

# Energy and Global Warming

At the German Heiligendamm Summit in June 2007, it was agreed to “consider a 2050 reduction by 50%” of greenhouse gas emission volume. Based on a mid-term target, we are promoting dual-sided efforts to decrease CO<sub>2</sub> in the production and logistics stages and also limit consumption of vehicles. Our efforts are aimed at reducing CO<sub>2</sub> emissions that are a global warming concern, as well as the issue of energy with concerns of a drying up of resources and an insufficient volume of supply.

## Development and Design

Development and commercialization of weight reducing technologies that contribute to improving vehicle fuel efficiency

## Production and Logistics

Active promotion of measures to reduce CO<sub>2</sub>

## Development and Design

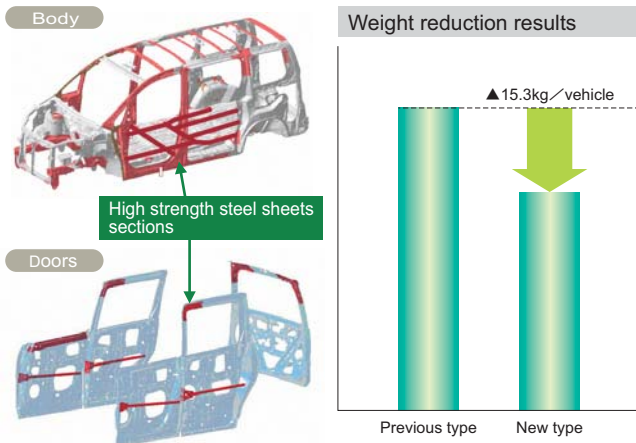
### Development of weight reducing technologies that contribute to improving vehicle fuel efficiency

We have achieved vehicle body weight reductions by using new plastic mold techniques, optimizing sheet structure and thickness by using CAE※1, as well as expanding use of weight reducing materials such as high strength steel sheets in our new VOXY and NOAH.

※ 1 C A E : Computer Aided Engineering

#### ■ Weight reduction by CAE Analysis and High Strength Steel Sheets

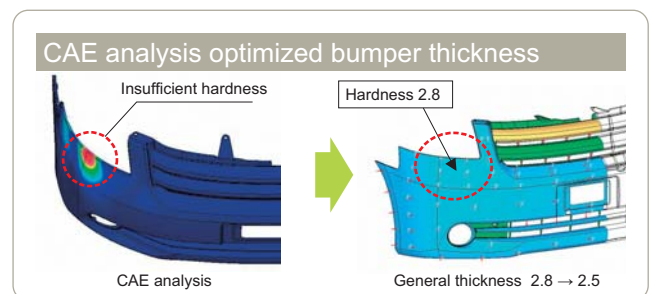
We achieved further weight reduction by analysis of sensing vibration and noise and also CAE strength analysis by combining use of high strength steel sheets with optimized sheet thickness and a streamlined construction.



#### ■ Weight Reductions by Optimizing Design of Plastic Parts

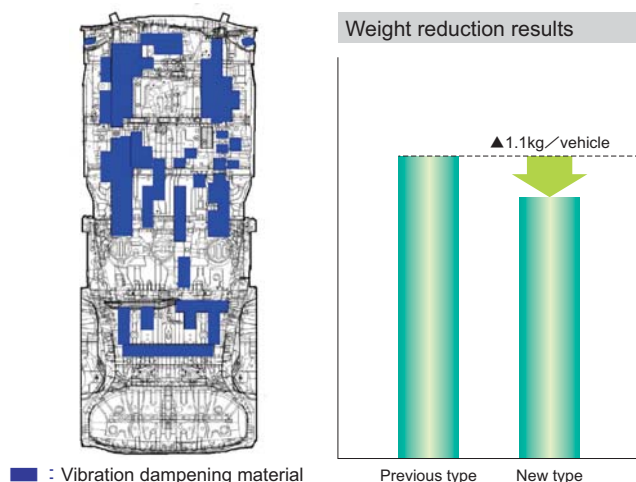
For designing exterior bumper parts, we used high strength TSOP ※2, and we achieved optimal thickness from CAE analysis of heat resistance and hardness. A weight reduction of 10% resulted for the front and rear bumpers. In addition, a 15% weight reduction resulted for the rear spoiler by using the same methods.

※2 T S O P : Toyota Super Olefin Polymer



#### ■ Weight Reduction by Vibration Dampening Paint

We achieved weight reduction in the floor by vibration dampening paint which is comparatively light compared to previous vibration dampening material.



#### ■ Weight Reduction by Foam Molding Deck Side Trim

We achieved weight reduction and ensured strength by making interior base material with foam.

