

Design and Analysis of Car Crash Element

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***Abstract:** Passenger safety is the primary concern of every car manufacturer today. New standards are set for occupant safety in various crash scenarios such as frontal head impact, angled impact, side impact, rear impact and rollover. In today's world, fuel consumption is also a serious issue to consider. Taking these limitations into account, a lighter and stronger composite material than steel is used in the car's front rail. Using this material would help reduce fuel consumption without sacrificing vehicle safety. In this project, the conventional material used for the front sub-frame rails in the car, steel, is replaced by the composite materials Carbon Epoxy and Glass Carbon. The 3D model of the subframe rails is made in CATIA v5. Impact analysis is performed on Ansys workbench for all materials to compare displacements and stresses at different speeds of 80 km/h, 100 km/h, and 120 km/h.*

Keywords: Car Crash.

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