



Design for a New Rail Passenger Experience

Rolling stock interiors are experiencing a design renaissance that includes being sustainable, safe, and smart.

Designers are exploring fresh ideas and concepts, but one thing is constant – meeting passenger expectations. Travellers are returning to the rails and ready to enjoy the journey. Every trip is full of purpose, from new business ventures to ski vacations, to one day excursions. Rail interiors will need to encompass circular design and the feel of a comfortable and clean cabin to meet these new lifestyle trends. The challenge to designing these new train cars is understanding new materials and

KYDEX thermoplastics with Infused Imaging™ technology

how they work together early in the development process.

A recent survey conducted at the RedCabin Railway Interiors Summit in April found that nearly 65 percent of rail professionals believe a lack of cross-industry collaboration is preventing new interior innovation from transforming the onboard passenger experience. However, opportunities abound to transform rail travel in the future.

Early Collaboration with the Supply Chain

Bringing the supply chain together for early collaboration can expedite the material selection process. SEKISUI KYDEX developed its Innovation Centres, appLab™ and designLab®, as places for design and engineering teams to collaborate and explore the possibilities.

appLab™: Changing Materials through Collaboration

This new focus on rail interiors has designers considering new and innovative materials. Education about the available material options

and their benefits can help shift rail interiors from heavier, less sustainable metal and fibreglass-reinforced plastics (FRP) to thermoplastics—a lighter, safer, more sustainable option.

“The appLab™ can change the game by educating designers, transit system professionals, and rail engineers. Collaboration among these professionals in a space specifically made for exploration leads to faster development of state-of-the-art solutions. Engineers and specifiers can experience true design freedom in moving from fibreglass-reinforced plastic (FRP) to thermoplastics,” says Ruben Bake, Mass Transit Business Manager.

Outfitted with a full-size pressure former, a standard batch oven with custom conveying units, CNC mills, and a Faro laser line probe for part precision, the appLab™ can assist with switching from traditional materials to thermoplastics. The appLab™ engineers can recommend forming processes and provide modifications to part geometries to adjust undercuts, split lines, and hidden edges. It’s also a space to try out new concepts with the testing equipment to back them up. The appLab™ is not locked into one manufacturing or finishing process.



New KYDEX 2200LT for rail interiors

Rail customers can continue to collaborate with thermoforming partners and other suppliers in a more advanced capacity.

designLab®: Closing the Gap between Manufacturing and Design

In the designLab®, art and science combine in a collaboration space for industry thought leaders to develop a deeper understanding of colour and design. With access to the latest technology, this space brings the supply chain together to iterate in real time, comparing textiles, colour, texture, and thermoplastics simultaneously. In this hands-on workspace, you're given the tools to customise how you design, and the flexibility to create your own colours with live, in-process adjustments.

Featuring three dedicated colour technicians with expertise in custom colour creation, a design director focused on design trends, two Infused Imaging™ graphic artists, and X-Rite's Total Appearance Capture (TAC™) ecosystem, the designLab® serves customers and colour enthusiasts to assist with creating the perfect design. X-Rite's TAC™ provides

an unmatched level of realism in digital material capture and 3D virtualisation and closes the gap between real and virtual materials through full appearance measurement.

With Infused Imaging™ technology, designers have the power to create bespoke environments using colour, imagery and visual texture without sacrificing strength, durability and cleanability. Infused Imaging™ is a proprietary process that embeds imagery into KYDEX® thermoplastics, not on them.

Reliable Cabin Materials

A material's reliability in use ultimately impacts the ability to bring the design vision to life. SEKISUI KYDEX offers multiple grades of materials for use in mass transit interior applications. Most notably, KYDEX® 2200LT is a high-performance thermoplastic sheet designed for SMP800C or BSS7239 compliance, and KYDEX® 2210LT is specifically engineered to be compliant with EN45545-2.

KYDEX® materials are ideal for rail

car interior applications like walls, passenger seatbacks, armrests, tray tables, and window masks or shrouds. Long-term durability, and weight savings over FRP, aluminium or steel make KYDEX® thermoplastics a desirable and more sustainable choice for customers, and when the rail car reaches the end of its tracks, the KYDEX® parts can be recycled into something new.

The future of railway interiors is full of possibilities realised through reliable and easy to use materials. With early collaboration, custom patterns and colours, and new innovative materials, a new era of passenger experience in mass transit is beginning.

Click [here](#) to watch our appLab™ video.

kydex.com/markets/mass-transit

Ruben Bake

baker@kydex.com

+1.614.813.5449



Sustainable, recyclable KYDEX thermoplastics



KYDEX[®]
THERMOPLASTICS

Make the journey
as exciting
as the destination.

DURABLE

SUSTAINABLE

CUSTOMIZABLE

kydex.com

InfusedImaging[™]