

## Floor Vibration

The design of floors for vibration is important for a diverse range of buildings. Modern sustainable designs that target lean, lightweight structural systems present new challenges for the control of floor motions. If left unchecked, these vibrations can result in loss of space functionality, occupant discomfort, and in some cases unanticipated demands on the structural system.

**Novus can help you and your clients with new floor designs and existing vibration problems.**

At Novus, our focus is on air quality, sound & vibration, sustainable water systems and wind & climate. We use our knowledge to understand our client's needs and to develop feasible, working solutions, with the goal of harmonizing the built and natural environments. Our experts have decades of experience in floor vibration design, having provided guidance on hundreds of projects throughout the world.

**Our experts apply cutting edge methods to bridge the gap between research and practice.**



### SERVICES

- Site assessment
- Modal testing
- Finite element modeling and dynamic simulation
- Mitigation and control
- Monitoring

### SECTORS

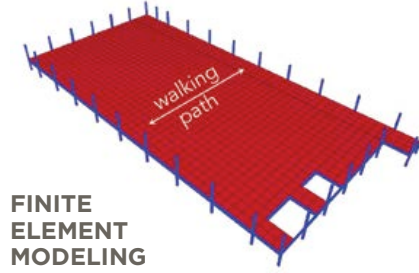
- Laboratories
- Science & Technology
- Higher Education
- Institutions
- Health Care
- Hospitality
- Sports & Entertainment

# Design Guidance

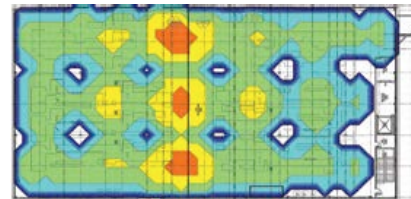
Problematic floor vibrations are caused by occupant activities, poorly isolated building services, road and rail traffic, and construction activities. Novus can help with floor design for:

- **Industrial, office and commercial settings** — where occupant comfort, health and safety are a concern;
- **Research and healthcare settings** — where ultra-low vibration environments are essential for the performance of sensitive procedures and equipment (imaging, high-resolution microscopy, laser-based systems); and,
- **Residential, hospitality and entertainment facilities** — where occupant comfort and large dynamic loads (crowd loading) are a concern.

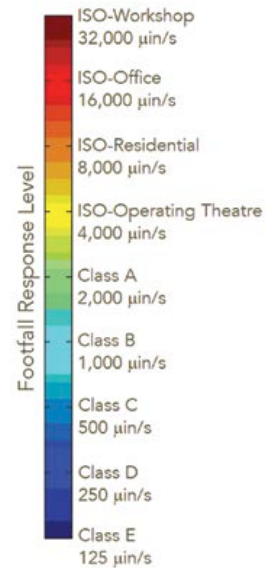
## Response prediction



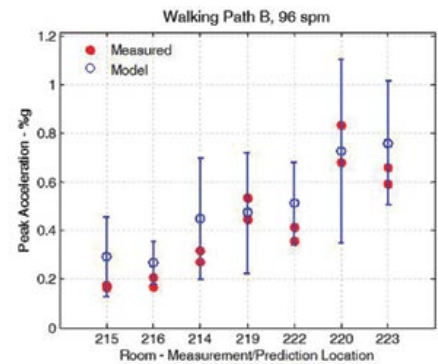
**FINITE ELEMENT MODELING**



**RESPONSE CONTOURS**



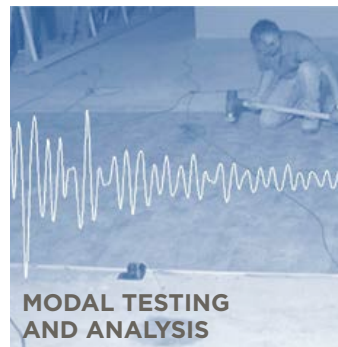
**VALIDATED TECHNIQUES**



### WHY NOVUS

- Extensive experience with modeling, measurement and assessment of floors for a diverse range of occupancies.
- Direct access to leading experts in the field of vibration design.
- Our experience results in innovative and practical solutions to common and unique vibration problems.

## Dynamic testing and performance assessment



**MODAL TESTING AND ANALYSIS**



**OCCUPANT ACTIVITY**



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