

# Strengthening of Squat RC Shear Walls with Square Openings by FRP under Monotonic Loading

Mostafa M. Mohamed<sup>1</sup>, Mohamed S. Gomaa<sup>2</sup>, Alaa A. Elsayed<sup>3</sup>

مكان النشر (بلغة مكان النشر):

IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE) e-ISSN:2278-1684,p-  
ISSN:2320- 334x, Volume 16, Issue 2 Ser. III(Mar.-Apr.2019),PP 70-97

معامل التأثير (Impact Factor):

تاريخ الإرسال للنشر : مارس / ٢٠١٩ ، تاريخ القبول للنشر : ابريل / ٢٠١٩ ، تاريخ النشر : ابريل / ٢٠١٩

---

## Abstract:

Reinforced concrete (RC) shear walls are considered to be one of the most major elements in the lateral force resisting systems. The existence of openings in RC shear walls becomes essential in some cases that relate basically to architectural or mechanical requirements although they are not preferred to be constructed from the structural point of view. In this current work, massive numbers of numerical models are conducted using the well-known finite element software (ANSYS) for achieving an obvious conclusion about the influence of positions and dimensions of openings on the nonlinear behavior of shear walls under lateral monotonic loads. Furthermore, the efficiency of a proposed configuration of CFRP strips in retrofitting these RC walls with openings is investigated.

**Keywords:** Shear Walls; Monotonic Lateral Loads; Nonlinear Behavior; Strengthening; CFRP sheets.