Abstract

In Bangladesh many buildings are found which are not so strong to resist lateral forces such as seismic and wind forces. This research work has been performed to investigate the way of improving the lateral load resisting capacity of buildings. The deflection of different case of structure such as a) Concrete Frame, b) Steel Frame c) Hybrid Masonry Frame system has been investigated in this research work by using civil engineering based finite element analysis software STAAD Pro. -2006. Four (4) sides of a 15 story commercial building has been considered in this research work. The four sides of the frames are the front side frame, back side frame, left side frame, and right side frame respectively. For Front side frame, the highest value is 11.858" for concrete frame and the lowest deflection value is 4.241" for the hybrid masonry frame. Therefore, deflection of the hybrid masonry frame is reduced by 73.66% with respect to concrete frame structure. For Back side frame, the highest value is 11.455" for concrete frame and the lowest deflection value is 4.129" for hybrid masonry frame. Therefore, deflection of hybrid masonry frame is reduced by 73.50% with respect to concrete frame structure. For Left side frame, the highest value is 11.863" for concrete frame and the lowest deflection value is 3.101" for the hybrid masonry frame. Therefore,
deflection of the hybrid masonry frame is reduced by 79.30% with respect to concrete frame structure. For Right side frame, the highest value is 11.455”; for concrete frame and the lowest deflection value is 2.993”; for the hybrid masonry frame. Therefore, deflection of the hybrid masonry frame is reduced by 79.28% with respect to concrete frame structure.

References

- Hybrid Concrete Masonry Construction Details, TEK 3-3B, National Concrete Masonry Association, Herndon, VA, 2009
- IMI Technology Brief 02.13.02, Hybrid Masonry Construction, International Masonry Institute, Annapolis, MD, 2009
- STAAD. Pro 2006, Research Engineers International, a Bentley Solutions Center.

Index Terms

Computer Science

Applied Sciences

Keywords

Hybrid masonry concrete steel deflection frame STAAD Pro. finite element analysis civil engineering.