

Technology in Brief:

The proposed strengthening methodology addresses single-storey load-bearing unreinforced masonry structures by combining internal (active) and external (passive) reinforcement techniques to improve overall structural performance. Bed joint reinforcement employs PET-based geo-grids, along with polypropylene geo-grids and welded steel wire mesh are embedded in polymer-modified mortar externally at critical locations to enhance box action and wall integrity, after systematic crack identification and repair. The combined active and passive strengthening system provides improved confinement, anchorage, and effective stress redistribution throughout the masonry walls ensuring box action of the entire structure.

Salient Features/Advantages:

- Integrated strengthening approach
- Enhanced box action
- Targeted reinforcement placement
- Improved crack control and durability
- Effective external confinement
- Improved stress redistribution
- Ease of implementation
- Suitable for seismic retrofitting



Building front view



Active-Textile in Bed Joint



Textile Reinforcement Layer



TRM Strengthening



Final View of Strengthened Building

Properties & Standards	PET-based geo-grids (bed-joint reinforcement), Polymer-modified mortar
End Product (s)	Strengthened unreinforced masonry (URM) building system
TRL	5
Environmental Impact	Resource efficiency, Potential use of recycled materials
Setup – Equipment required	Cutting, Drilling Machine