Thermal Analysis of Car Roof to control Heat Formation

Abrar Cinemawala[1],Amit Choudhry [2], Dainik Savalia[3], Maulesh Parikh[4]
[1,2,3],*Mechanical Department ,Parul University (Diploma Studies),Vadodara,*
[4]*Mechanical Department, Parul University, (M.TECH-CAD/CAM), Vadodara*

Abstract-Thermal comfort is the prime focus of the present work. Simulations are carried over external surface of car roof to determine the Heat Transfer Rate by means of virtual environment with the help of commercial tool. The use of computer software make it possible in time. Numerical methods are employed on three- dimensional vehicle Roof. The present work is carried using the ANSYS and the equations governing Heat flow combined with Cenosphere- magnesium- Cenosphere & Cenosphere-Nimonic-Cenosphere, this three material layer vehicle roof solved by using the appropriate boundary conditions and considering environmental conditions, Few design modifications are made in the form of attachable accessories which have been resulted in reduction of the Heat Transfer. These modification have shown a Heat Transfer Reduction of 40% at a temperature of 50. °C, automatically reducing the work of Air Conditioners allotted to consumes fuels and CO2 emissions also decreases.

Key Words- ***Ansys, Roof panel of hatchback Car, Meshing, FEM.***