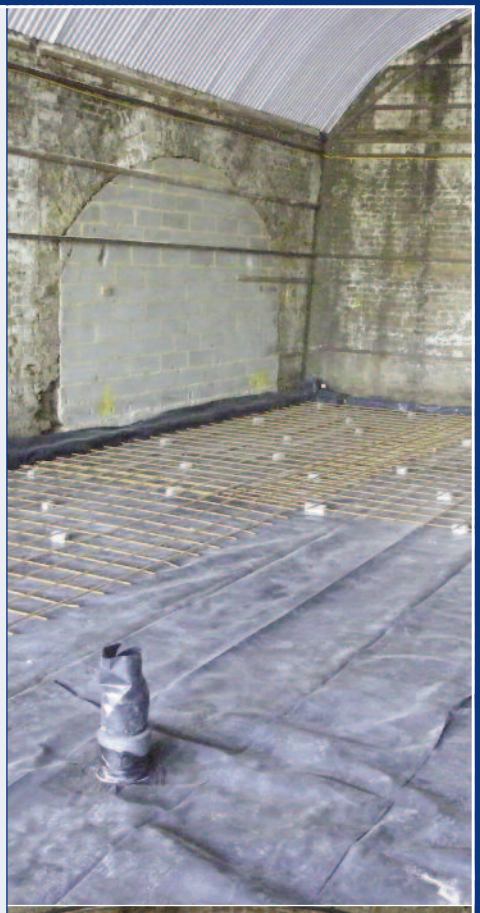
Results

The Kinetics RIM-C system was selected for its ability to deliver a constant natural frequency of 11Hz throughout the projected lifetime of the floating floor, with no appreciable degradation of the isolation performance. By minimising impact-generated sound transmissions across a wide load range, Kinetics RIM-C offers a high performance yet cost effective anti-vibration solution ideal for use in structures in close vicinity to railway tracks.

Neil Mitchell, surveyor, Osborne comments: “The Kinetics RIM-C system met all of our requirements in terms of cost and high performance but due to the bespoke nature of the system we commissioned CMS Vibrations to handle the install. The specialist end-to-end service that CMS Vibrations provided was impressive; from the level of technical advice they provided to ensure the correct initial specification, to the site visit the team undertook to fully understand the project requirements. At the point of installation extremely tight timescales were imposed but CMS Vibrations were able to complete the work within four days, which meant there was no impact on the overall build programme.”

Benefits

- Excellent dampening and isolation characteristics
- Fast, simple and cost effective to install
- Can be designed to withstand any load range
- Natural frequency constant over a wide load range
- Effective over the lifetime of the installation



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