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## Novel Strategy for Strengthening Intervention of Masonry Walls Using Textile-Reinforced Concrete

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Description Dive into the GCO Podcast as we explore a groundbreaking strategy for retrofitting masonry walls using textile-reinforced concrete. Discover how modern innovations blend with traditional construction techniques for enhanced structural and thermal...



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## Novel Strategy for Strengthening Intervention of Masonry Walls Using Textile-Reinforced Concrete

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### Author(s)

Smitha Gopinath, Abhishek Kumar and Lavanya Eragam

### Abstract

An integrated strategy for the assessment of structural and thermal performance of masonry walls when retrofitted using textile-reinforced concrete (TRC) and TRC sandwich panels is devised.

Three popularly used walling solutions viz. clay brick masonry, hollow concrete block, and autoclaved aerated concrete block were considered for retrofitting masonry walls. Retrofit was carried out using virgin TRC panels and also with TRC panels sandwiched with gypsum and calcium silicate panels for improved thermal performance.

The structural capacity is estimated using the equivalent strut approach and thermal performance parameters are calculated from thermal analysis using the finite-element method. The integrated methodology is used for arriving at a feasible retrofitting solution for desired levels of structural strengthening and thermal performance.

The methodology is demonstrated with a typical retrofitting of a masonry structure placed in the representative seismic zone with peak ground acceleration of 0.36 g and for two of the climate zones. From the investigations, it is observed that the type of retrofit system for a masonry wall that has to be adopted for enhancement in thermal comfort is very much dependent on the climatic zone, the thickness of the panel, and the choice of insulating material.

The integrated methodology can be a very helpful tool for designers to arrive at the optimal retrofitting configuration for desired structural and thermal performance of the structure.

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