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Semi Empirical Equations for Peak Shear Strength of Rectangular Reinforced Concrete Walls

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Abstract : This paper presents an analytical study on the behavior of reinforced concrete walls with rectangular cross section. Several experiments on such walls have been selected to be studied. Database from various experiments were collected and nominal shear wall strengths have been calculated using formulas, such as those of the ACI (American), NZS (New Zealand), Mexican (NTCC), and Wood and Barda equations. Subsequently, nominal shear wall strengths from the formulas were compared with the ultimate shear wall strengths from the database. These formulas vary substantially in functional form and do not account for all variables that affect the response of walls. There is substantial scatter in the predicted values of ultimate shear strength. Two new semi empirical equations are developed using data from tests of 57 walls for transitions walls and 27 for slender walls with the objective of improving the prediction of peak strength of walls with the most possible accurate.

Keywords : shear strength, reinforced concrete walls, rectangular walls, shear walls, models
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