

## Wave Interaction with Single and Twin Vertical and Sloped Porous Walls

**Authors :** Mohamad Alkhalidi, S. Neelamani, Noor Alanjari

**Abstract :** The main purpose of harbors and marinas is to create a calm and safe docking space for marine vessels. Standard rubble mound breakwaters, although widely used, occupy port space and require large amounts of stones or rocks. Kuwait does not have good quality stone, so they are imported at a very high cost. Therefore, there is a need for a new wave energy dissipating structure where stones and rocks are scarce. While permeable slotted vertical walls have been proved to be a suitable alternative to rubble mound breakwaters, the introduction of sloped slotted walls may be more efficient in dissipating wave energy. For example, two slotted barriers with 60degree inclination may be equivalent to three vertical slotted barriers from wave energy dissipation point of view. A detailed physical model study is carried out to determine the effects of slope angle, porosity, and a number of walls on wave energy dissipation for a wide range of random and regular waves. The results of this study can be used to improve and optimize energy dissipation and reduce construction cost.

**Keywords :** porosity, slope, wave reflection, wave transmission

**Conference Title :** ICCOE 2017 : International Conference on Coastal and Ocean Engineering

**Conference Location :** London, United Kingdom

**Conference Dates :** March 14-15, 2017