



Vibration serviceability: from obscurity to the infamous Millennium Bridge case and beyond

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Harrison Lecture Theatre 004

Refreshments will be served after the presentation



Everybody still remembers the 'wobbly' Millennium Bridge case and the global media excitement when it started swaying during its opening day on 10 June 2000. In fact, this is the most written-about UK civil structural engineering news story of the 20th century. My expertise is in vibration serviceability of large civil engineering structures. More than anything else in the last twenty years, this story helped to move my area of research from its obscurity in the 20th century to the top of the structural engineering research and industrial agenda in the UK in the 21st century.

The Millennium Bridge case is a classic example of something which we in the profession call 'vibration serviceability failure'. This is when a large structure

vibrates excessively, but never falls down. Vibrations are typically caused by people walking, running and jumping and 'excessive' means that the structure is not fit for purpose. Vibration serviceability failure happens often with footbridges, grandstands, building floors and staircases - a sizeable chunk of the built infrastructure that humans use every day.

This lecture will present vibration serviceability as state-of-the-art, how it moved from scientific obscurity to the world stage, and why it is still one of the least understood areas of civil structural engineering. I will explain why my best laboratories over the last twenty years were real-life structures occupied by humans, and what may be done in them in the next twenty years.