

The 2016 NISSAN MAXIMA



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35 Year History of Maxima

1981

1st GEN First generation was RWD
145-hp, 2.4L I6



1985

2nd GEN Second generation was FWD
154-hp, 3.0L V6



1989

3rd GEN Third gen was mid-sized
160-hp, 3.0L V6



1995

4th GEN Fourth gen got a new engine
190-hp, 3.0L V6



2000

5th GEN Fifth gen received the VQ35 V6
255-hp, 3.5L V6



2004

6th GEN Manuf moved from Japan to USA
265-hp, 3.5L V6



2009

7th GEN Aggressive styling & performance
290-hp, 3.5L V6



2016

8th GEN V-Motion front end, floating roof design, LED signature headlights
300-hp, 3.5L V6





LEGITIMATE PERFORMANCE

WITH CREDIBLE HARDWARE

300HP
30MPG

- ▶ **TARGET: Best-in-class 0-60mph***
- ▶ **61% all-new engine components**
- ▶ **New CVT with new D-step logic**
- ▶ **Increased Ratio Coverage**
(5.4→6.3, ~8 speed equivalent)
- ▶ **Power UP + Weight DOWN =**
Best-in-class power-to-weight ratio

Rigidity

25% 

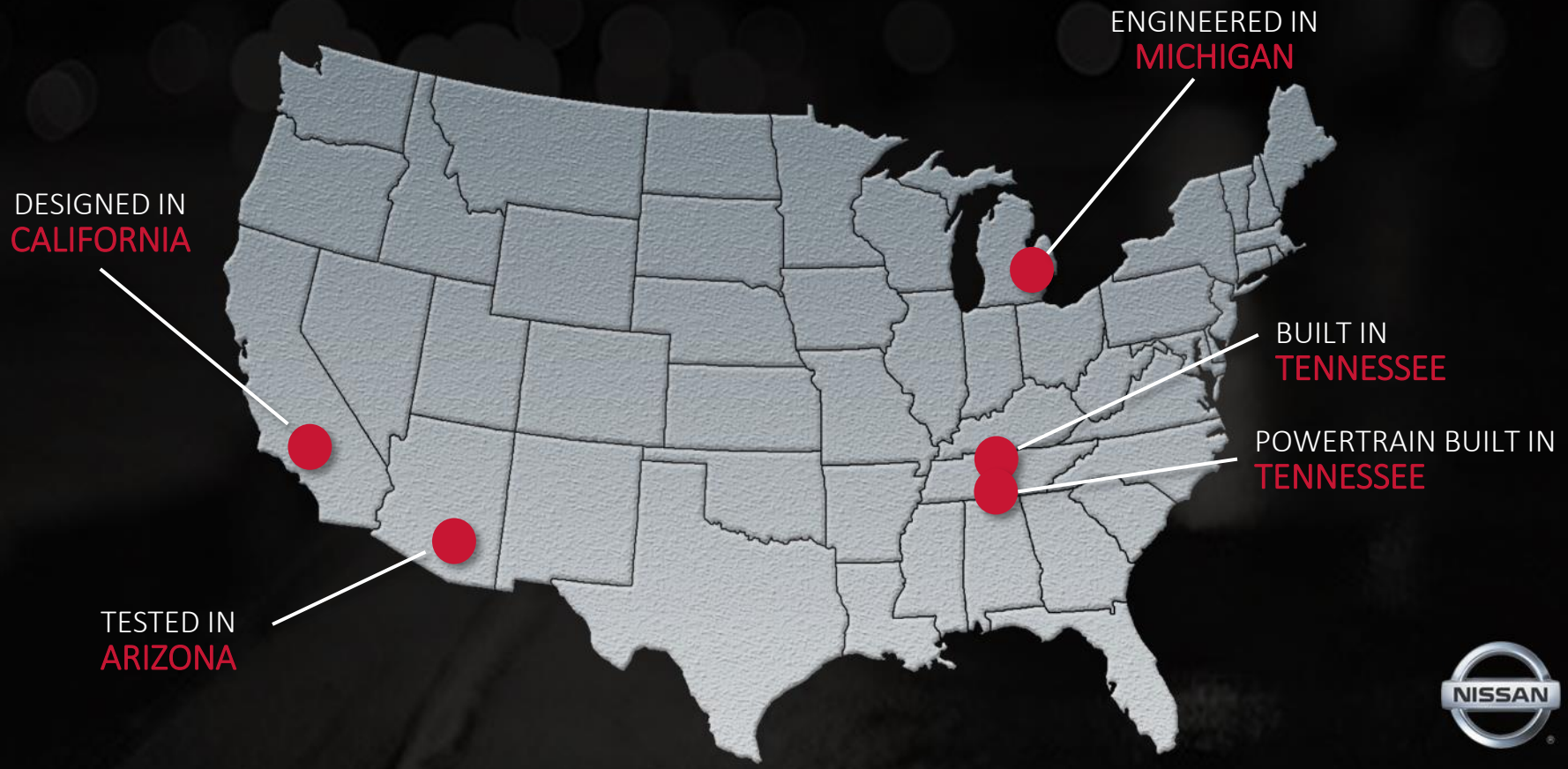
- ▶ **Ultra high strength steel (1.2GPa)**
- ▶ **Strategic chassis reinforcements**
- ▶ **HIGHER rigidity than Porsche Cayman**

Monotube
Dampers

- ▶ **ZF Sachs**
- ▶ **Commonly used on high perf. vehicles**
- ▶ **Further SR specific tuning**

*0-60mph in estimated 5.9seconds

Nissan Maxima



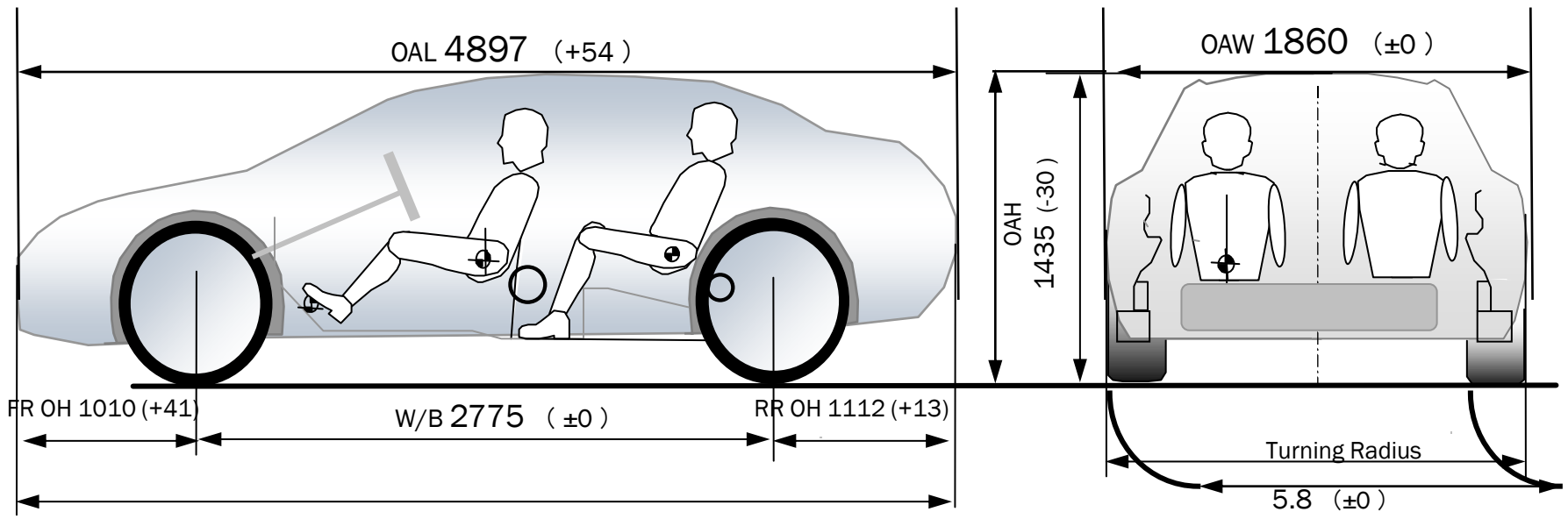
The 2016 NISSAN MAXIMA





Nissan Maxima Dimensions

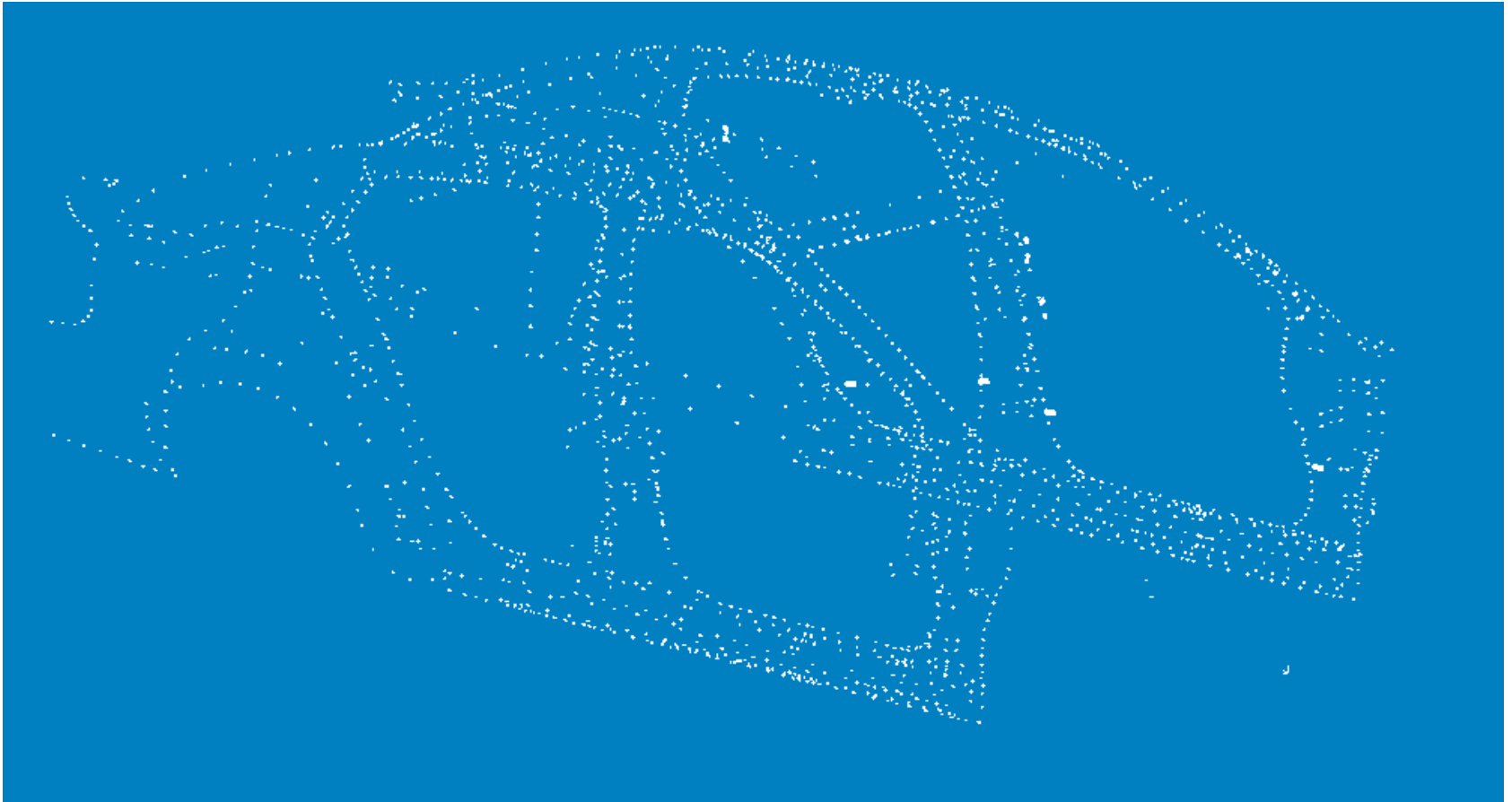
Overall Length is extended vs previous Maxima (+54mm) but Roof Height is lowered 30mm for more sporty image.





Spot Welding

4718 total spot welds are used to connect the Nissan Maxima Upper Body



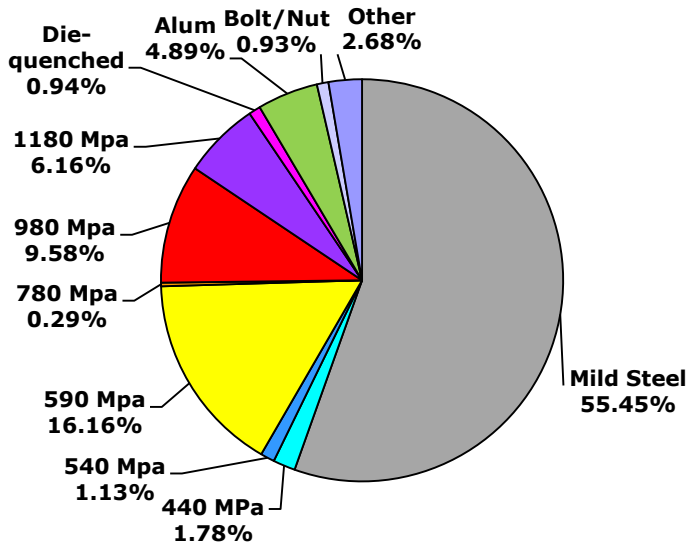
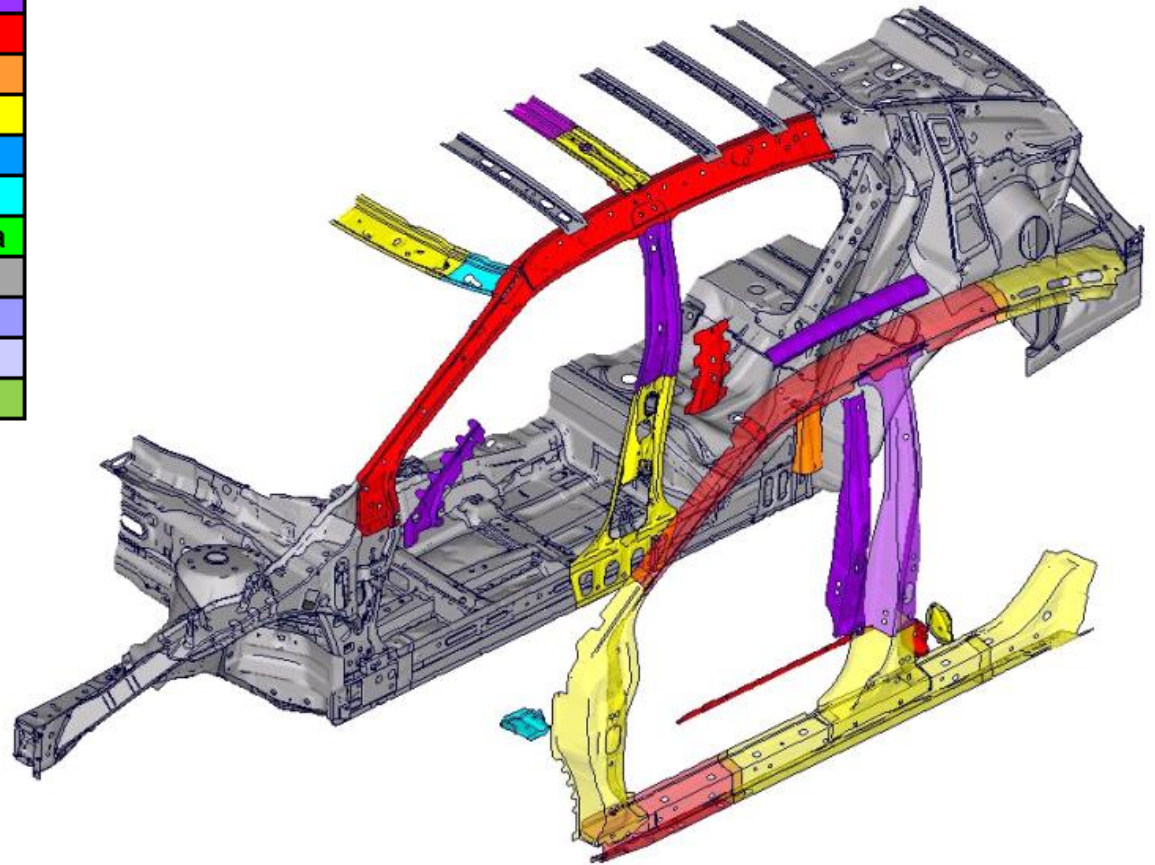


8th Generation Maxima

HIGH STRENGTH STEEL APPLICATION & BENEFITS

Steel Usage – Upper Body

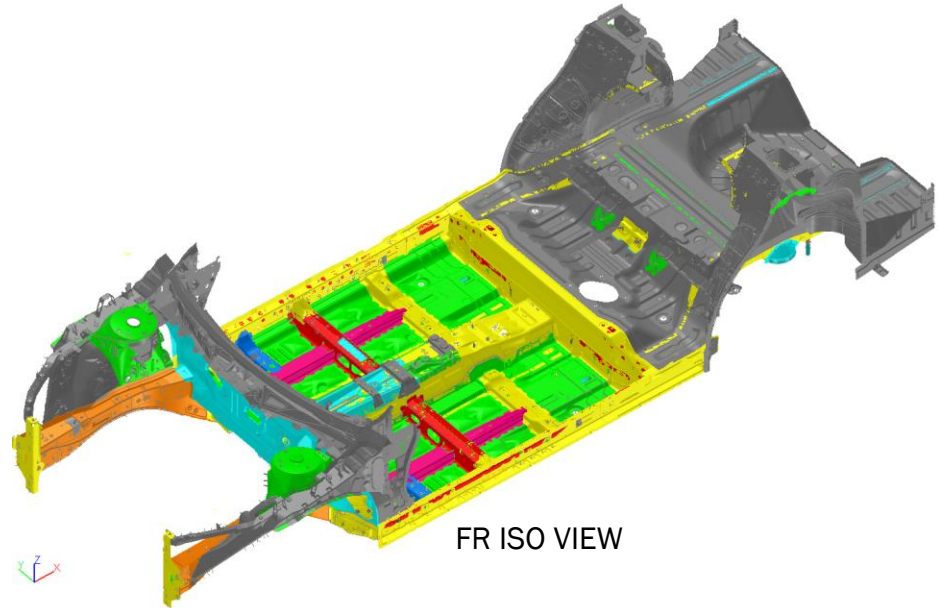
Die-quench
1180 MPa
980 MPa
780 MPa
590 MPa
540 MPa
440 MPa
370 / 390 MPa
Mild
Other
Bolt / Nut
AL



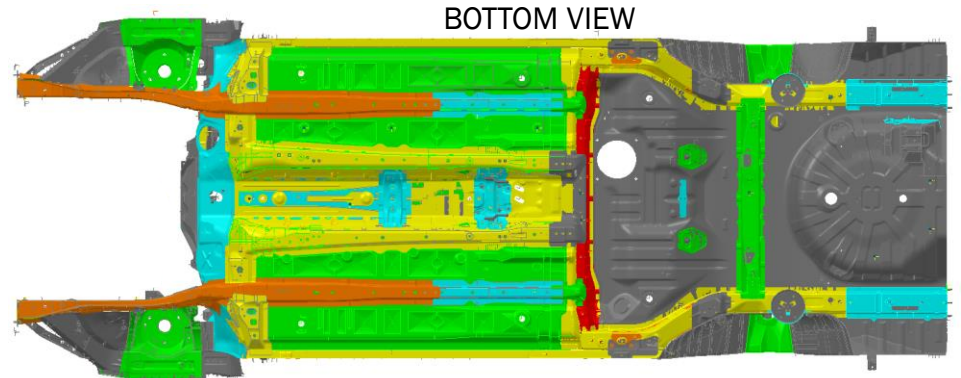
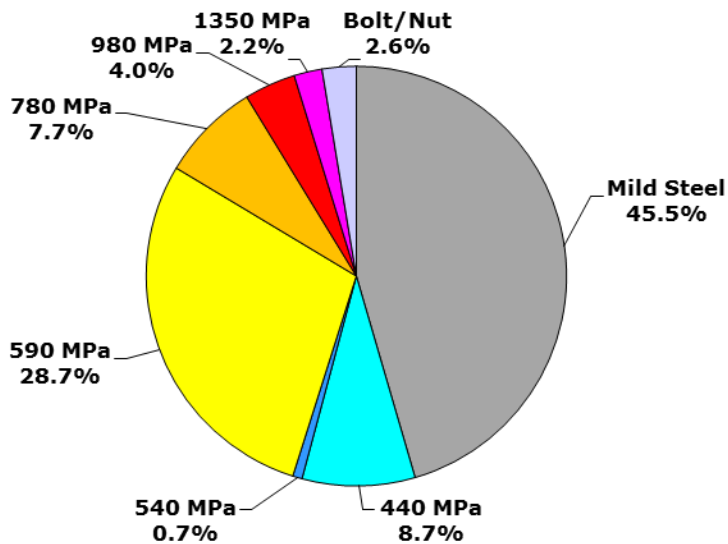


Steel Usage – Platform

Die-quench
1180 MPa
980 MPa
780 MPa
590 MPa
540 MPa
440 MPa
370 / 390 MPa
Mild
Other
Bolt / Nut
AL



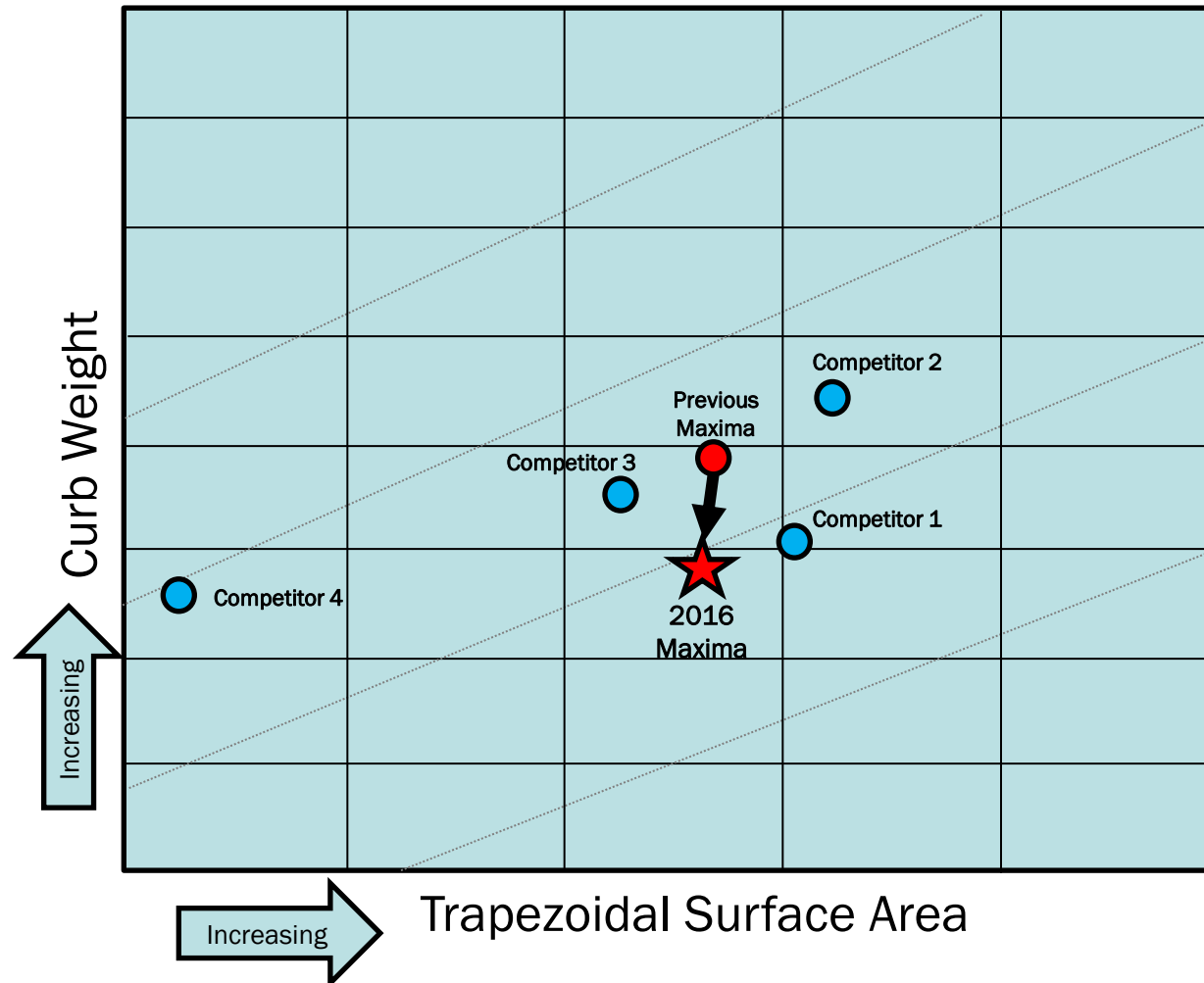
FR ISO VIEW



BOTTOM VIEW

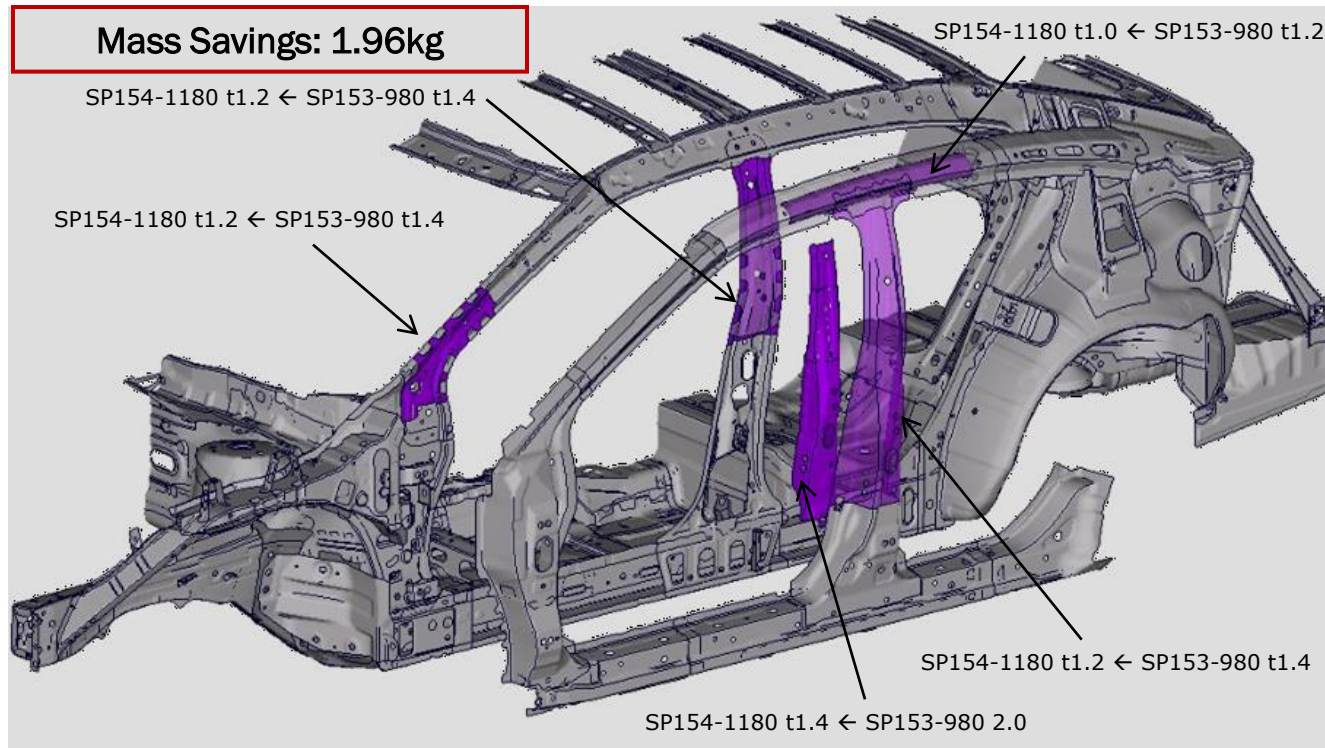
Vehicle Light Weighting

By using AHSS we are able to significantly reduce our BIW mass



1180 MPa Steel Usage

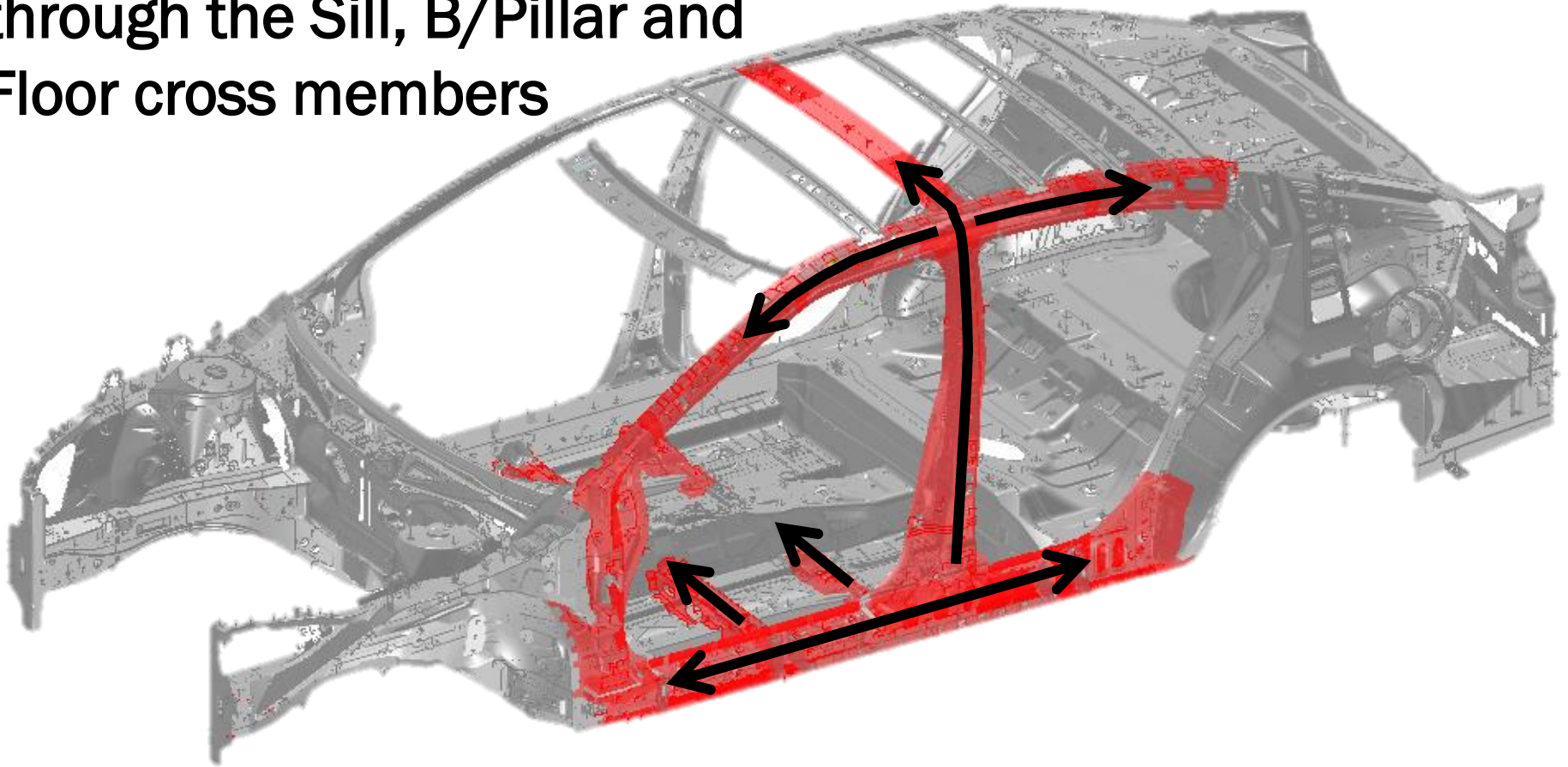
- Benefits of application of Ultra High Strength Steel (UHSS) 1180 MPa material
 - Mass Reduction
 - Safety Performance Enhancement



Safety Performance – Side Impact



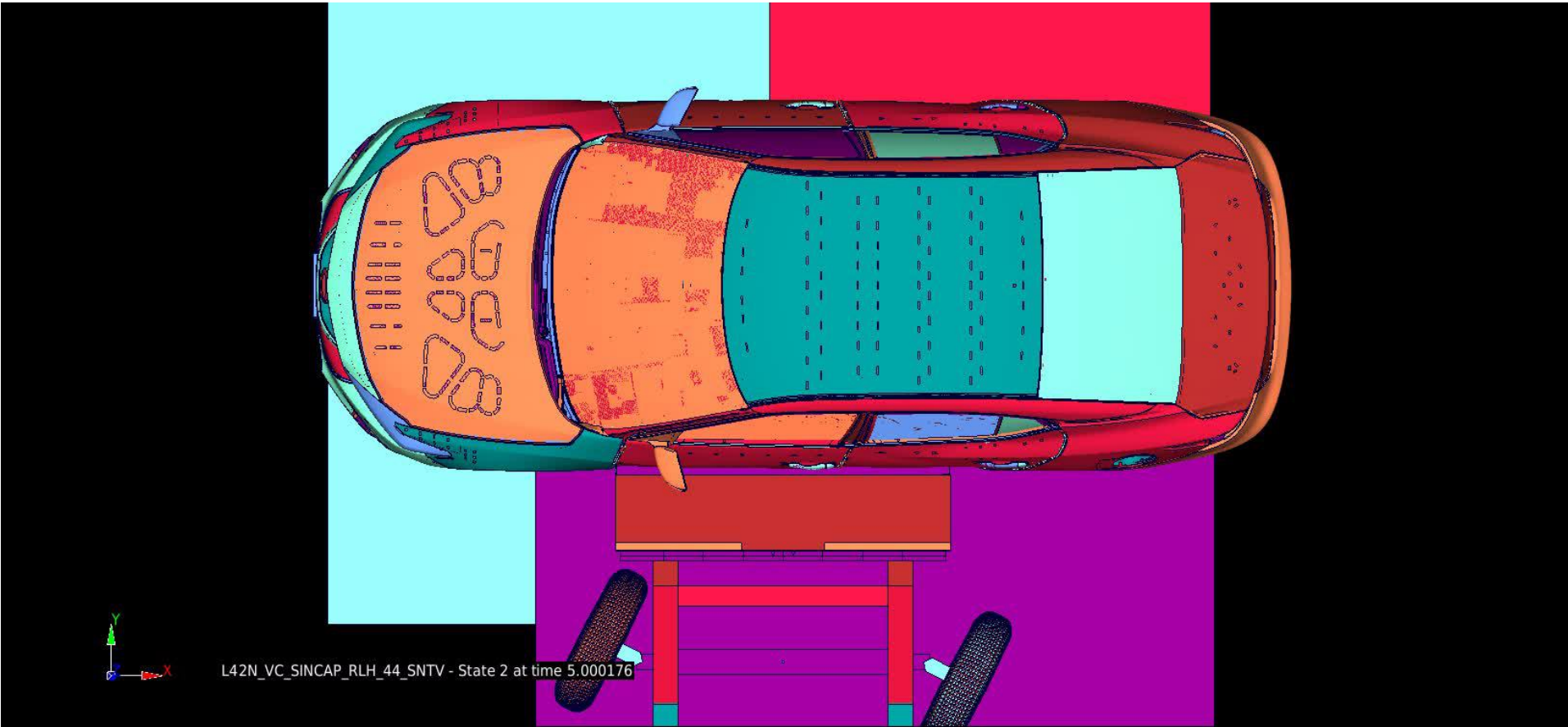
Multi-Load path distribution
through the Sill, B/Pillar and
Floor cross members



Safety Performance – Side Impact



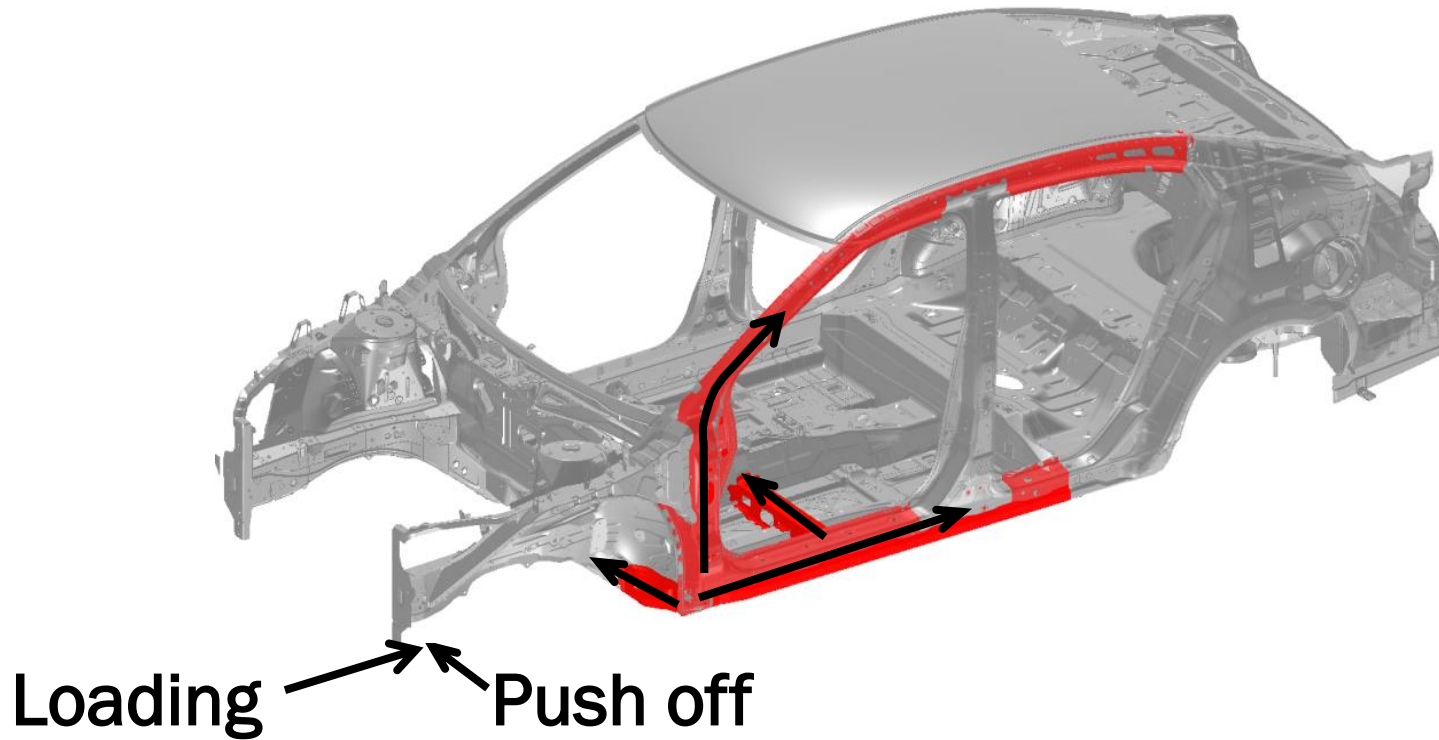
CAE iterations used to reduce physical development timing



Safety Performance - Small Overlap



Push off the barrier in the front structure
Manage energy in the Sill & A/Pillar



Safety Performance - Small Overlap



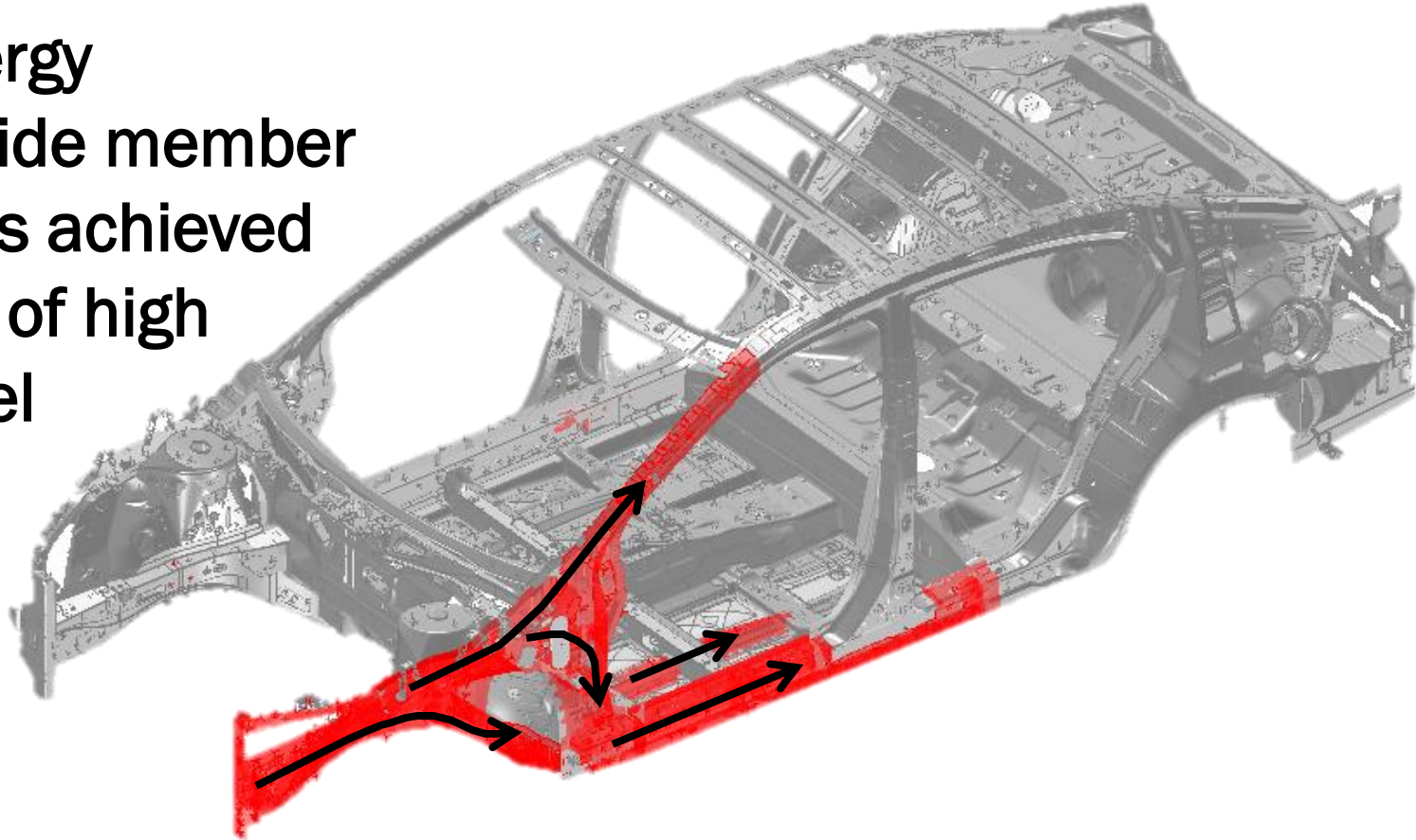
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Safety Performance

Offset Deformable Barrier

Efficient Energy absorption side member structure was achieved with the use of high strength steel

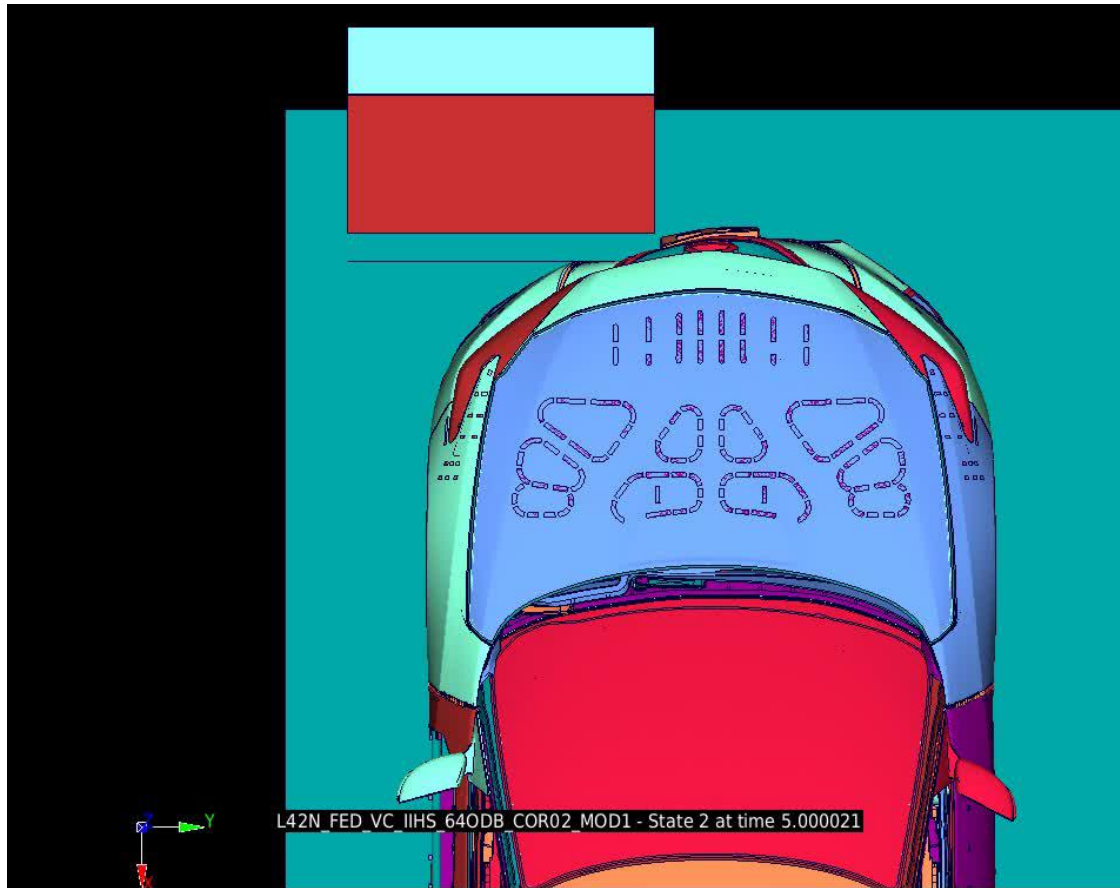




Safety Performance

Offset Deformable Barrier

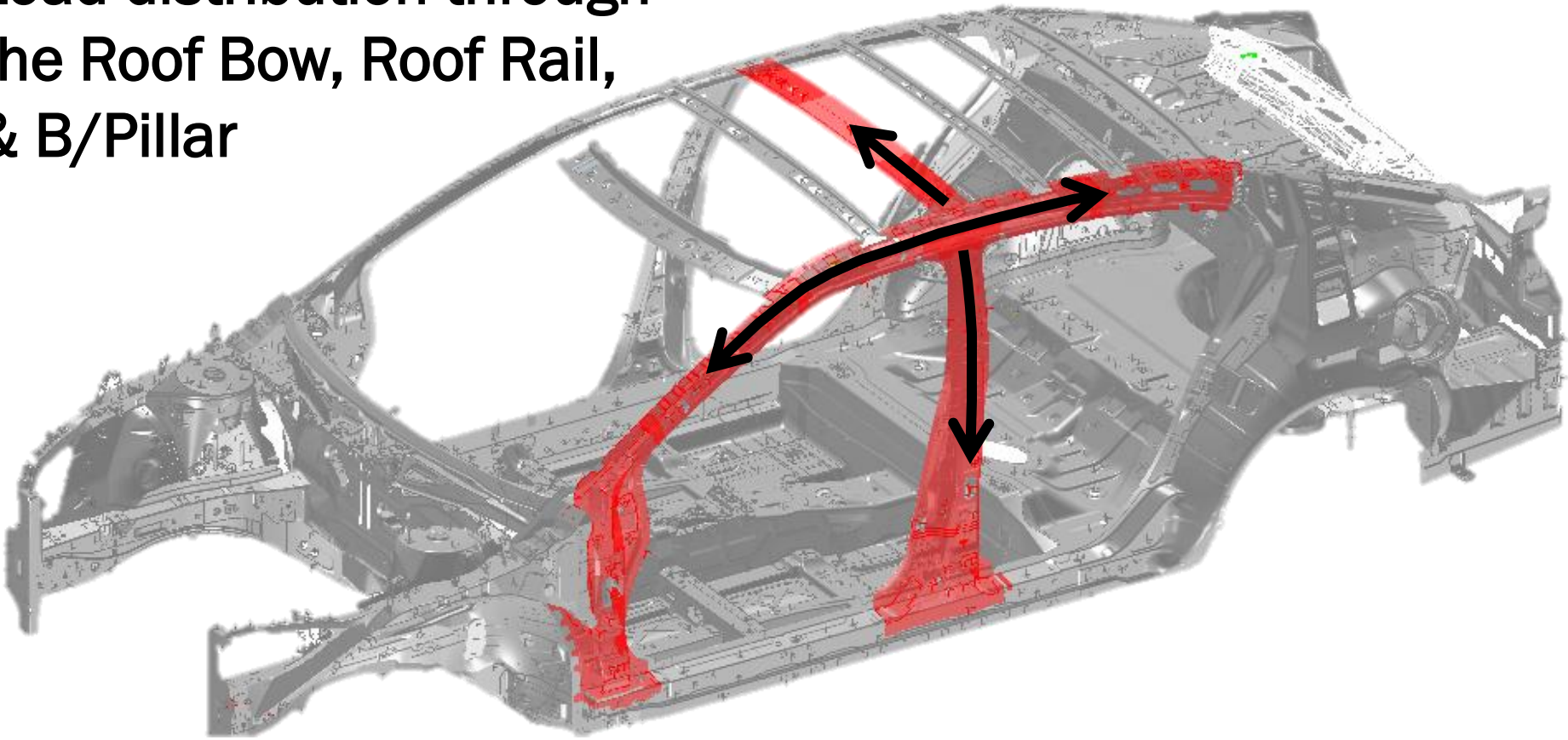
Load distribution through the Front Rail, Floor Rails, Hinge Pillar, & Sill



Safety Performance

Roof Crush Resistance

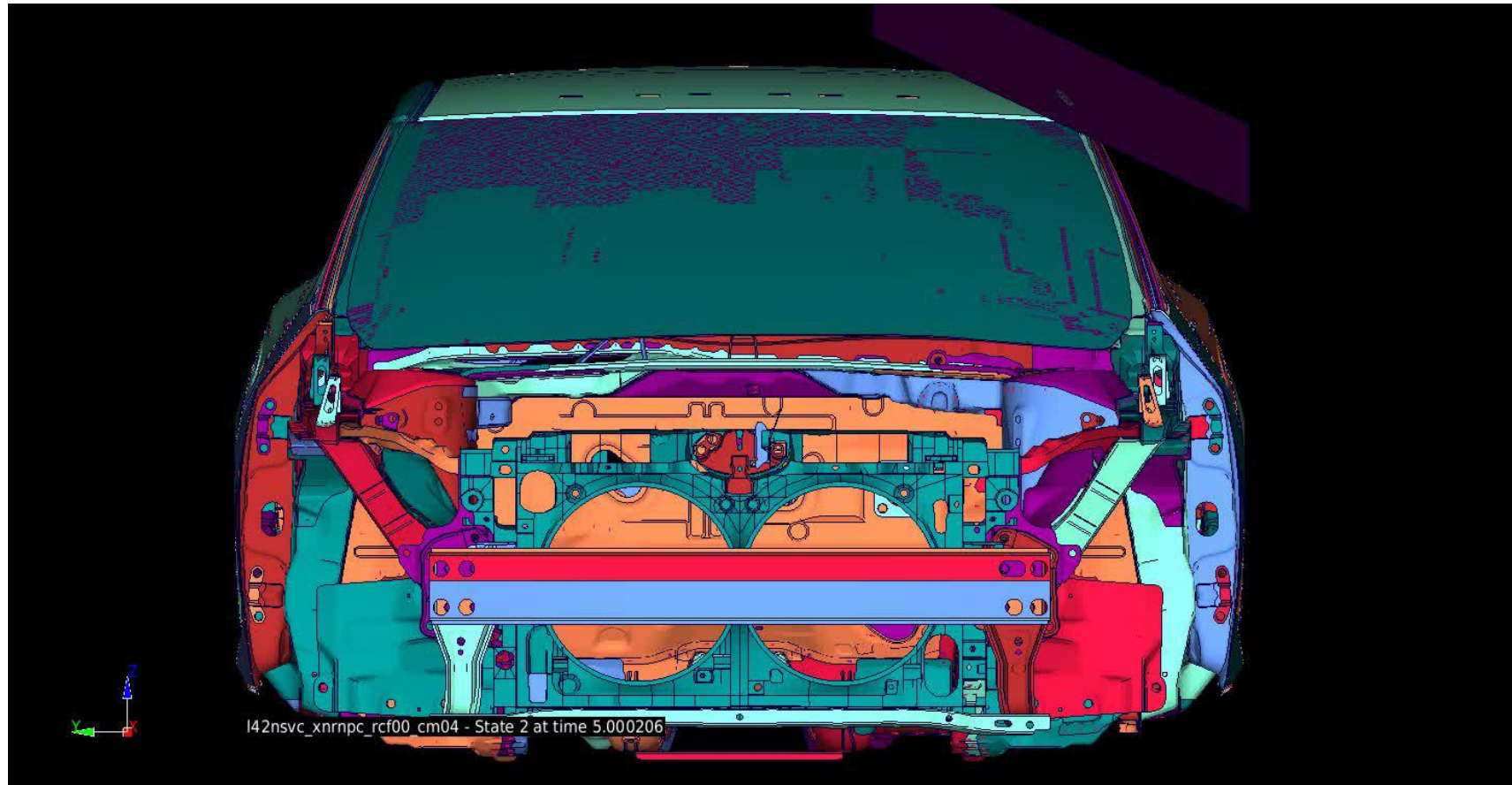
Load distribution through the Roof Bow, Roof Rail, & B/Pillar



Safety Performance



Roof Crush Resistance achievement with smaller section sizes to meet visibility and roominess targets.





Ride & Handling

- Overall Improvement in Body Stiffness vs. 7th GEN Maxima
 - A stiffer body structure has less flexing allowing for more precise control and improved ride comfort.
 - Contributes to achievement of Nissan's "Premium Flat Ride"

GLOBAL TORSION

6% ↑ vs. 7th GEN Sport Model*

25% ↑ vs. 7th GEN Base Model*

*Normal Roof Structure

REAR END LATERAL

1% ↑ vs. 7th GEN Base

ENCON STIFFNESS

Front Lateral

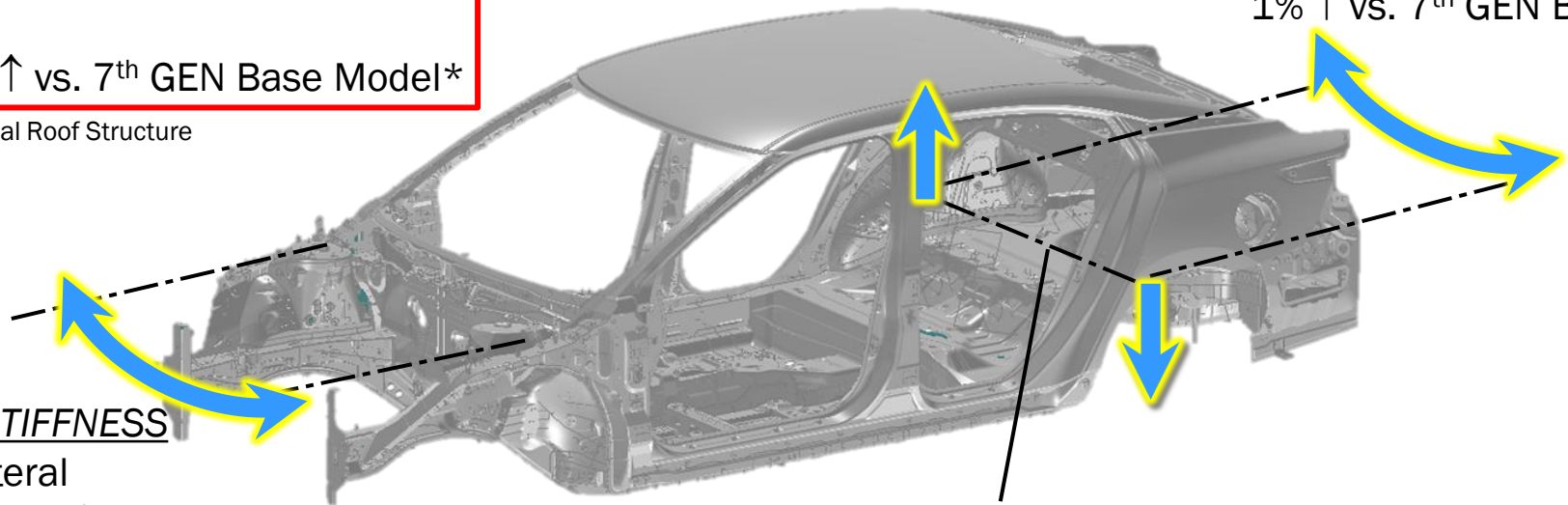
8% ↑ vs. 7th GEN Base

FR Strut Lateral

2% ↑ vs. 7th GEN Base

REAR TORSION STIFFNESS

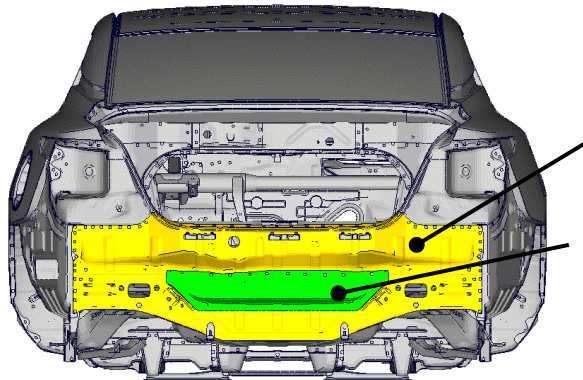
27% ↑ vs. 7th GEN Base



Ride & Handling

- Rear End Torsional Stiffness Improvements
 - Reduced RR Delay → Uniform Body Feel → More Predictable Vehicle
 - Response → Increased Driver Confidence

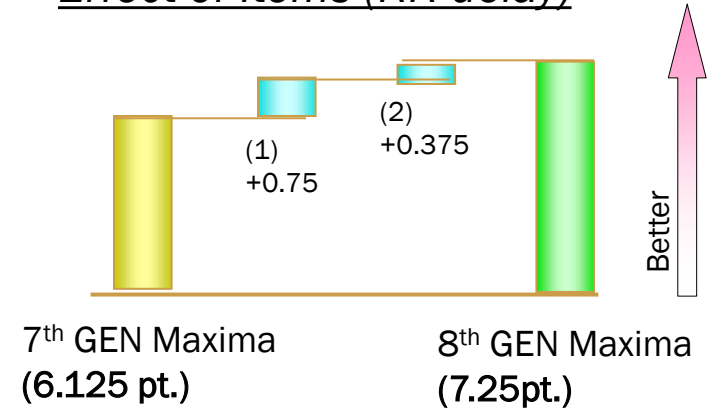
Changing point from 7th GEN Maxima



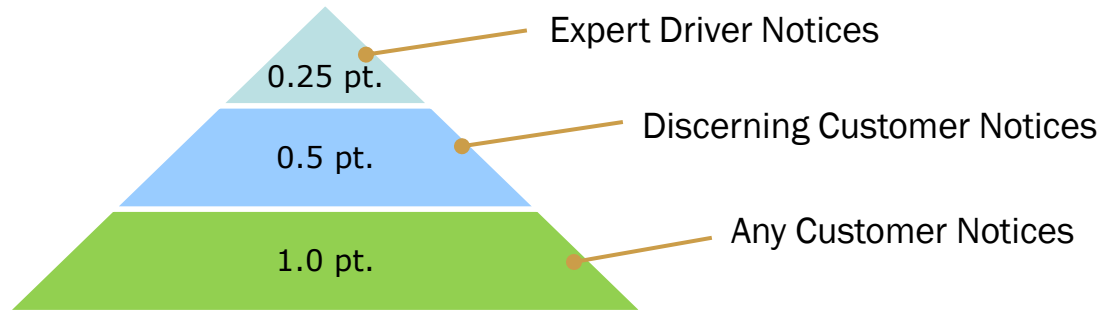
RR VIEW

- (1) Changing thickness of RR PANEL
(t0.9mm ← t0.6mm)
- (2) Adding REINF-RR PANEL LWR

Effect of Items (RR delay)



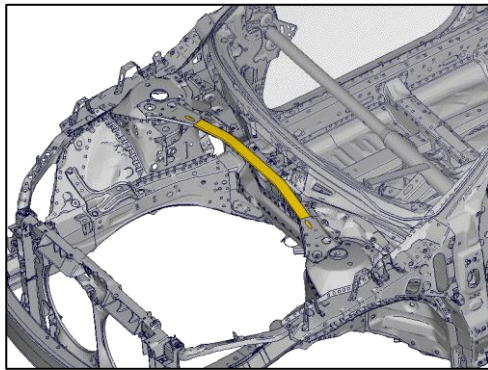
Driver Subjective Scale



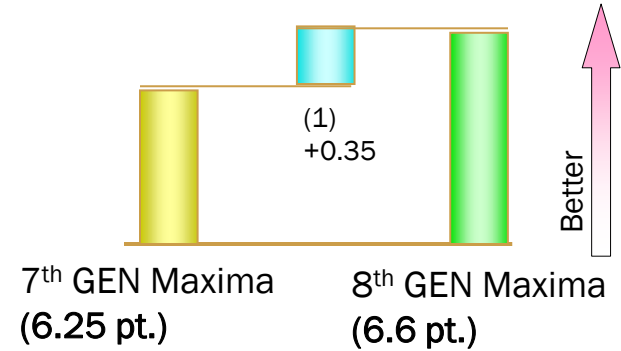
Ride & Handling

- Front End Lateral Stiffness Improvements

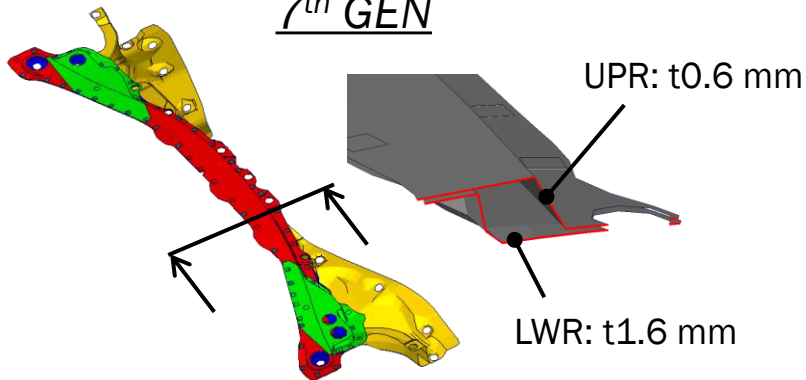
- Increased FR Strut Stiffness → Greater Cross-car Load Transfer → Less
- Body Flex → Improved Handling, Acceleration, and Breaking



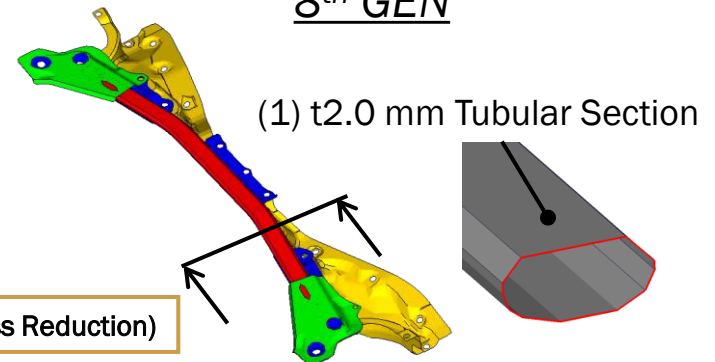
Effect of Items (FR Strut Lateral Stiffness)



7th GEN



8th GEN



THANKS FOR YOUR ATTENTION!



Great
Designs
in

STEEL

Seminar

Steel Matters  Demand Nothing Less
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