

Graduation assignment: Influence of 3D behavior of soil vibrations on buildings

Type	Graduation assignment
Office location	Delft
Education level	TU/WO
Field of study	Civil Engineering, Geophysics
Duration of internship	6 Months
Desired start	September 1 st 2020

We are the ideal engineering agency for young talent to start your career. Get started immediately with the knowledge you bring, learn a lot from colleagues and take the opportunity to develop into the specialist in your field of interest!

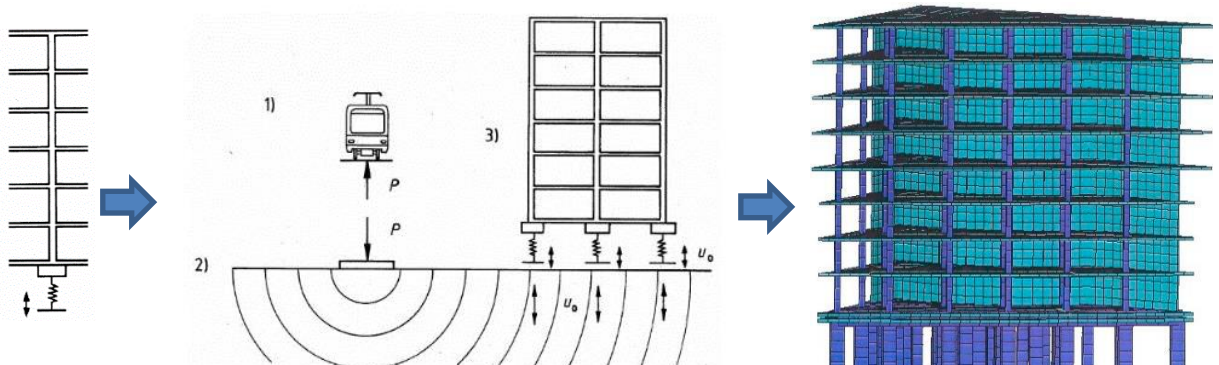
Every year ABT has the possibility for about 30 students to do an internship or graduation assignment. In these strange times (1.5 meter economy) we ask a little more than usual: you have a good level of independence, proactivity and responsibility. We all partly work from home, therefore you receive a laptop so you can work flexibly everywhere.

Topic

Vibration in buildings is becoming an increasingly important aspect in the design of a comfortable building. Vibrations from external sources, such as trains and speed bumps, pass through the soil and enter the building via the foundation. In general, the soil vibrations are simulated in 2D. This means that phase information of the vibrations that enter the building is lacking and this would give a distorted picture of the vibrations in the building.

The challenge for the research is to make an analysis method that relatively easily takes into account the 3D behavior of soil vibration and the building. In this way, more accurate simulations can be made of the external vibrations in buildings. This is important, for example, for the design of buildings close to the track.

As part of your graduation, you will work on a model in ABAQUS, which simulates dynamic behavior, under the guidance of members of the Knowledge Group Dynamics. In your research you will look for the influence of 3D soil vibrations. Ultimately, you define guidelines for when analyzes with 3D soil vibrations are necessary for vibration analyzes in buildings.





Steps to be taken

- Research into the state of the art and theory of soil vibrations, soil and construction interaction;
- Analysis of the 3D behavior of soil vibrations and comparing it with the usual 2D approach;
- Exploring the vibration situation at locations near the track;
- Working out concepts with simulations in ABAQUS;
- Setting up guidelines for when 3D analyzes are necessary for vibration analyzes of a building.

Building ambitions together

At ABT you work on leading projects in a professional organization with enthusiastic colleagues in an informal atmosphere. Together with our customers, we develop the buildings of the future. ABT is leader on all fronts, continuous professional development and innovation are of paramount importance. Our teams are fully integrated, whereby the different disciplines reinforce each other. A team in which everyone fulfills his or her unique role. You will have the opportunity to participate in the development of advanced design methods and the automation of design processes.

This is how we build our ambitions together.

We look forward to your response!

Interested in this challenge? We look forward to your response at future@abt.eu. For questions about the vacancy, please call Malou Geerman, Corporate Recruiter, 06 - 13137416.

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