

High Performance Foams for Innovative Seat Designs



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High Performance Foams for Innovative Seat Designs

Ted Claghorn – Mass Transit Global Market Specialist

Ken Kozicki - Market Development Manager



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Railway Interiorsexpo

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24, 25, 26 November 2009
Koelnmesse, Cologne, Germany

16.30 Innovative seat designs to meet the changing needs of transit ridership
Rogers Corporation – Edward Claghorn, seating market development

The changing demands of transit ridership continue to increase the challenges placed on seat designers and travel authorities. Comfort, weight restrictions, flame-driven safety standards, cost and the ability to turn a profit are mandated throughout.

Visitor badge: Gerald Schmit, Interiors Engineer, ABS Rail GmbH

Ridership and Market Demands

From the Ridership

Comfort

Ingress / Egress

Individual Placements

From the Customer (Rail Car OEMs & Authorities)

Conformity to Flame, Smoke, and Toxicity Specifications

Durability / Long Life

Deliver Comfort in Smaller Spaces

Optimized Designs and Manufacturing

- Simple-shapes

The Designer's Challenge

DESIGN OBJECTIVE

To deliver a seat that integrates the needs of the ridership with the requirements of the customer

This translates to a seat which is:

- Light Weight
- Ergonomic
- Long-Term Comfort
- GREEN
- High Performance Characteristics
- Within Budget

Current Situation

WHERE ARE WE TODAY?

Europe and Asia

Thin profile seats using loaded urethanes with fire blockers that achieve weight reduction at the expense of comfort

North America

Thick profile loaded urethane and silicone foam cushions are the norm and perceived as more comfortable – but are not necessarily ergonomic or light weight

Pressure Mapping

WHAT IS PRESSURE MAPPING?

A test to determine how a foam seat cushion is able to distribute weight and promote blood flow

Circulation



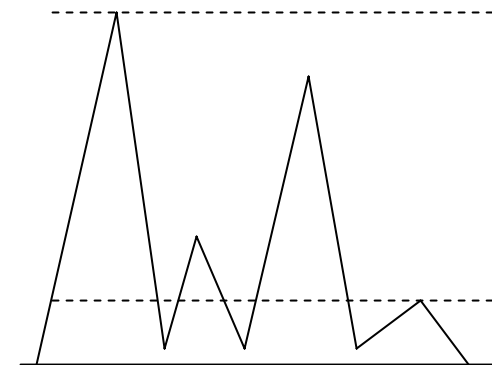
2-D View

Good



Bad

Weight Distribution



Bad

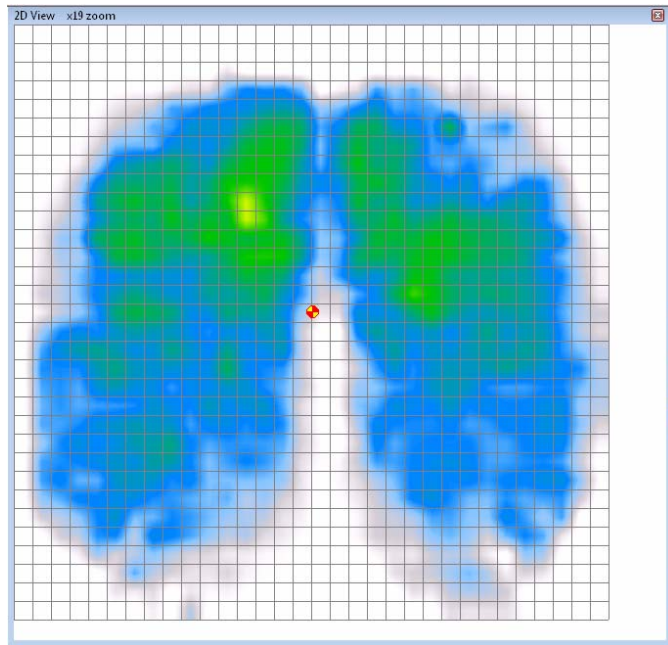


Good

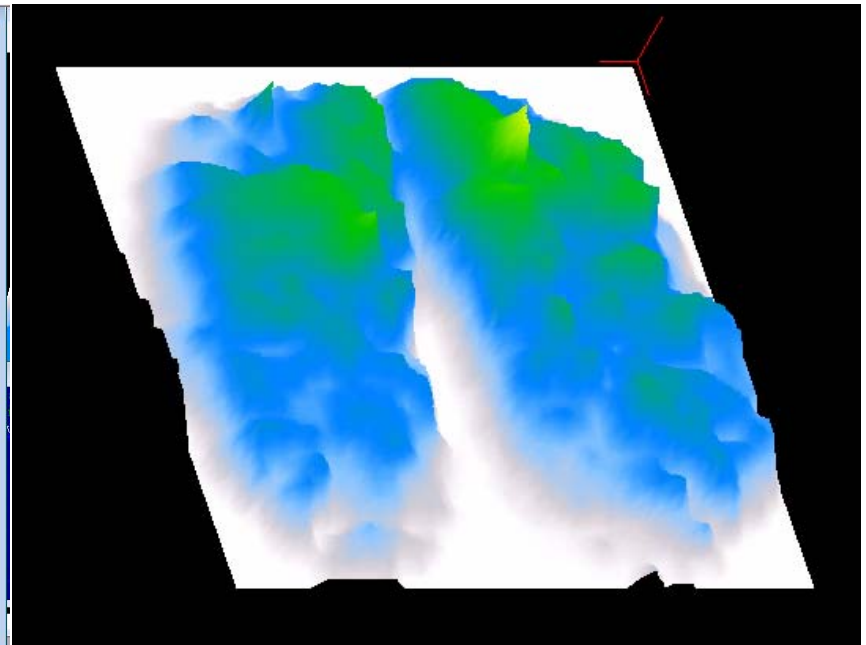
3-D View

Optional Design Solutions

THICK PROFILE SEAT w/ SILICONE FOAM AND SUSPENSION MEMBRANE



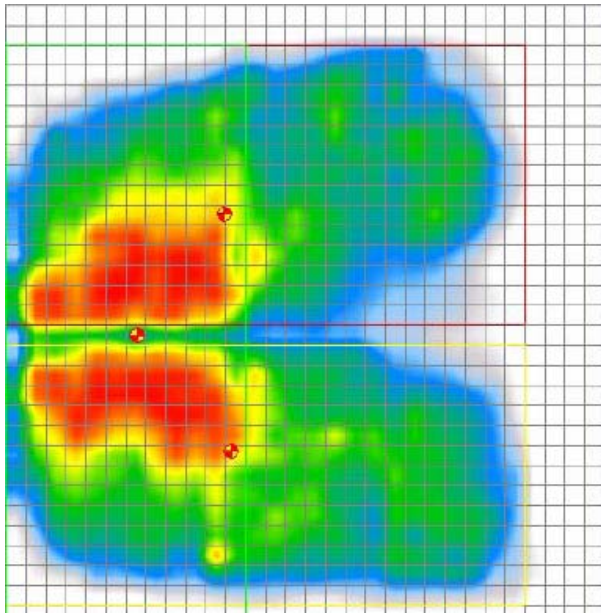
2-D View



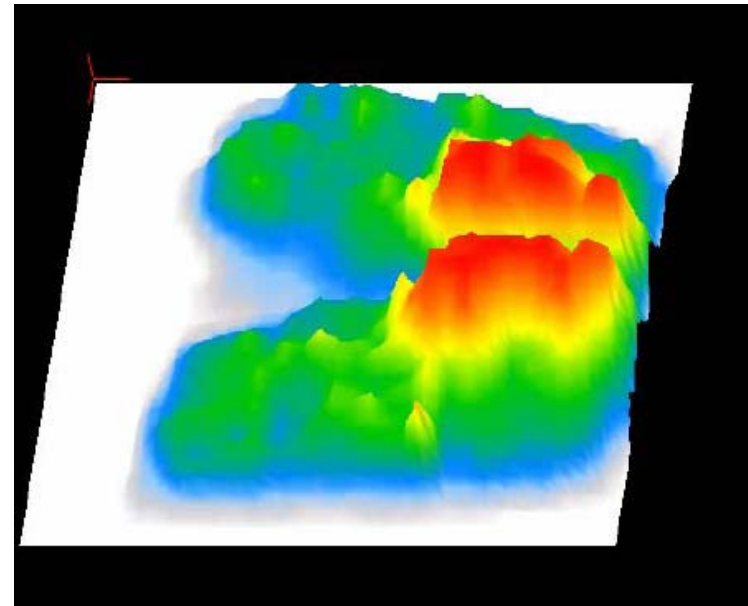
3-D View

Optional Design Solutions

THIN PROFILE SEAT w/ LOADED URETHANE



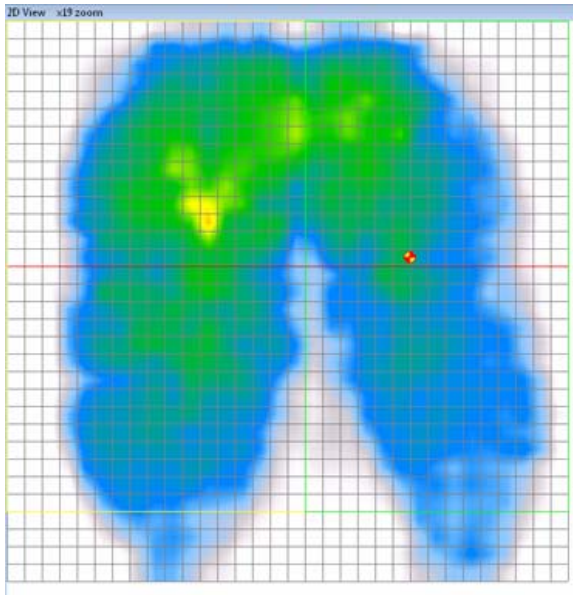
2-D View



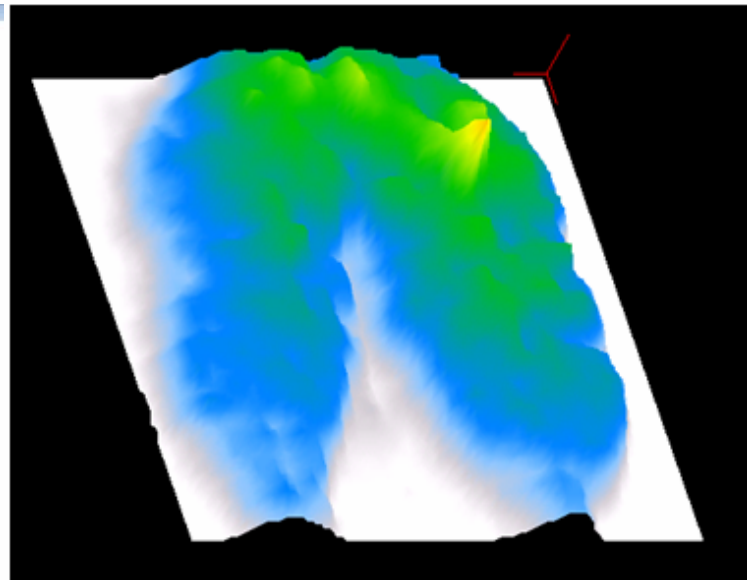
3-D View

Optional Design Solutions

THIN PROFILE SEAT w/ SILICONE FOAM



2-D View



3-D View

A SYSTEM DESIGN

The designer can achieve all of the requirements by incorporating silicone foam into a complete seating system design

LIGHT WEIGHT	<input checked="" type="checkbox"/>
ERGONOMIC	<input checked="" type="checkbox"/>
COMFORTABLE	<input checked="" type="checkbox"/>
GREEN	<input checked="" type="checkbox"/>
SAFE	<input checked="" type="checkbox"/>
HIGH PERFORMANCE	<input checked="" type="checkbox"/>
BUDGET	<input checked="" type="checkbox"/>

QUESTIONS?
THANK YOU