

SCI CONSULTANCY: DEVELOPMENT ENGINEERING SUPPORT VIBRATIONS

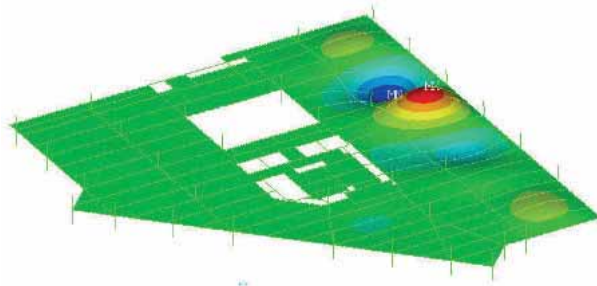


Client:

ARCADIS is a leading international company providing services across three fully integrated business lines: Infrastructure, Environment and Buildings. We work diligently to deliver successful solutions that meet client objectives and to realise our vision, to inspire extraordinary environments.

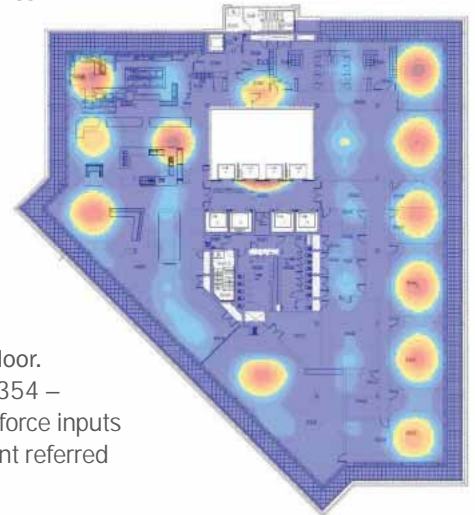
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Specialist vibrations consultancy for unusual design situation As part of the design of a multi-storey office building, Arcadis found that they needed to perform an analysis of the tenth floor to determine the dynamic response of the floor to excitation from running on treadmills within the gym area, and from group aerobics in a studio area. Arcadis approached the SCI to undertake the dynamic analysis.



Working together to meet the requirements

Using finite element software and software tools produce in house, SCI analysed the floor structure to determine the performance of the structure in response to the various types of excitation, and produced contour plots such as the one shown here that give the engineer and architect clear guidance about the impact that the vibration might have on the structure. Working with the engineer, SCI then modified the floor structure in some areas to fine tune the performance and isolate the gym and studio from more sensitive areas of the floor. The analysis was performed in accordance with SCI P354 – Design of Floors for Vibration: A New Approach, using force inputs from ISO 10137, the Standard for vibration assessment referred to in the Eurocodes.



Providing specialist skills for an unusual project

Mohammed Rafiq of Arcadis comments; 'We appreciated SCI's approach to this unusual project. The application of their specialist expertise assisted us in completing our work on time and in budget.'