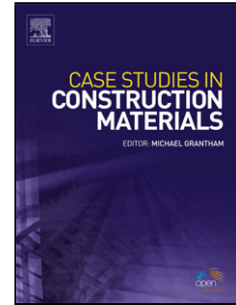


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Examining the Impact of Sheet Placement and Changes in Waves Characteristics on Behavior of Wavy Steel Shear Wall

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Abstract

Steel shear walls are usually constructed in two forms, solid and non-solid. Generally, the solid ones function better in terms of seismic performance and exploitation; however, their construction is costly and time-consuming due to the use of various solidifiers and much executive details. Wavy steel shear walls have been proposed as a substitute to solid shear walls. High arch resistance as well as an operation similar to stiffed shear walls are expected due to inter-sheet stiffness. This study tries to evaluate steel sheet placement and the impact of geometrical parameters including wavelength and wave depth in steel shear wall on final shear capacity. For this purpose, ABAQUS finite element software was used. Finally, it was observed that steel shear wall capacity increased if waves were aligned with beams. Also, resistance of steel shear wall increased as wave length decreased and wave depth increased.

Key Words:

Steel shear wall, wavy sheet, shear capacity, amplitude of wave, length step of wave, finite element.

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