

Build to Resist – Geowall Construction

Introduction

The objective of the GeoWall competition is to design and build a model of Mechanically Stabilized Earth (MSE) retaining wall using paper reinforcement and a plywood box. The design should be able to support the retained soil and design loads.

Significance

Reinforced earth can be used for retaining walls, bridge abutments, levees, and seawalls. The artificial reinforcing elements used often include steel and geosynthetics. A MSE retaining wall is a special kind of retaining structure that reinforces the earth rather than rely on an external structure to retain the backfill soil. It helps one to create a retaining wall with least material.

Problem Statement

Participants are supposed to build a Mechanically Stabilised Earth retaining structure. The reinforcement will be provided in the form of chart paper. Participants will be required to fill the plywood moulds with sand and tie the moulds using ropes.

Materials provided by the organizing team:

Wooden box of 12 mm thick plywood (45*45*60 cm) with a door, Sand, 2 Craft Papers, Rope

Rules

- Time limit is 40 minutes.
- A team can consist of maximum 4 members.
- The backfill material must be used as it is. No water, additives or chemical stabilizers shall be mixed with backfill material.

Judging Criteria

- Vertical loading to test the retaining wall for failure.
- Dynamic loading will be taken into account after the threshold for vertical loading is crossed.