



# Experimental Investigation of Brick Masonry Arches' (Vault and Rib cover) Behavior Unreinforced and Reinforced by C-FRP under vertical and Horizontal Load Simultaneously

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## ABSTRACT

*In this paper, two masonry structures including the arc and the beam in real dimensions under simultaneous vertical and lateral loading will be examined. Vertical load was applied on the spring and then lateral load applied at the arch to the base. In the first experiment, the sample was loaded without reinforcement, and according to the results, the second sample was reinforced with polymer fiber C-FRP and subjected to similar loading. According to the results in the first sample, the first cracks appeared at the site of force stretch to the structure. Therefore, carbon fiber was used to reinforce the vulnerable areas. The reinforced structure was able to show very high stability against lateral forces, with the displacement rate at various points of the structure being significantly reduced. Structural load capacity also increased 13KN.*

## Keywords:

*Safety Risk, Construction Management, Risk Management, Construction Project.*