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numerical models are fundamental to understanding this behavior interaction but the development of robust simplified models is still this paper proposes a new stress tensor decomposition referred to as the shear normal decomposition to construct an efficient and realistic model of shear failure in concrete and reinforced concrete comparisons of the model results with experimental measurements for illustrative examples show that the proposed model has unique advantages modeling rebar the forgotten sister in reinforced concrete modeling len schwer 1 introduction historically reinforcement in concrete was modeled as a layer of smeared material i e a combination of steel and concrete or via shared merged nodes using either truss or beam elements strut and tie modeling technique is a simple and effective method which can be used as a quick tool for analysis of discontinuous region d region in reinforced and prestressed concrete the peridynamic model was introduced by silling in 1998 in this paper we demonstrate the application of the quasistatic peridynamic model to two dimensional linear elastic plane stress and plane strain problems with special attention to the modeling of plain and reinforced concrete structures learn about the several methods tekla structures offers for creating reinforcement this is tutorial 1 3 in the reinforcement modeling module and 32 35 in the tekla structures for concrete the model performance and the benefits of fiber reinforcement on thin slabs reinforced with steel bars were assessed by carrying out tests on slab strips the main results are presented and discussed this paper is aimed at addressing the need for physically accurate and computationally effective models for predicting the response of shear dominated reinforced concrete walls the presented theory is based on a three degree of freedom kinematic model for the deformation patterns in walls with aspect ratios smaller than approximately 3 a novel approach to the modeling of tension stiffening is proposed based on considerations of the highly non uniform strain regions that occur in the concrete surrounding embedded reinforcement bars near the primary cracks although the current study reveals that the geometric input features and reinforcement indices are the most important variables in failure modes detection better model can be achieved with employing more robust strategies to establish proper database to decrease the errors in some of the failure modes identification keywords the deterioration of reinforced concrete rc structures is a significant global concern demolishing degraded structures is costly time consuming and impacts the integrity of connected members implementing jackets including fiber reinforced polymer frp fiber reinforced cementitious matrix frcm and ferro cement for the retrofitting and rehabilitation of existing structural members

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