

The Department of Civil and Environmental Engineering at the University of Houston presents...

CIVE 6111 Graduate Seminar

Effect of Foundation Flexibility on the Interaction between Elevated Light-Framed Timber Coastal Housing and Solitary Waves



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2:45pm-3:45pm
Classroom Business Building (CBB) - Room 122
Zoom: <https://uh-edu-cougarnet.zoom.us/j/99484706462>

Abstract

As the population density rises in the coastal regions of the United States, the associated increase in coastline construction of light-frame timber houses raises concerns about their vulnerability to wave and storm surge loads that can be generated from tropical storms. These houses are often elevated on a pile foundation that can experience flexibility as function of the pile embedment and the soil properties. The intent of this research study is to understand and quantify the effect of soil-structure interaction in the response of elevated light-frame timber coastal houses against solitary waves. For this purpose, a prototype coastal houses is modeled within a coupled eulerian-lagrangian finite element framework. The solitary waves are generated by a wave maker and vary in length and height. The pile foundation of the house is modeled with a system of p-y springs with carrying constitutive properties, which simulates different foundation characteristics.

Bio

Vasileios Kotzamanis is a PhD student in the Department of Civil and Environmental Engineering working under supervision of Dr. Dimitrios Kalliontzis. He completed his Diploma Degree in Civil Engineering at Aristotle University of Thessaloniki (2021), Greece with a M. Eng. In Structural Engineering. Prior to joining the University of Houston, he took part in the Erasmus+ program in Oslo Metropolitan University where he had the opportunity to experience the interdisciplinary subject of fluid-structure interaction through his Master's Thesis. His research aims to develop a better understanding of the fluid-structure interaction phenomena occurring regions during hurricane events.