

## Auckland Transport

**Forbo Flooring Systems is supplying floor coverings for a fleet of 57 new electric trains being built by Spanish train builder, Construcciones y Auxiliar de Ferrocarriles (CAF) for Auckland Transport, a newly created local government organisation spearheading the development of a new integrated transport system throughout New Zealand's largest city.**



### **The fleet**

The new trains, each comprising of two motor cars and a centre trailer car, boast a range of innovative technologies and are being built to a hybrid commuter/metro configuration to cater for present and future network operating requirements. Inside and out, the Electrical Multiple Unit (EMU) fleet has been designed to reflect Auckland's identity and heritage, whilst a host of visual and practical features have been incorporated to deliver a passenger transport service that is universally accessible to all members of the community.

### **Close collaboration**

The design scheme for the carriages has evolved through close collaboration between Auckland Transport, the Engineering Department of CAF and Barnacle Design, an Auckland based consultancy with extensive experience of designing interiors for the passenger transport industry. Auckland Transport was very keen to ensure that its developing rail network reflected Auckland's social and cultural identity and its ambitions as a "21<sup>st</sup> century city of the Pacific". The client engaged Barnacle Design at an early stage to work with the Spanish train manufacturer to develop a modern and inviting look and feel for the carriages based upon the tendered 'structural architecture'.

Forbo Flooring Systems became involved when Barnacle Design proposed the specification of flame retardant floor coverings from the Tessera tufted carpet and the Coral entrance matting collections. Forbo

Flooring Systems International Key Accounts Management team already had a strong relationship with the design team and rapidly established effective links with different departments at CAF – Purchasing, Quality Control, Engineering, Design and Installation - to ensure smooth running of the project.

### **The look and feel of the new fleet**

The emerging Auckland Transport (AT) brand was a significant factor in Barnacle Design's brief. In the absence of a definitive logo at that time, the designers were asked to create a colour scheme incorporating blue and white, a combination of colours that is strongly associated with the city and which clearly reflects its maritime connections. A third accent colour was needed and a bold yellow was chosen to provide the contrast required to meet visibility guidelines.

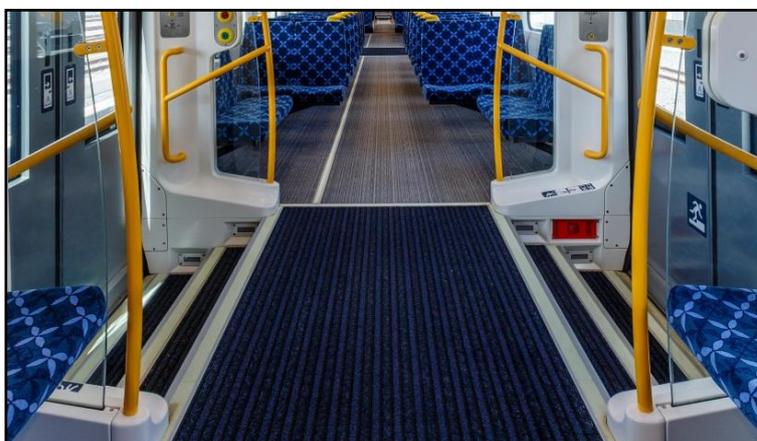
### **The case for soft flooring**

Barnacle Design proposed that Forbo's floor coverings should be used throughout the three carriages of each train with the exception of the low floor section of the centre car, which has been specially designed to enable level boarding access from the platform for wheelchairs, bicycles, prams and push chairs. *"Going for soft flooring for a commuter vehicle was a bold call"*, commented Keith Strode-Penny, Creative Director of the design consultancy, *"but we were able to put forward a strong case to Auckland Transport and CAF. Soft floor coverings are perceived to provide a higher standard of comfort in a rail environment and can be very forgiving of the flooring substrate underneath, hiding uneven surfaces that vinyl simply cannot disguise. We had used a number of Forbo's textile based flooring products very successfully in rail environments on previous occasions and were able to vouch for their long lasting performance and reliability"*.

At the same time that decisions were being made over the flooring specification, a fleet of CAF-built trains which had been in operation in Northern Ireland for nine years were being refurbished. *"The saloons in these Class 3000 trains had all been fitted with Forbo Coral entrance matting and Flotex flooring"*, said Keith Strode-Penny, *"and it helped our case that both floor coverings had demonstrated outstanding durability and maintainability over that nine year period."*

### **Tessera Alignment FR**

For the main saloon 'high floor' spaces in Auckland Transport's new trains, Forbo's Tessera Alignment FR, a textured multi-height loop pile carpet with a BS 6853 Cat.1a fire rating was specified. The design has a contemporary directional theme tempered by the introduction of intersecting random blocks of rich cut pile. *"Alignment FR already has a track record in New Zealand rail applications and we know it offers a great combination of style, comfort and durability,"* said Keith Strode-Penny. *"For these carriages we were looking for a colourway that would complement the bold blue seat fabric patterns and the contrasting yellow hand-rails and grips so we chose Astral which has soft neutral grey tones."*

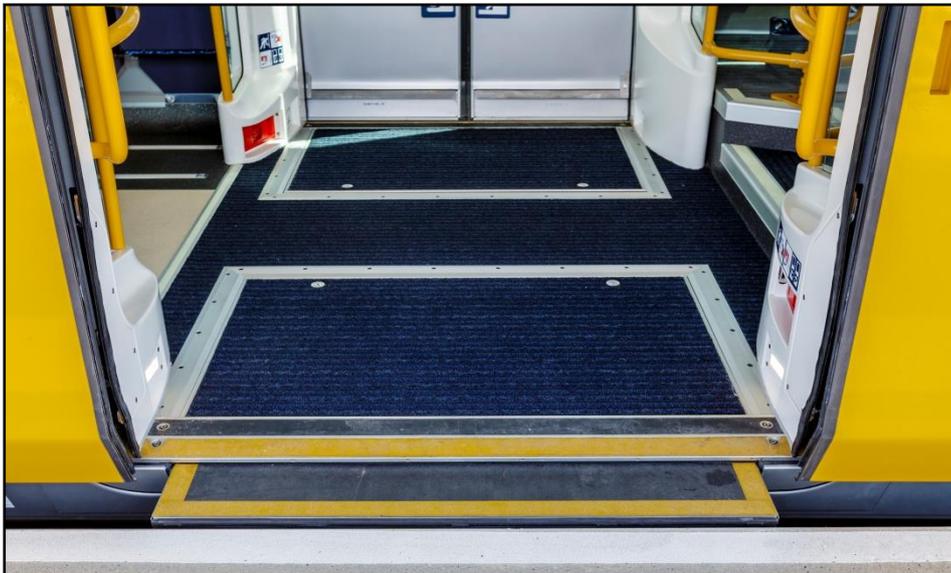


### **Coral Duo FR**

The decision to use entrance matting to help absorb water and scrape off dirt from commuters' footwear was influenced by the experience of other train operators across the other side of the world, as Keith Strode-Penny explained: *"We reviewed the use of Coral entrance matting in the Translink Northern Ireland trains and many other projects throughout the UK, which has a similar 'maritime' style climate to Auckland's. We came to the conclusion that in a commuter rail application, if you are going to have soft flooring, commuter-style sliding doors and operate your trains in an area with a relatively high annual rainfall, Coral in some form, is essential."*

Coral Duo FR entrance matting from Forbo Flooring Systems, constructed to offer maximum dirt removal and retention and exceptional moisture absorption within a small area, was specified for use in the doorways and also on the steps between low and high floor zones. *"We actually ran our own tests with samples of Forbo's entrance matting",* said Keith Strode Penny, *"We established that, generally, four footsteps across the matting removes most of the moisture and dirt from a passenger's footwear"*.

Following international best practice guidelines, Coral Duo FR was selected in the Marine colourway, to fit the blue/white colour scheme and to create a clear visual contrast in the doorway zones to meet the needs of vision impaired passengers.



### **Flame retardancy**

Auckland Transport's future expansion plans made the flame retardant properties of Forbo's Tessera Alignment FR and Coral Duo FR ranges a critical factor in the specification process as Keith Strode-Penny pointed out: *"The next step in the development of Auckland's rail network is the construction of the City Rail Link, a tunnel beneath the city centre featuring three underground stations that will dramatically speed up the network, increase frequency and enhance capacity. These future underground operations were always in our thoughts when specifying finishes and materials and without that all-important BS6853 Cat. 1a rating, there is no way we could have even considered soft flooring"*.

### **Project implementation and progress to date**

CAF won the tender to build the EMU trains in 2011 and Barnacle Design was brought on board by the client in January 2012. Auckland Transport took delivery of its first new EMUs in 2013 and passengers were able to take advantage of their new trains from April 2014 onwards. Construction of all 57 trains should be completed by mid-2015.

Barnacle Design and CAF both commented positively on their collaboration. Roberto Urizar Sinobias, Finishing Area Manager in the Engineering Department at CAF said: *"This was a very interesting project for us as we had the opportunity to develop an entirely new train, quite unlike anything else available. I would like to point out that we very much appreciated the help of the customer on the design side and the close involvement of Barnacle Design."*

Keith Strobe Penny said: *"I think that mutual respect and curiosity toward each other's culture was an important starting point. This helped to stimulate the design development and that is really the big story for CAF's Auckland electric train project from an industrial/interior design point of view. It is to CAF's credit that, notwithstanding their strong heritage in rail manufacture, and despite the rigors of post-tender manufacturing contractual processes, they were able to listen to an English speaking Industrial designer located on the other side of the world. The outcome is a product that is revolutionary in the context of Auckland's existing transport infrastructure, yet also feels "at home."*

### **Distance no object**

Despite the geographical distances separating all the parties involved, the project has run very smoothly according to Keith Strobe Penny: *"It's been a success due to a good team being able to work together well. Modern communications including the use of social media channels have well and truly eliminated distance as a barrier to discussion and effective collaboration. As far as our relationship with Forbo is concerned, we might be on the other side of the world, but it's great to know that the rail team are just a phone call away, and from past experience we know they will always come forward to quickly resolve any issues that might arise, either directly, or through a well-chosen network of local suppliers"*.

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To find out more about the full range of Forbo's flooring solutions available to the transport industry please visit [www.forbo-flooring.com/transport](http://www.forbo-flooring.com/transport). Alternatively if you wish for a Forbo Flooring representative to contact you or to send in an enquiry then please email your details to the following address; [info@forbo-transportflooring.com](mailto:info@forbo-transportflooring.com).

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