

ABSTRACT

New travelling design concepts through innovative combination of natural materials: touch, sound and environment: A collaborative approach.

Design creates new travelling experiences in strong cooperation with railway material suppliers. A successful example of collaborative work: Creativity and engineering come together from the project start to generate real innovative solutions.

PRESENTATION

1 - What is R.I.S?

RIS – Railway Interior Solutions is a joint-venture consortium of components, materials and service suppliers for the automotive and railway industry.

The group was created to develop new, integrated, travelling design concepts through an innovative combination of natural materials for improved touch, sound and ambient experiences.

Natural materials, creativity, engineering and cutting edge technology come together, from the project start, to generate real innovative and sustainable solutions, which allow a really comfortable and “*in touch with nature*” travel experience.

2 – Who are the members of RIS?

The output of RIS research is possible through the joint capabilities of its partners:

ALMADESIGN is a product and transportation design company, with an 11 year experience in creating new concepts for the transportation industry, using design as the main project integrator.

CORTICEIRA AMORIM INDUSTRIA - The industrial applications branch of the world biggest cork supplier.

COURO AZUL – It is the most innovative and automotive oriented branch of a major Iberian leather company with over 50 years, supplying the finest parts for some of the most prestigious brands in Europe.

IPE - An industrial integrator, with a 35 years experience on building and assembling seats for the transportation industry.

3 – Project Scope

The main purposes of this joint-venture is using the knowledge of research and design services to help suppliers come closer to their client's (and the client of their client) needs. With this approach, the supplier comes to its potential client presenting integrated suppliers' solutions instead of raw materials, or single parts...

- We go from: “here I am, this is my product, and can you do something with it?”

- To: “I have figured out what your business is, and I know how to improve it: here is a possible solution. (Maister, 1997)

With the appropriate design research and integration, the added value is not just obtained by summing the parts (suppliers), but in this case, 1+1 = 3.

4 – Case Study – The Actual Standard

For this presentation we choose to show a special case of research within the RIS project.

We started by focusing on the usual way people use and travel in trains, and the negative parts of this experience.

- the rush hour;
- the claustrophobic feeling of being inside a machine;
- the delays;
- the waiting;
- the lack of space;
- the wrong seat orientation;
- the low budget materials.

5 – Case Study – Wishful Thinking

Then we gave more thought to which are the good features of the travelling experience.

- sightseeing;
- the landscape outside;
- the people around us;
- the possibility to work;
- the possibility to listen to music or play a game, to read a book and relax.

6 – Case Study – Where Nature Meets technology

So far there is nothing new. Nevertheless, continuously, we ask ourselves how to take the biggest advantage of the pleasant side of travelling? How to go back to quality travelling and fun experience?

When we think about this, the real change should not come from making everything with different shapes (more of the same), but rather from transforming the whole concept of the travelling experience (Bauman, 2000)¹.

People are willing to come back to nature values again, in order to feel safe and comfortable. The material world and the technology is everywhere, and people want to feel comfortable with it, not overwhelmed. Rather than feeling trapped inside a machine, people want to relax in cosy atmospheres and ambiances, closer to home relaxation or cruising on a boat, in vacation. (Thakara, 2005)².

So why not using our expertise in using nature materials and make the most of their technical and performance advantages?

7 - Case Study – Benchmark

These options have already been chosen for aircraft interiors, especially for long journeys. But everybody knows that there are smaller distances in which, train and planes are direct competitors. And even on small distances, there is a growing demand for travel quality from

¹ THACKARA, J.; (2005) *In the Bubble – Design in a Complex World*. Cambridge, Massachusetts: The MIT Press

² BAUMAN, Z. (2000) *Liquid Modernity*. Oxford: Polity Press

clients, ready to pay for more comfort and privacy. On these competitive distances, you spend more time in the train than on the plane (on an airport you wait a lot of time standing on cues, controls, etc...). Furthermore you can actually walk around inside trains, have something to eat in another cabin or just have a chat with friends, as well as relax in your seat, read a book or use your computer and all kinds of electronic devices. So on trains, the living experience, "Seating", "Relaxing", "Eating" is further enhanced. Still, it hasn't been taken so far as in the planes (and even the weight problem is rather less important).

8 – Project Approach

At the RIS group, we took inspiration from different environments where people feel good and comfortable and added our nature material properties to achieve special emotional and practical objectives:

Functionality, Comfort, Privacy, Simplicity, Technology with Emotion (touch, colour, texture)

The inspirational spaces chosen were a yacht interior (NAUTIC) and a home lounge chair (EMBRYO)

9 – NAUTIC

The nautical ambient communicates exclusive interiors, private luxury spaces filled with natural light. The materials are warm, cosy, with different textures and materials. Space, light and technology are the keywords to this concept, which we like to call: HIGH-TECH CONFORT

This concept is based on a luxury seating module with several features: adjustable sliding seat, ergonomic headrest, PC storage unit, adjustable footrest, foldable table and small items storage unit, integrated 19" monitor and multimedia entertainment system. Different nature materials are used: exterior shell in cork and polymeric composite, dual-material leather with perforated pattern, innovative cut technology for letterings and logos on leather and cork, rubercork armrest with embedded controls.

These seats can be grouped in a 2+1 layout, with seats facing front and back with a private feel, as well as a middle lounging space for 6 seats in a typical railway configuration. The windows are very large, allowing for the natural light to flood the space, as well as enhancing the travelling experience by improving the exterior visibility.

The windows have double glazed automatic dimming windows for complete ambient light control. The overall illumination is achieved using RGB LED lighting technology, concealed in the top side console. The directed lights, the air vents and the sound system are integrated in the same top console. The side panels are covered with cork panels. The floor is finished in a beautiful shock absorbing cork.

10 – EMBRYO

This concept is based on the classical comfort lounge chairs for the home. The organic shapes protect the user, creating an embryo like feeling. The module has different integrated features, making use of the latest technology with a hightech-hightouch feel. The SKIN to SKIN concept, results as a complete environment control / multimedia system integrated in the armrests and head protection shell of the module. All the controls are placed underneath the skin, allowing for a high touch SKIN to SKIN interface, in a symbiosis between emotion and technology.

The seats have a swivel system that allows for the complete transformation of the space making for a flexible use for the railway roundtrips. It is also possible to turn it automatically towards the trains travelling directions at the stations. Although this procedure was used in the past and is usual on some Japanese trains (Railway Interiors)³, according to Gisela Meireles⁴, even on European Surveys, 2/3rds of high speed train passenger's point this as the most important option and only 2% would prefer to travel backwards. The large side and ceiling windows create a unique atmosphere for the total travel experience. At night overall illumination is achieved using RGB LED lighting technology, concealed in the top windows, electronically dimmed, that allow a brighter interior or a full night sky view.

11 - Technical information

All of these concepts – though not designed for a concrete solution for today, are feasible for a near future and we can mention the adaptability of their material performances:

Leather applications are flat single coloured or perforated double coloured leather with exclusive pattern.

Seat trimming uses latest technology in dual-material leather with perforated pattern and innovative cut technology for letterings / logos on leather and cork.

All leather applications are “chrome free” and anti-allergic (OKO TEX certification), in compliance with Couro Azul “Oak Leather” trade mark. Oak Leather properties are available on several material ranges like Ecolys (automotive), Airlys (Airplanes) and Trainlys (Railway).

Trainlys complies with DT-PCI 5A and NF F16 101.

Both concepts use **Leathercork** - gathering leather mechanical resistance with cork cushioning and thermal comfort, **Cork Core Sandwich** panelling - replacing foams with a more environmental friendly cork, FRP with Cork Core Shells and **Cork Plastic Composites**, which combine properties of cork with standard moulded composites (PP, PE, PVC, TPE, TPU)

In both concepts, central gangway is covered with a “**teak like**” washable cork, used for over 20 years in boats. Besides extra grip, natural look and comfort feeling, it reduces noise when people walk along wagons, contributing to an extra quiet environment.

Side floor trimming is made in railway certified textile/vinyl on a **Cork Underlay**, from the “Acousticork range”, which is lighter, is a thermal isolator and also reduces noise with a softer, shock absorbing feeling. It is certified by IMO (International Maritime Organization)

More than sound and heat isolation, all cork applications provide an additional safety feature with shock absorbing properties above the majority of standard materials besides reducing weight.

And to finish up, **CoreCork - Sandwich of Plywood with Cork Core** is certified by “Deutsche Bahn AG”. Complying with several fire and railway certifications.

³ Railway Interiors 2006.

⁴ MEIRELES, G. (2007) *Banco de comboio para a Alta Velocidade - O design antes da forma*. FEUP/ESAD.

12 – In Conclusion

RIS is developing these and other solutions into production concepts, which will be shown and presented in future events.

If you wish to contact us, please use the information below. You can also find us on stand 5064 at Railway Interiors Expo 2007.

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18th October 2007

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