Geofoam to Improve Infrastructure Efficiency

STDF – Research Support Grants
Selected for Funding Project ID No. 12629
100,000 EGP in 12 Months

Research Team:

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Problem Statement

- Some infrastructure projects require large retaining walls.
- Soil backfill behind walls is heavy and lead to oversized wall dimensions.
- This wastes land area, costly, and takes time.
- Consume more cement and steel reinforcement.
- Hence, EG code limits the free walls heights to 6 m.
Solution using EPS Geofoam

- EPS is a lightweight and durable material (1% of soil weight).
- EPS significantly reduces the loads imposed on retaining walls and underlying soils.
- Solve challenges, reduce cost, inc. sustainability, positive impact on environment.
- Future uses of EPS
Primary FE Analysis

Graph 1: % Reduction in pressure vs. t/h

Graph 2: K (Later pressure coef.) vs. t/h

Graph 3: K by FE model

Graph 4: REP mode vs. ZEP mode
Tangible Results

- **In 12 Months:**
  2. Prototype for walls with EPS inclusion
  3. Calibration of a FE numerical model
  4. Design charts and recommendations for industry

- **Publications:**
  1. At least one journal paper
  2. Two paper in international conferences
Thank you..