

DESIGN & MATERIALS

▲ THUMBS UP FOR CLASS 800 MOCK-UP

FOR THE U.K.'S INTERCITY EXPRESS PROGRAMME (IEP), DCA DESIGN INTERNATIONAL HAS CREATED THE INTERIOR LOOK AND FEEL OF ITS CLASS 800 SERIES TRAIN, TO BE BUILT BY HITACHI RAIL EUROPE [SEE VEHICLES, P.62].



DCA's involvement in the IEP began in September 2012, when the agency began working on the design of the driver cab and passenger interiors. In September 2013, it presented a full-sized, 30-metre long mock-up, designed and constructed to incorporate examples of all the different train interior environments. This platform has since gained approval from Government (who initiated the IEP), subject to a small number of detailed design updates that are currently being implemented. "I

was very impressed with the mock-up [...], and interested to hear about the lengths that the designers have gone to in ensuring that the views of passengers and other stakeholders have been included," commented then rail minister Stephen Hammond, during a visit to DCA's workshop facilities near Birmingham, in March 2014.

The agency has now entered the production support phase, working directly with Hitachi's engineering team in Kasado, Japan.

EURAILMAG SPOKE WITH ROB BASSIL, TECHNICAL DIRECTOR AND PAUL RUTTER, TRANSPORT SECTOR MANAGER, AT DCA DESIGN INTERNATIONAL, ABOUT THE AGENCY'S ROLE IN SHAPING THIS MILESTONE TRAIN...



▾ Rob Bassil



▾ Paul Rutter

WHILE HIGH CAPACITY IS THE MISSION STATEMENT OF THE CLASS 800 SERIES TRAINS, AT THE SAME TIME THERE IS A DESIRE TO OFFER BETTER COMFORT FOR PASSENGERS. IS IT POSSIBLE TO RECONCILE THESE TWO IMPERATIVES THROUGH THE MEDIUM OF DESIGN?

Mr Rutter: The challenge was to provide more personal space whilst achieving the required extra seating capacity, and maintaining a high level of physical comfort. And this we believe we have achieved.

Mr Bassil: The vehicle layout was already fixed before DCA became involved in the project. The challenge for us has been to create a design within these fixed layout constraints that feels light, airy, and comfortable for passengers, whether they are travelling in Standard or 1st Class.

COULD YOU EXPLAIN THE PURPOSE AND IMPORTANCE OF THE MOCK-UP?

Mr Bassil: An ergonomic mock-up was produced early



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on [September 2013], and rigorously assessed against the latest PRM TSI requirements. It was also used for practical trials involving drivers' associations, operational teams from train operating companies (TOCs), and passenger groups, including specialist groups representing disabled passengers and cycle users, for instance. Now that the fully representative mock-up has been completed, we have been able to take this work to the next level of refinement. For example, our ergonomics specialists have undertaken a glare assessment and a detailed task analysis with driver representatives. We are repeating the PRM TSI assessments using the mock up, and the documented results of this form a key part of Hitachi's submission to the NoBo. We have also been able to carry out a detailed ergonomic assessment of the cycle storage arrangements, and are about to embark on a similarly detailed review of the trolley-based catering.

Wherever opportunities for improvements or refinements are identified, these are incorporated as modifications to the mock-up so that they can be assessed and approved by all affected stakeholders.

The mock-up also plays a vital role in the production support phase, ongoing today. Through it we have been able to illustrate specific production solutions, and confirm that the resulting design outcome is acceptable to all the project stakeholders, before moving forward with implementation.



In short, though the mock-up is complete, there remains plenty to do, and it continues to play an active role in the design decision-making processes.

DID YOU RECEIVE ANY FEEDBACK ABOUT PARTICULAR FEATURES OF THE MOCK-UP?

Mr Bassil: The overall design is perceived as being better than expected by visitors. Because the IEP incorporates bi-mode diesel and electric powered systems, space is required below the floor for the diesel power units, and overhead for the pantograph. Despite this, people have been surprised by how light and spacious the interior feels. We have been complimented on the efficient use of space in the mock-up interior. The indirect, LED ceiling lighting system is also very well liked, and has garnered a lot of positive feedback.

The seats are unique to the Class 800 project, and have been received favourably. People like their visual appearance which is generally considered to be European in flavour, and they have researched well during comfort trials, where the seat cushion profiles are considered supportive and comfortable over the long periods associated with intercity travel.

WHICH DESIGN FEATURES ARE YOU MOST PROUD OF?

Mr Rutter: We had the opportunity to shape and integrate all the interior features including seats, toilets, and applied graphics, into a single and cohesive design statement.

Mr Bassil: The use of indirect LED lighting in the ceiling has been developed with the lighting supplier to provide a solution



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▼ The influential Class 395

that is unique to these trains. It is very successful in creating a bright, welcoming ambience in all the passenger areas.

The 1st and Standard Class seats are also both unique, and we believe DCA's work in shaping of the seat structure forms, the ergonomic design of the cushions, and the specification of the cover fabrics all combine to make a key contribution to the passenger interior design statement.

Both the space saver and the Universal Access toilets are highlights of which we are especially proud, particularly since we were heavily involved in their engineering and design.

On a smaller scale, I personally also love the detailing on the passenger tables.

Above and beyond these specific areas of the design, I am most proud of the way we have been able to carry so many diverse stakeholders with us through the project, arriving at a design solution that everyone seems happy with, without having to resort to lowest common denominator compromises.

FOR THIS PROJECT, DID YOU TAKE INSPIRATION FROM ANY PREVIOUS WORK BY DCA?

Mr Rutter: Our inspiration came from working closely with Hitachi designers, engineers, and their suppliers to generate a common design theme based on an agreed, visual brand lan-

guage, developed with all the stakeholders involved.

Mr Bassil: Our starting point was Hitachi's earlier Class 395 train. This clearly demonstrates the manufacturing quality Hitachi's engineers pride themselves on. We knew from the outset that by working closely with the Hitachi team our design ideas would be realised at the highest quality level. Bringing a wealth of experience from previous projects ensured that our design proposals were always practical, and took account of U.K. standards and regulations. It also meant that we were able to support Hitachi positively in their management of this complex project, one that involves so many different stakeholder groups.

Rather than draw inspiration from any specific previous train designs, we undertook a Visual Brand Language exercise at the outset, and used it to identify particular visual cues and themes that we needed to include within the interior design. This served

Passenger accommodation on the train includes:

- 97 more seats per full Class 800/801 train, with no compromise on leg room
- Provision of Wi-Fi
- LCD seat reservation displays, with traffic light vacancy notification at every seat
- Temperature controlled to +/- one degree
- Fully pressure-sealed vehicle for passenger comfort when entering tunnels
- 10 bike spaces close to seated areas throughout the train
- 50mm of additional leg room in Standard Class, airline-style seats
- Increased height in overhead racks to accommodate airline-style hand luggage
- Persons with reduced mobility (PRM) issues improved

to capture and present key messages that summarised the agreed brand values of the new IEP service ■

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