

Case Study - Regufoam/Regupol RAV Foundation isolation



One Southampton Row

Client	Grandsoft Ltd
Main Contractor	Bovis Lend Lease
Isolation Area	2,000m ²

In brief

CMS Vibration Solutions used a combination of Regupol RAV and Regufoam materials to isolate the foundations at One Southampton Row, preventing current and future vibrations from causing structural noise within the building structure.

Project scope

One Southampton Row, London WC2, is a seven-storey office and retail scheme constructed by Bovis Lend Lease (BLL) for developer Grandsoft Ltd. As the development is above two existing tube lines, with CrossRail due to run underneath in the future, vibration control had to be planned in to the building design.

Commissioned by BLL as specialist anti-vibration contractors, CMS Vibration Solutions specified, supplied and installed a combination of anti-vibration systems to meet the project criteria.

To protect the 2,000m² foundation, CMS Vibrations installed 50mm thick Regufoam materials under the concrete raft. Regufoam is a high quality polyurethane foam that is available in six colour coded densities.

As the basement was to be used as a working space, it was constructed using an unusual cassette raft foundation, comprising a 750mm thick raft slab stiffened by integral reinforced concrete cross walls. This required isolation to prevent vibrations from travelling through it and into the basement walls and structure above.



CMS Vibrations isolated the foundations and basement walls at One Southampton Row using a combination of Regupol RAV and Regufoam materials.



To ensure effective isolation, Regufoam materials were installed underneath the raft slab. With the development situated in a high water table, the level of which is just below the basement floor, any vibration control system specified had to be resistant to the effects of water penetration. As a dense closed cell foam, Regufoam was chosen because of its proven record of long term performance in similar water prone environments.

Having isolated the raft foundation of the building, CMS Vibration Solutions recommended additional isolation of the perimeter basement walls in order to eliminate vibration transmission through the soil and substrate. To achieve this a combination of materials was specified. Regufoam 400 was installed on the vertical plane up to the first metre while Regupol RAV200, a recycled rubber granulate material, lined the wall up to ground level.

Results

A natural frequency of 12Hz or under had been specified for the raft foundation and 16Hz or less for the basement walls. Outperforming these requirements, CMS Vibrations delivered a system that achieved natural frequencies ranging from 8Hz to 12Hz.

David Davies, project manager, BLL, concludes: “CMS Vibrations were really flexible in their approach. They provided an effective system to meet our requirements and continued to be responsive to changing site programmes during the installation.”

Benefits

Regupol RAV200

- Excellent dampening and isolation characteristics
- Low to medium load bearing capabilities
- Completely recycled and fully sustainable
- Supplied in cut sheets for ease of installation
- Cost effective
- Independent test certificates available upon request

Regufoam

- High damping ratios and low natural frequencies, even under light loads
- Colour coded for ease of identification
- Supplied in standard easy to handle rolls
- Long life span and constant performance
- Easily cut and profiled on site
- Independent test certificates available upon request



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