DESIGN AND FABRICATION OF SPEED BUMP BY USING NON- NEWTONIAN FLUID

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Introduction:

This study investigates the feasibility and effectiveness of employing non-Newtonian fluids in the design of speed bumps for traffic calming purposes. Traditional speed bumps often generate discomfort and vehicular wear and tear due to abrupt changes in vehicle speed. The use of non- Newtonian fluids, known for their unique viscosity properties, offers a promising alternative to enhance traffic safety while minimizing negative impacts. There are two forms of speed breaker are mostly used, which are conventional speed breaker and plastic speed breaker. The usage of fluid in a speed breaker is not a common thing in real time. A non-Newtonian fluid is a fluid that changes its viscosity with respect to the force applied to them. It is formed by a flexible material which consist of non-Newtonian fluid in it i.e., each receptacle is impregnated with a dilatant shear thickening fluid. The material is placed under compression during impact when the vehicle strikes it and the fluid itself acts as means for controlling the resistance to deformation of the strip. As result has great resistance to deformation thus forming a rigid obstacle to the movement of the vehicle. Trying to construct a sustainable eco-friendly replacement to these concrete speed breakers and to bridge the challenges as they come out way.