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Numerical Study on the behaviour of CPVC-AL-CPVC Pipes as Reinforcement in Exterior Beam-Column Joint

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Abstract : For reinforcement of concrete, the steel plays a vital role. But the steel bars are easily affected by corrosion. To overcome this, various replacement techniques are carried in the reinforcement. In this paper, reinforcement is replaced with CPVC-AL-CPVC pipes and steel stirrups are provided and its behaviour is studied. Due to the nature of CPVC-AL-CPVC pipes, the corrosion resistant and strength parameter of beam-column joint can be increased. The load deflection and stress-strain behaviour are analysed. The purpose of this study is to perform numerical investigation in order to study the behaviour of exterior RC beam-column joint with CPVC-AL-CPVC pipes. Concrete mix of M20 grade has designed as per IS 10262-2009. A Finite Element Model has been developed using ANSYS software and results were compared between CPVC-AL-CPVC pipes and TMT rods are studied. In this paper, the durability and corrosion resistant of concrete reinforcement replaced with CPVC-AL-CPVC pipes and TMT rods as a composite construction are studied.

Keywords : CPVC-AL-CPVC pipes, TMT rods, durability, corrosion resistant and finite method.

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