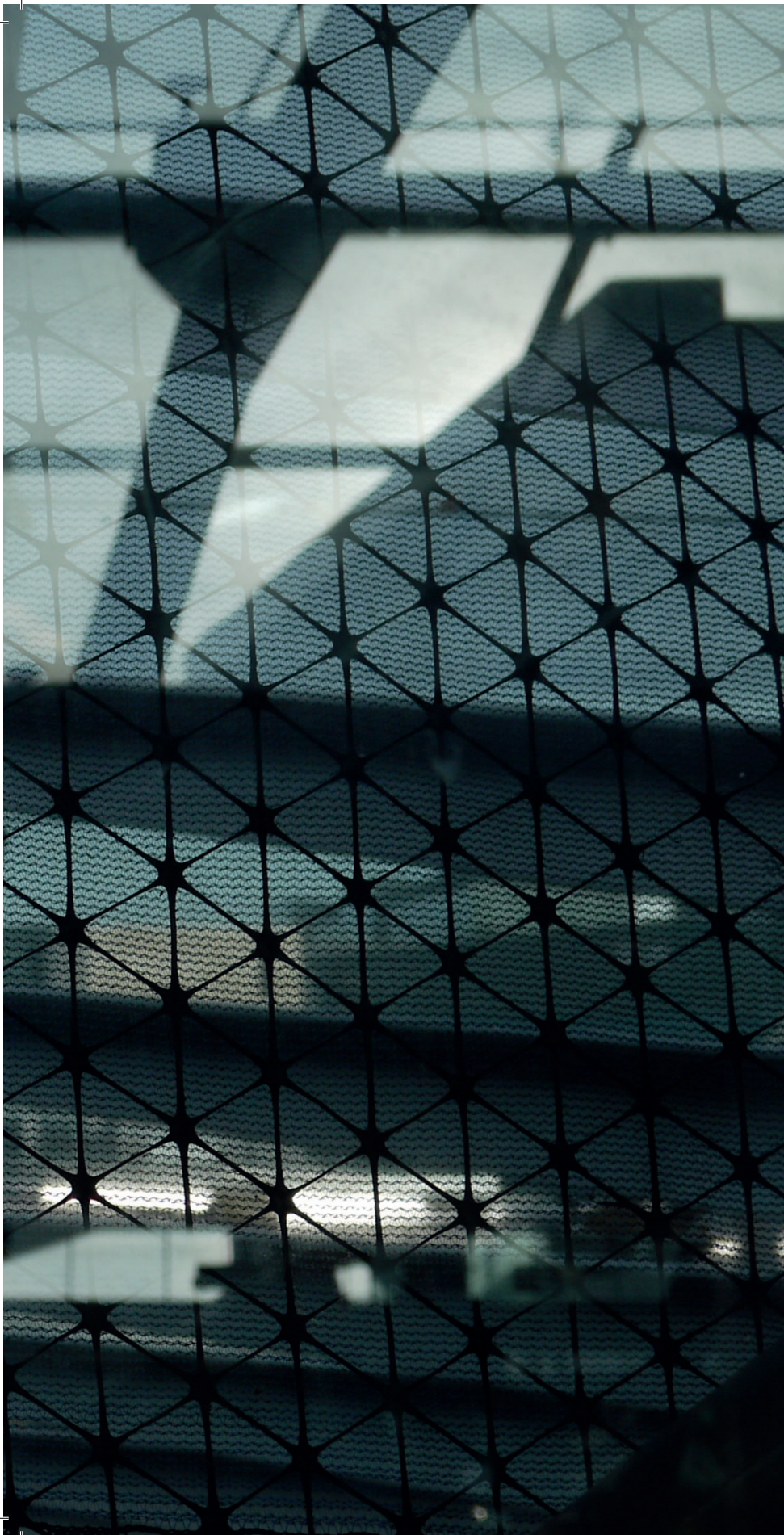




CLASS 156 MODERNISATION





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INTRODUCTION

Angel Trains' Class 156 is one of the most reliable DMU fleets on the UK railway.

It was built using traditional techniques and solid, proven technologies. This unashamed simplicity has seen it dependably operate through the country's most demanding climatic conditions; year in, year out. For many, it is lovingly referred to as 'the greatest DMU ever built'.

The high levels of reliability continue to this day, but the interiors do not meet modern standards. As part of a comprehensive modernisation, Angel Trains commissioned award winning designers Seymourpowell to transform the Class 156 into a train that meets the needs of today and the demands of the future.

FLEET OVERVIEW

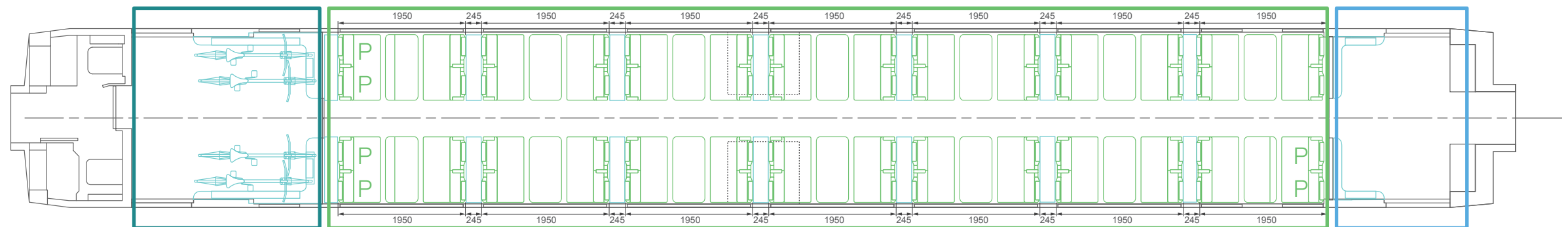
To demonstrate the potential of the new Class 156, two fleet designs have been created to suit different markets. The layout of the two new fleet designs have been divided into Zones, with shared architecture between the fleets for cost effective differentiation.

SCENIC FLEET

No.1 END

B-CAR

No.2 END



FLEX ZONE

Multi-purpose space is suitable for a combination of up to 4 bikes, 6 seats and 25 standees.

SCENIC SALOON

72 Seats

The scenic train offers a low-density, long distance seating layout, with all seats aligned to windows and innovative luggage storage solutions.

URBAN SALOON

72 Seats

The urban train uses a high-density outer-suburban layout balancing capacity with comfort.

VESTIBULE

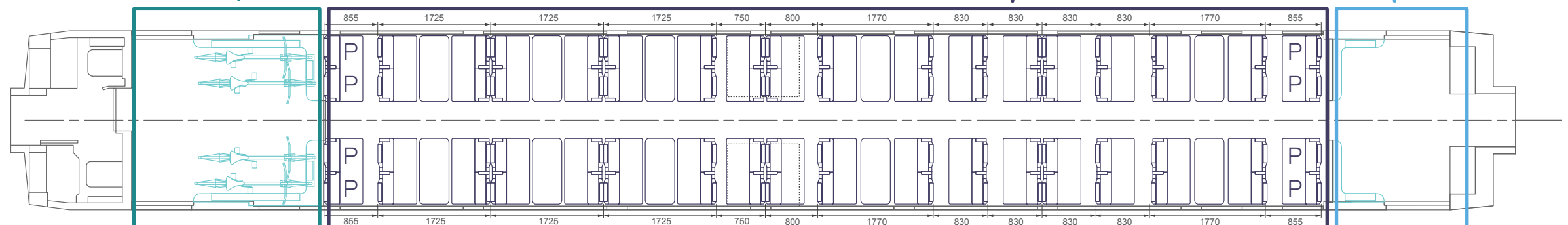
Standbacks improve flow, reducing dwell times. Tip-up seating and standing space suit different capacities.

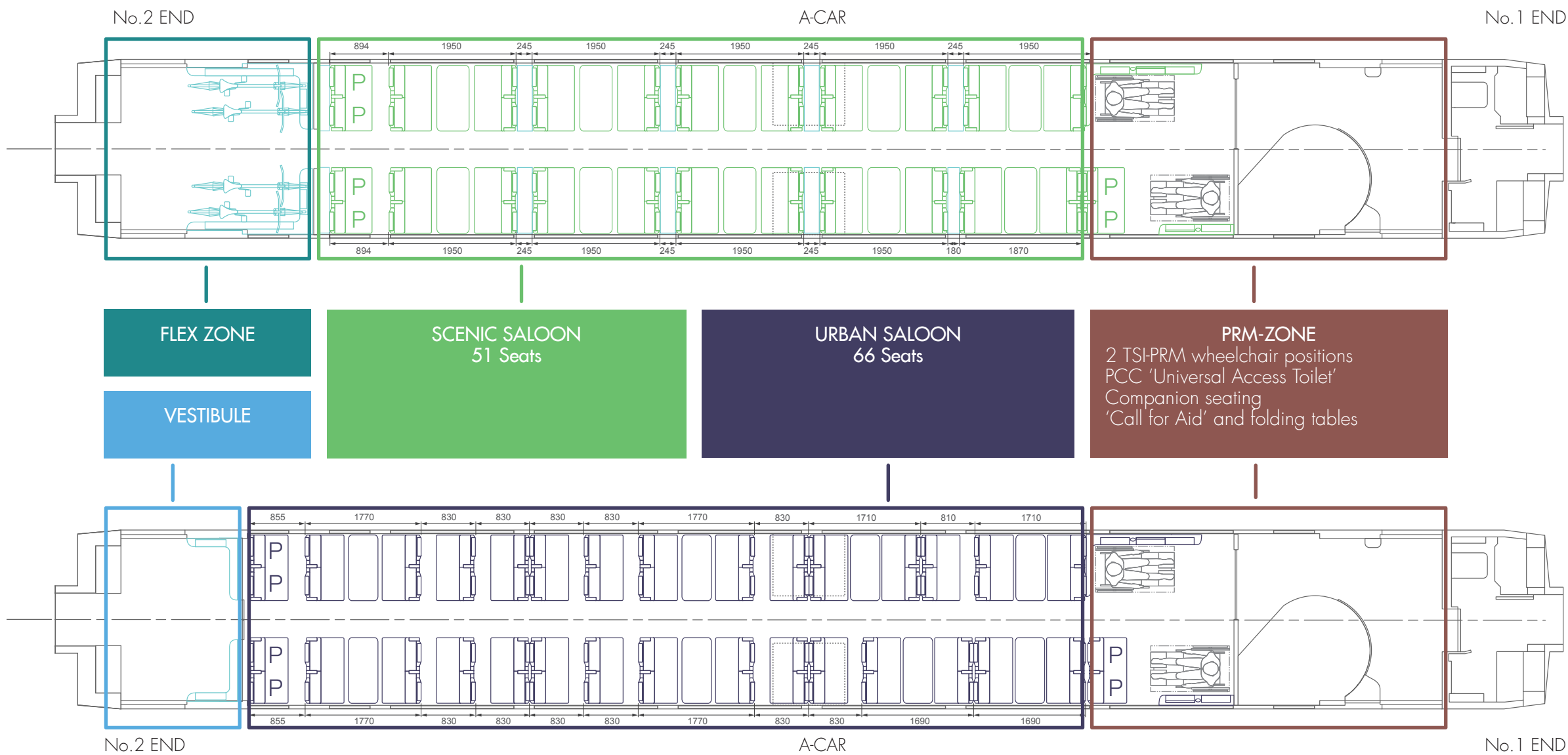
No.1 END

B-CAR

No.2 END

URBAN FLEET









FIRST IMPRESSIONS

Expectations of the journey ahead are set long before the passenger boards the train. Making a good first impression should not be underestimated. The front end of the vehicle sets the tone for the entire experience.

A new and distinctive character has been created by renewing GRP fairings, carefully adjusting paint proportions and adding new exterior lights. A new roof-top cowl houses a large destination display and integrated cyclops light to increase visibility and reduce passenger anxiety.

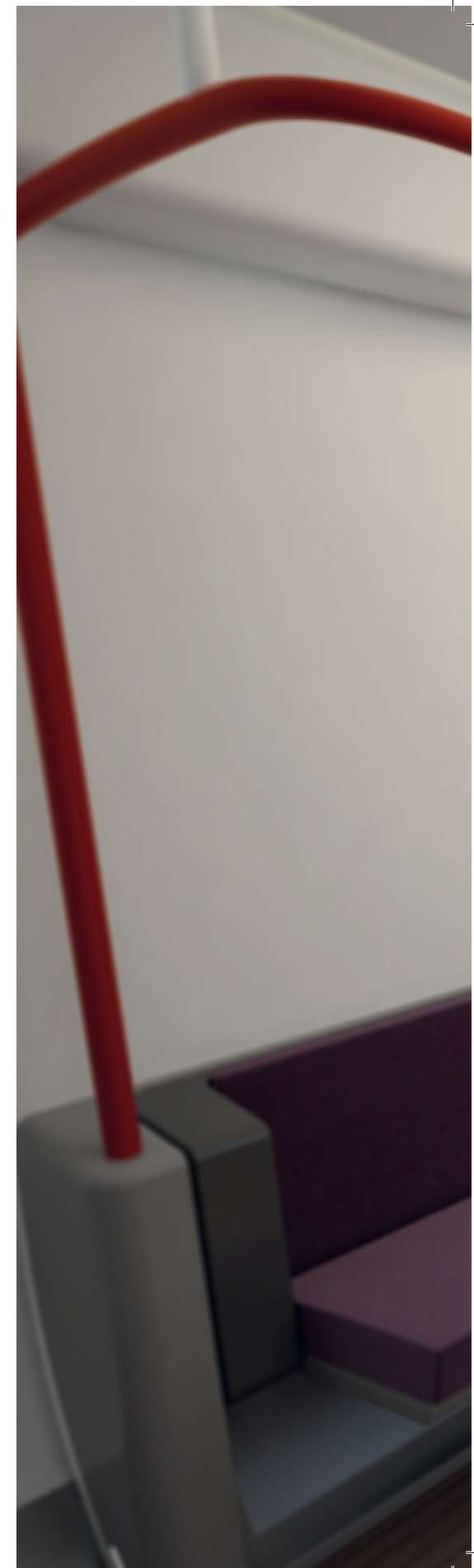
The new front end is now clean, modern and friendly.

FLEXIBILITY

Flexible spaces have been designed to adapt to the changing requirements of passengers.

The Flex Zone is a multi-purpose space allowing a range of different uses. The space has been designed to cope with high capacity loads with perch seating, new grabs and more space for standing passengers. During off peak times the space can be converted to comfortable seating for transient passengers. Alternatively, four bicycles can be safely and easily stored using intuitive bike-shed style restraints. The space can also act as an area for overspill luggage.

The Flex Zone provides choice for the passenger and gives operators flexibility in service.









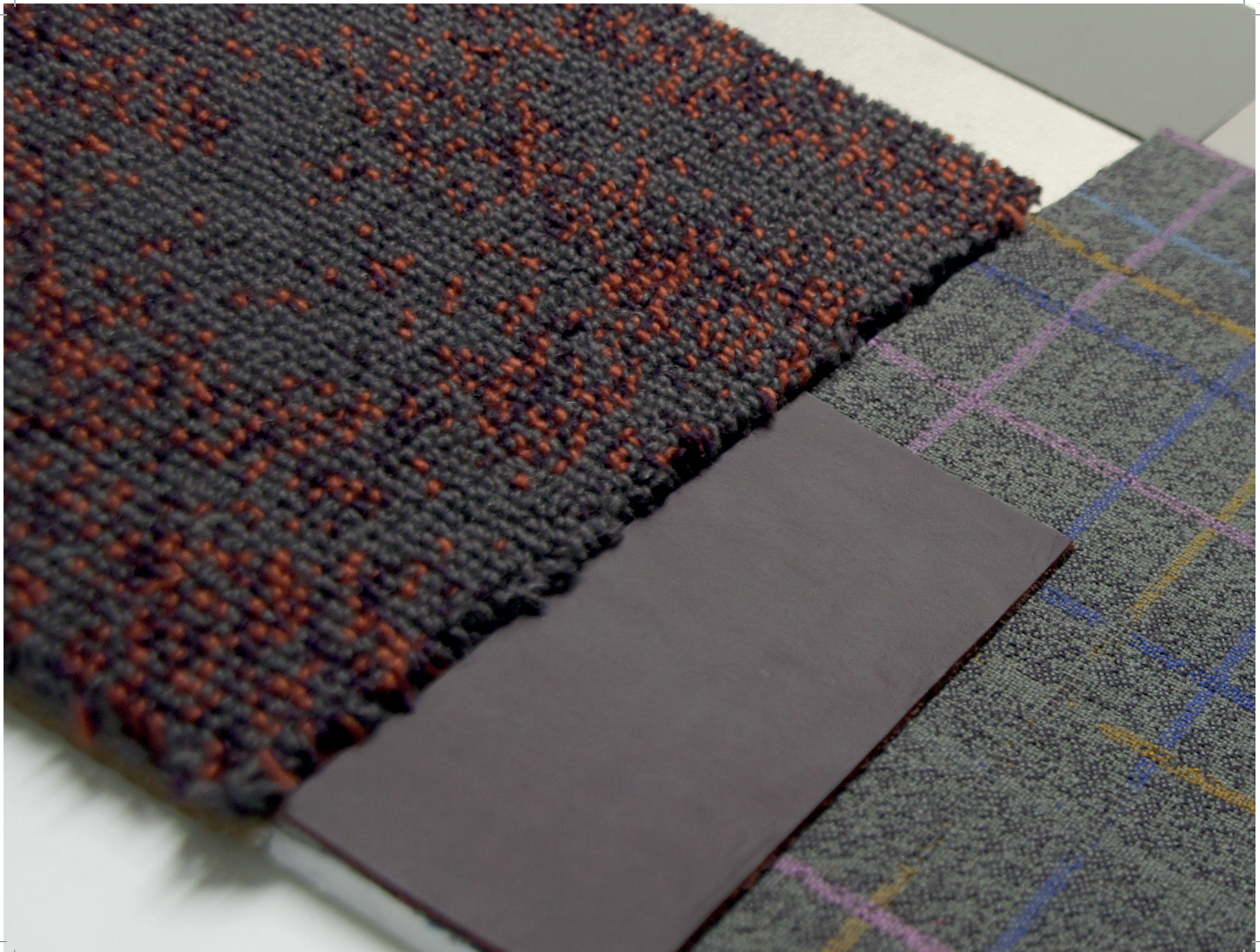
CONTEMPORARY HERITAGE

The look and feel of the scenic train reflects the heritage of Scotland with an added contemporary twist. The magic of the view and surroundings have been brought inside to counter-balance our urban existence.

The interior architecture has been inspired by the romantic age of the railway. The seating, lighting and copper trim divides the carriage into compartments whilst also leaving it open, airy and well ordered.

From a distance the impression is subtle, fresh and modern with crafted details, fine textures and rich colours unfolding as the passenger settles into the journey.

The scenic train has been designed to promote tourism, celebrate Scotland and capture the romance of rail travel.





SCENIC STYLE

Scottish heritage is celebrated through the colour, materials and textures on the scenic train.

A contemporary spin on the tradition of tartan and tweed is used for the seat coverings, whilst the copper features are inspired by Scotland's Whisky Stills.

Strong coherent elements have been employed throughout the train. Light ceilings with pearl pigment give reflection and glow. Durable wall surfaces, clearly defined bulkheads and warm tones for seating areas create a fresh, calm space.

The material palette has been defined to simplify maintenance and remain presentable in service, whilst giving a traditional yet contemporary look and feel.





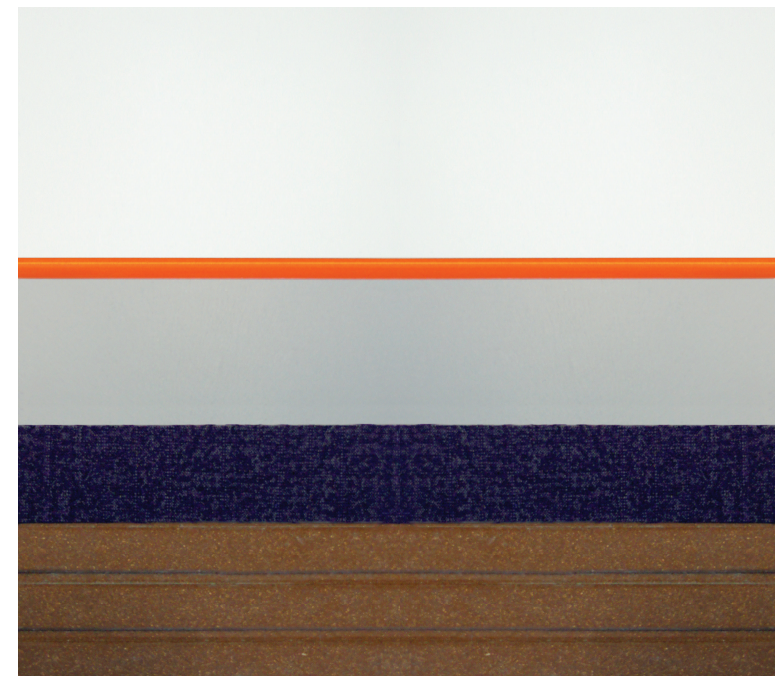




WELCOME AND FLOW

A bright and pleasant welcome awaits passengers as they board. New reactive lighting pulses to show the way, then gently dims to set the mood. New sealed floor coverings enhance grip and indicate movement. Extended vestibules encourage passenger flow into the saloon and large glazed partitions keep the space open, light and airy. A comfortable climate is maintained with doors closing automatically after a period of inactivity.

A warm welcome means a better experience for the passenger and better flow means reduced dwell times at stations.







MODULARITY

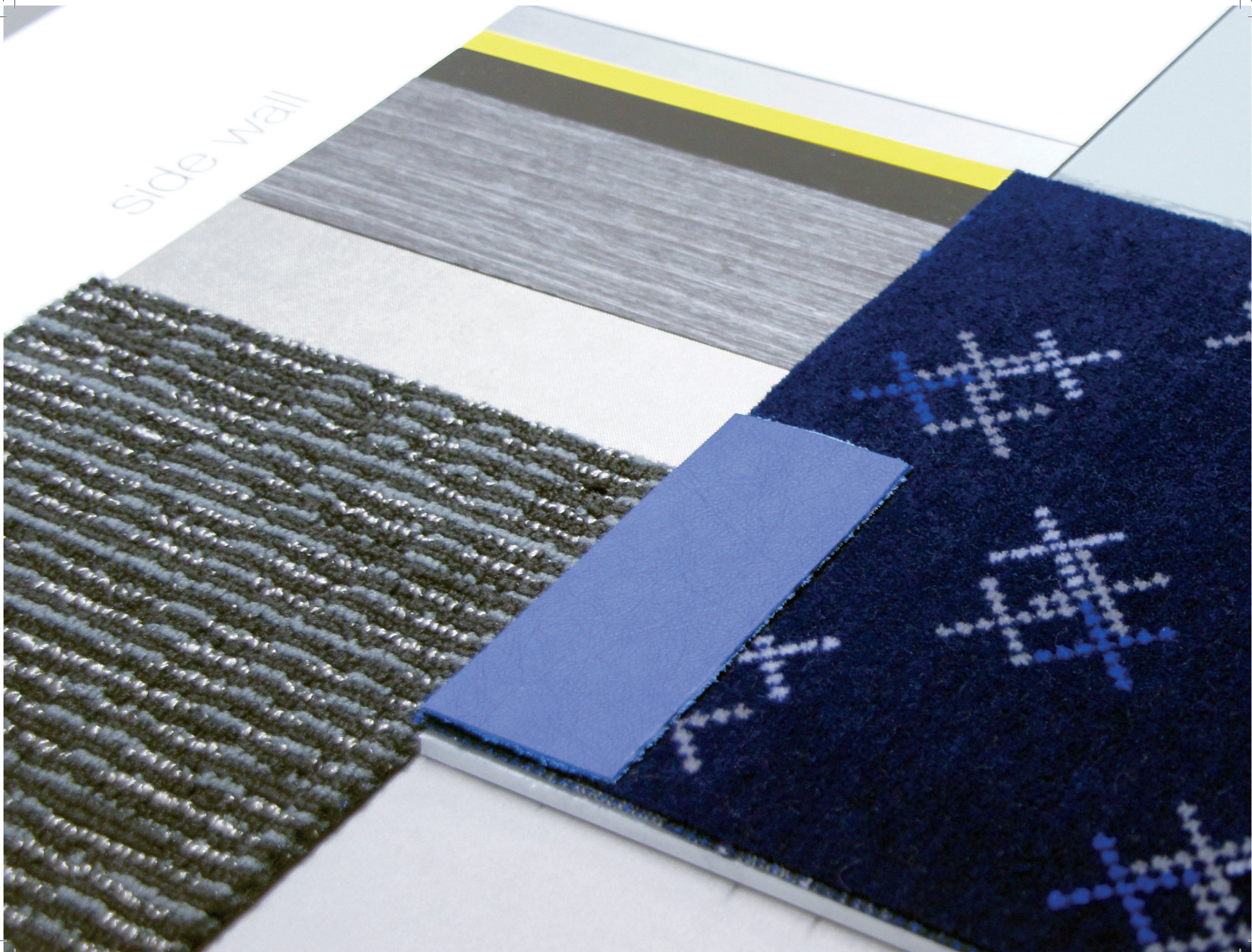
Modular design thinking has been applied across all areas of the new 156. Large areas of commonality exist between the scenic and urban trains, yet differentiation is achieved through specific trim, colour and finish.

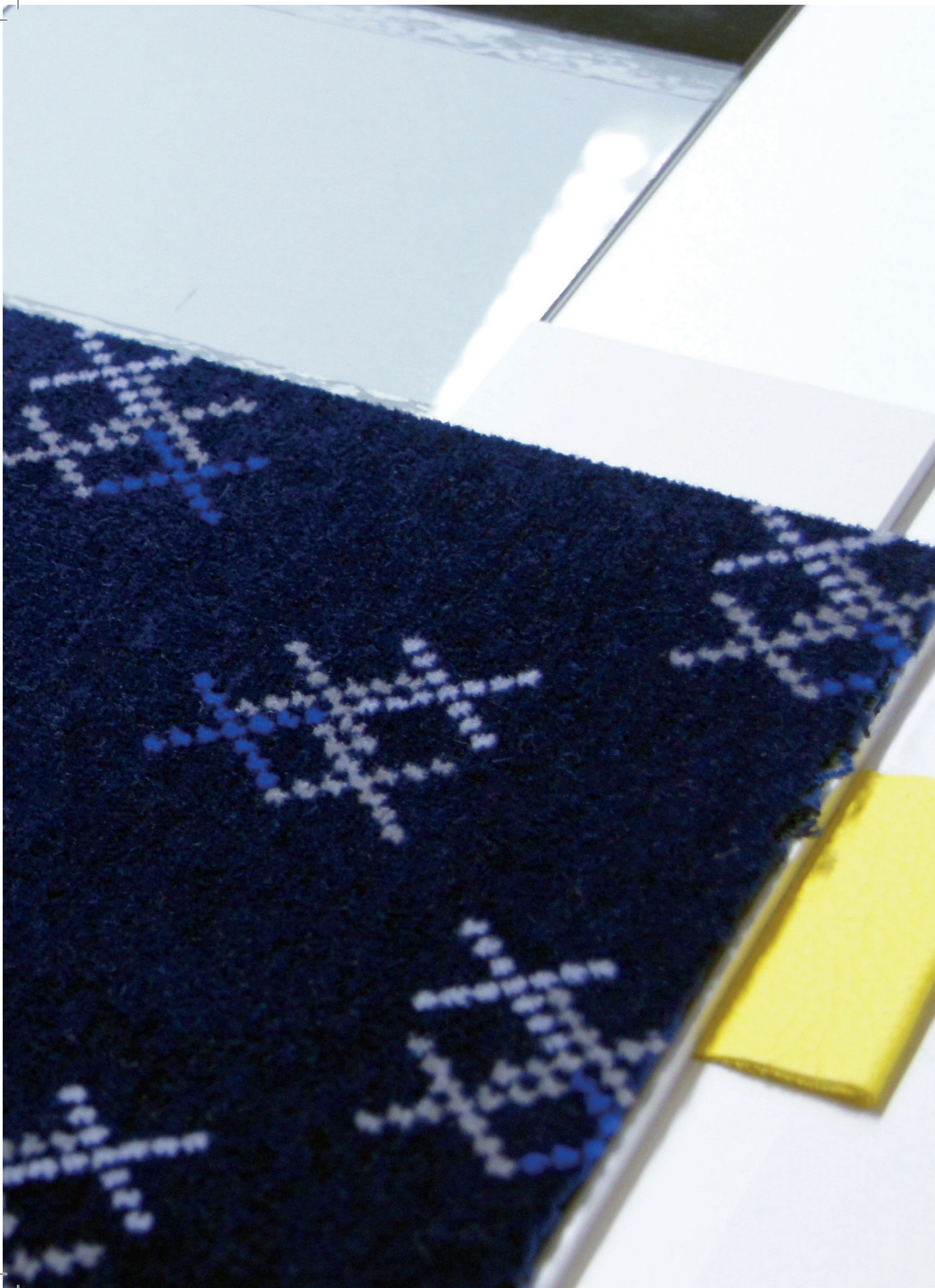
The urban train is linear, clean and pure whereas the scenic train is segmented with high quality finishes and sumptuous detailing.

Modular architecture allows the same part to be used again and again. Simple and inexpensive trim provides choice and branding opportunity. All of the large and expensive items are shared between the two trains, saving cost and reducing the number of spare parts to be stored.

Modularity is key to reducing and simplifying maintenance but also allows operators to dress the train in a way that is relevant to the different needs of each service.

side wall





THE URBAN TRAIN

The urban interior colour palette reflects the ScotRail brand identity. However the current palette has been delicately evolved by carefully adding new surface textures and applying the existing ScotRail brand colours in a new and interesting way.

For example, using the ScotRail yellow in the luggage racks adds a flash of colour high up, drawing the eye to the heightened ceilings. The yellow tabs in the seats add a crafted, tailored feeling to the interiors and a unique branding opportunity. The use of a de-saturated grey wood laminate in the side wall adds a new depth and a sense of quality to the saloons.

The new palette has been developed to improve the passenger experience on repeat journeys without compromising on safety, performance or brand essence.

SIMPLICITY

The new 156 has been designed to be simple to operate, simple to maintain and simple to repair. At the same time, elegant and refined solutions have been created to delight passengers.

Easy and reliable access to door pockets and to train equipment have been created, whilst providing new empty spaces for future technology. New solutions for wayfinding, luggage and bike storage make the new 156 more intuitive to use.

Simplicity makes the trains more enjoyable to work on and to use as well as reducing life cycle costs.









SEAMLESSNESS

Surfaces flow seamlessly from one to the other. Abrupt and awkward junctions have been removed, blended or purposely separated.

Furnishings have been specifically designed to discourage littering and promote wellbeing. Trains will stay cleaner for longer by making spaces, surfaces and panels easy and quicker to clean.

Services and systems have been integrated, adding a visual purity to the interiors whilst improving access for maintenance.

This philosophy improves efficiencies in the depot and creates an ambiance that is more calming for passengers.

EMBEDDED INTELLIGENCE

A new localised WiFi network will be added and combined with the existing GPS capability. This will provide the backbone to stream new passenger services like entertainment, navigation apps and tourism services.

In addition to this it is also possible to embed intelligence onto the trains.

Reactive lighting can be installed into the saloons to change the mood and ambiance at different times of the day or during different seasons. Informative lighting can be installed in vestibules and added to the exterior to aid access and egress and improve wayfinding.

During Peak times the train can be programmed to 'behave' differently to cope with high passenger loads. For example, flow can be improved by linking internal and external doors so they open simultaneously. Fold down seats in the vestibule could be automatically locked in their upright position acting only as perch seating to increase capacity during busy times.

A smarter train is a safer and more productive train.





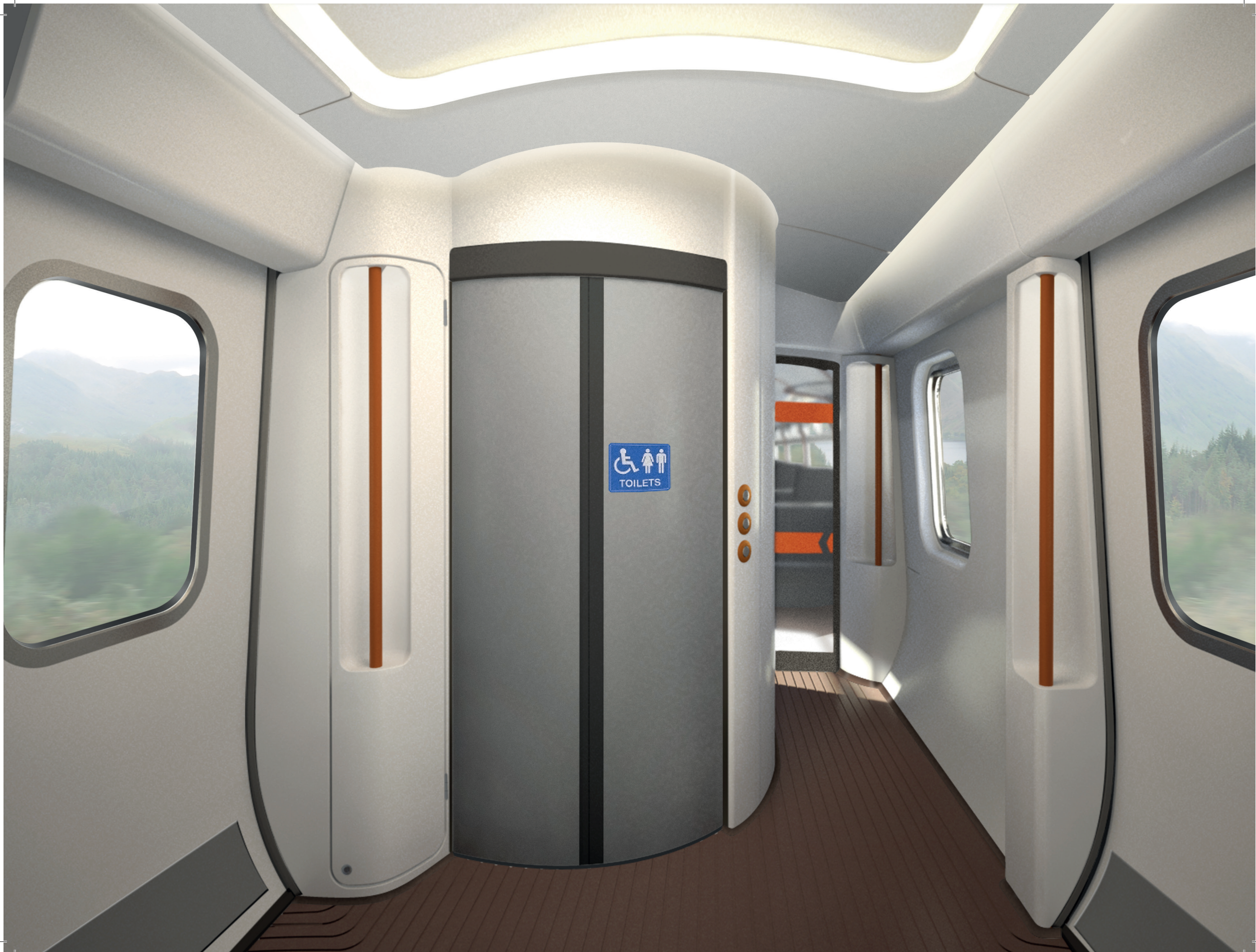
MORE THAN THE MINIMUM

The new 156 will be fully compliant to PRM TSI. The fleet will be equipped with a universal access toilet, two wheelchair spaces with companion seats and new handholds throughout. Priority seating is spread equally across both carriages.

When considering comfort, safety and accessibility, passenger needs were defined first and then checked against the requirement of the 'rule book', not the other way around.

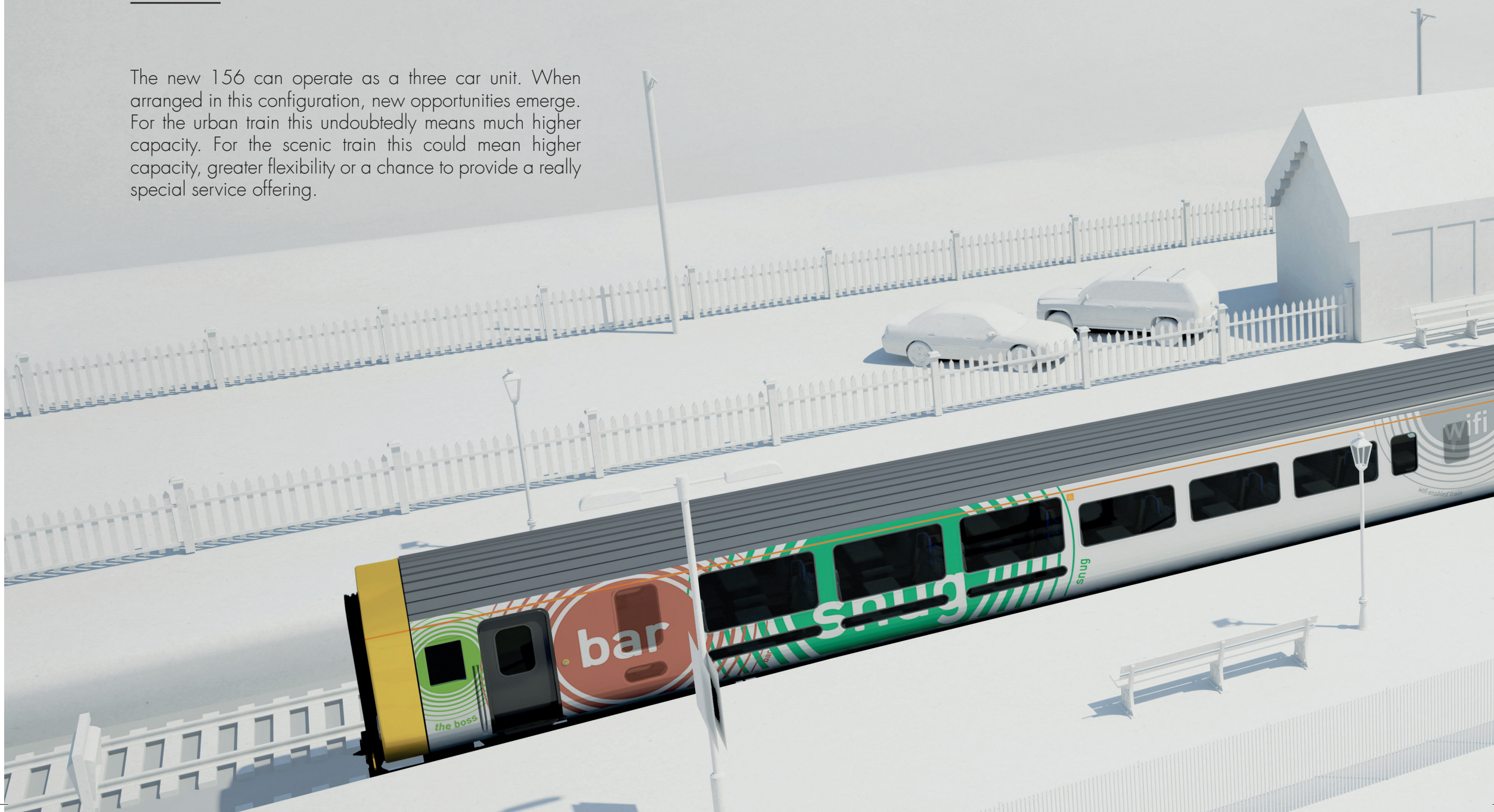
This philosophy of doing 'more than the minimum' has resulted in vestibules and saloons that not only match, but exceed the requirements of the legislation.

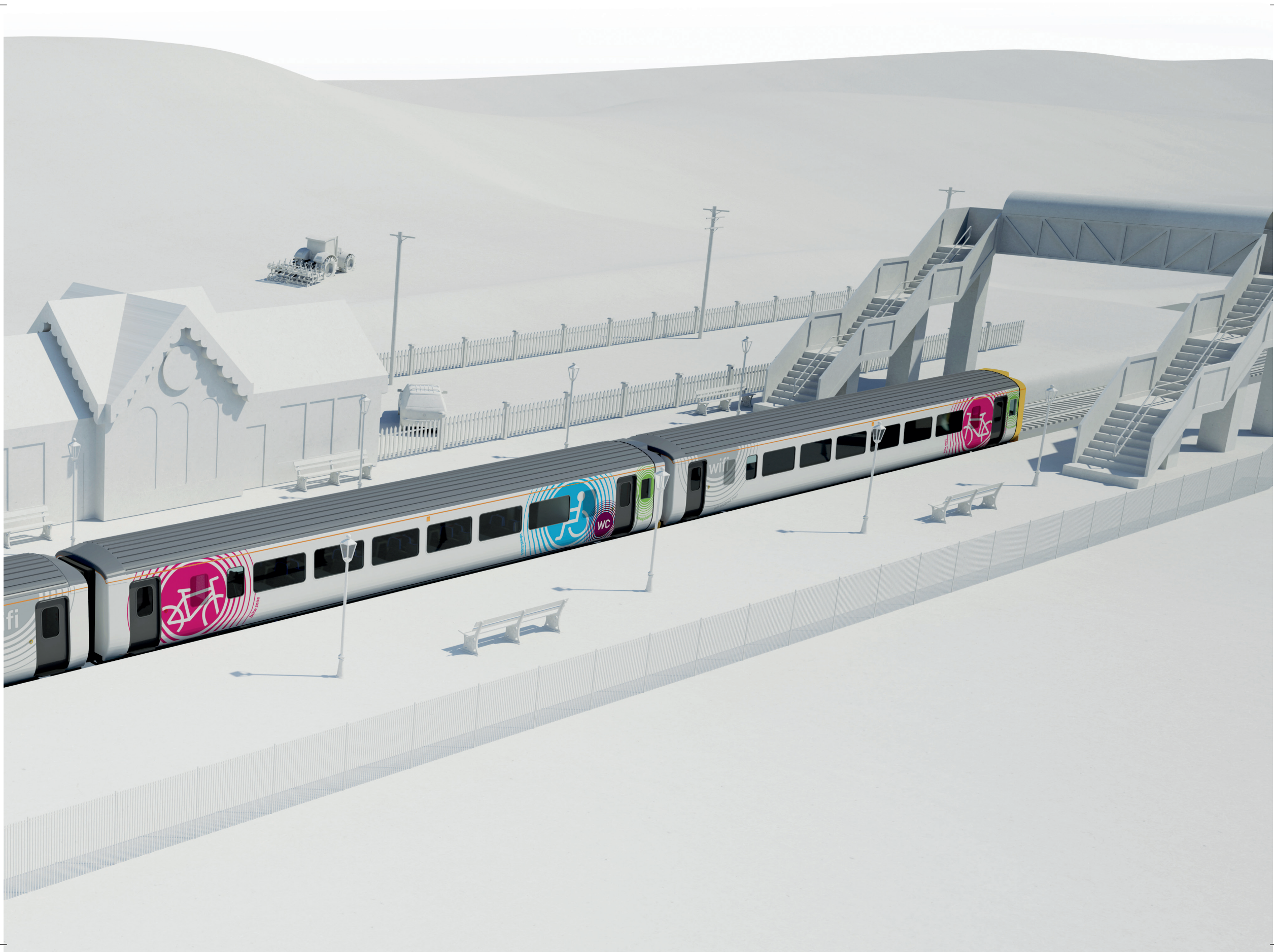




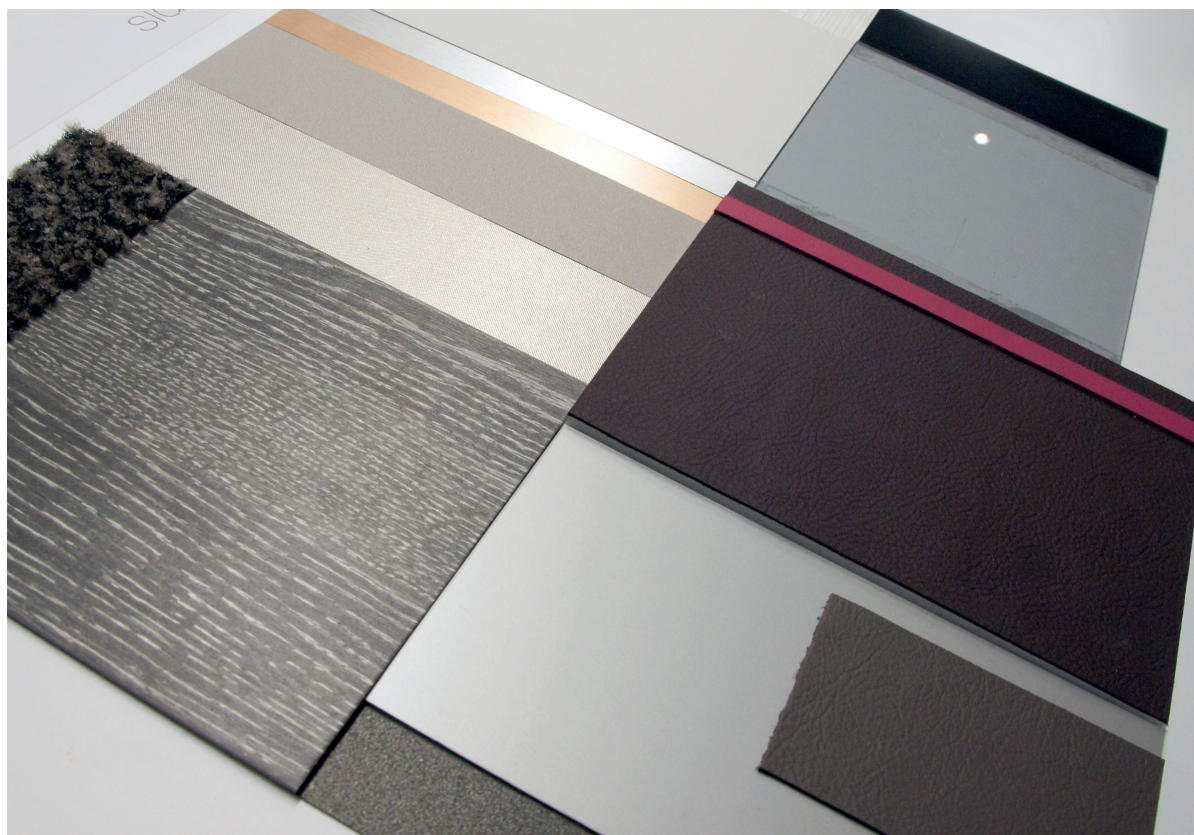
THE THREE CAR SET

The new 156 can operate as a three car unit. When arranged in this configuration, new opportunities emerge. For the urban train this undoubtedly means much higher capacity. For the scenic train this could mean higher capacity, greater flexibility or a chance to provide a really special service offering.







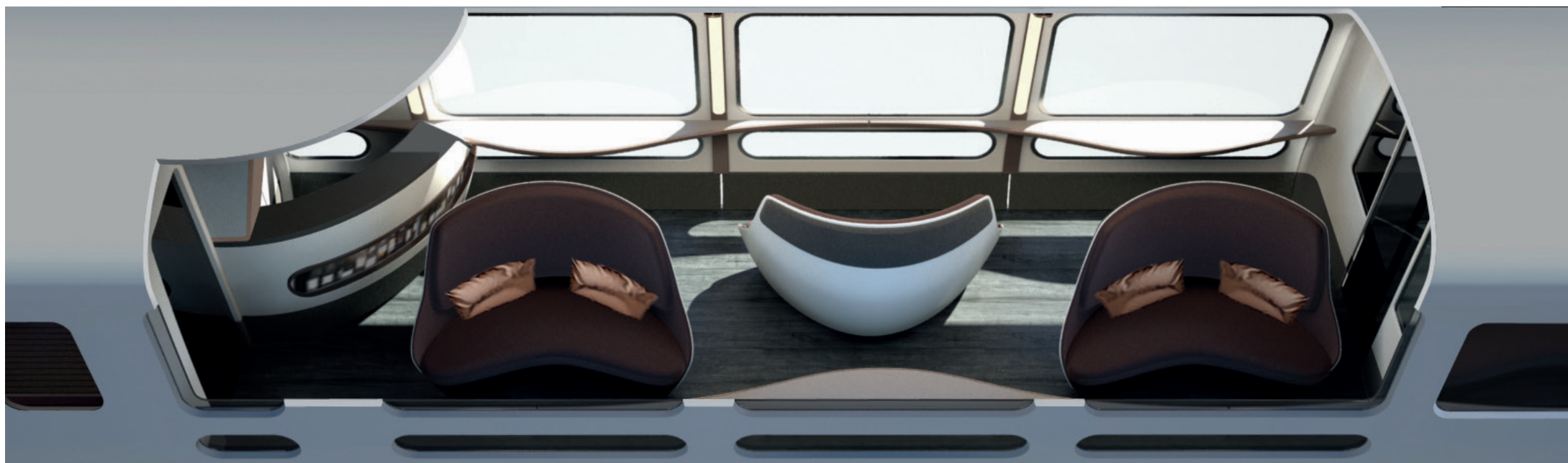


THE SNUG

'The Snug' is a destination space for passengers to visit, enjoy the view through extended windows and buy local Scottish produce. Boomerang sofas create informal seating areas with undisturbed views. The backs of the sofas form standing and leaning areas and also form a snaking aisle that leads passengers through to the bar.

Scottish heritage is celebrated again by the use of copper and rich warm colours of an autumnal moorland. The dark monochrome wood effect floor reflects contemporary living and the sofas are upholstered in locally sourced sustainable leather.

The third car could be configured as 'The Snug' or this valuable real estate could be re-imagined for something else.



THE OBSERVATION CAR

The Observation Car is a special configuration for the third car. Seats are again aligned with windows in bays and all have large tables for dining. The luggage racks have been removed and replaced by large localised storage. New flat panel windows extended upwards by 180mm providing passengers with fantastic, unobstructed views of the scenery.

This Observation Car is designed to celebrate the view whilst maximising capacity and providing a premium service.









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STEP ON BOARD

Please watch the class 156 movie and feel free to use our visuals to support your bid.