

A Review on the Effect of Openings in RC Shear Walls and EPS Sandwich Core Wall under Cyclic Load

Akilesh. B¹, Dr. Selvan. S², Mr. Satheesh Kumar KRP³

Student, Department of Civil Engineering¹

Associate Professor, Department of Civil Engineering²

Assistant Professor-II, Department of Civil Engineering³

Kumaraguru College of Technology, Coimbatore, Tamil Nadu, India

Abstract: Nowadays many residential and commercial buildings are constructed by MIVAN technology with reinforced concrete walls which act as shear walls in Higher seismic zones. Due to advancements in research and ecofriendly way of construction, the EPS sandwich core walls are becoming popular. The EPS walls reduce carbon emission, cut down the construction cost and tend to act as shear walls when lateral loads are applied. The above study compares the strength of the EPS sandwich wall with that of RC shear wall. When openings are provided in an RC Shear wall, the opening portions tend to deflect more. Much research has been carried out with different lengths and width, placement of the openings, change in concrete properties and different shapes were analyzed using Finite Element (FE) Software's under monotonic, cyclic and reversed cyclic loading and were validated by the lab tests. EPS walls being cost efficient, CSIR have released the design considerations to be followed and research shows that the performance increases, self-weight of the structure decreases, and the construction time decreases with better insulation properties. When the EPS sandwich walls are combined with the frame of RC structure the performance of the sandwich wall increases when applied with lateral load.

Keywords: RC shear wall, EPS sandwich walls, Openings, Properties, Performance, Analysis

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