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### Optimal placement and shaping of the reinforcement in masonry walls by a coupled limit analysis and Topological Optimization approach

(Conference Paper)

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#### Abstract

The paper focuses on the set up of an approach for designing the best distribution of the reinforcement over NT existing structures by means of combined use of tools from Topology Optimization (TO) and Limit Analysis (LA). The presented numerical results refer to the specific objective of suitably identifying the most proper placement and shaping of the reinforcement bars in a masonry wall, which can be modelled by the No-Tension (NT) assumption.

#### Author keywords

Limit analysis, No-Tension structures, Optimal placement, Reinforcement, Topology Optimization

#### Indexed keywords

**Engineering controlled terms:** Computer aided engineering; Masonry construction; Masonry materials; Reinforcement; Retaining walls; Shape optimization; Topology; Walls (structural partitions)

**Existing structure:** Limit analysis; Masonry walls; Numerical results; Optimal placements; Reinforcement bar; Tension structure; Topological optimization

**Engineering main heading:** Structural optimization

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