



# interiors

RAILWAY INTERIORS INTERNATIONAL 2010

## All aboard the SkyTrain

Fresh interiors in Vancouver

**Fine design**

With MBD and Elskop Scholz

**In light of research**

Updates from Monash University  
and Auckland School of Design

# Ahead of the game

SkyTrain's refurbished railcars have interiors with a host of new features, including the seats, LEDs on the route maps and CCTV - a first for the Canadian network

**S**kyTrain is a two-line fully automated train system based out of Metro Vancouver, British Columbia. Running principally on elevated tracks (hence its name), SkyTrain's 50km of track make it the longest automated rapid transit system in the world. Operational since 1986, it carries an average of 210,000 passengers per day and is one of Canada's busiest rail links.

Until recently SkyTrain's fleet was 210 strong, made up of Mk1 and Mk2 vehicles. In November 2006 TransLink, the transport agency for Metro Vancouver, requested the supply of a further 34 vehicles, a number that swelled to 48 by April 2008. The process by which these vehicles, to be known as SkyTrain Mk2\*, came into service this July was more complex and thorough than either of its previous incarnations.

The original impulse behind the development of the Mk2\* - which was developed by Bombardier in close conjunction with TransLink - was to create a car with greater space potential, essential for a service that had been running at near capacity for several years. Michael Sauvé is an independent consultant and project manager for SkyTrain's latest generation of vehicles. He notes, "The MK I, placed into service in 1985, is characterised by open space. The 2002 Mark II, while being a larger vehicle, has somewhat less space in certain areas due to its double seat, aisle, double seat configuration. Although this meant more seats, it was to the detriment of open space and mobility."

The seating layout decided on for the Mk2\* was a double-seat, aisle, single-seat configuration. With fewer seats than the previous generation, this arrangement enables an improved floor layout with a wider central aisle throughout the vehicle.

One of the working groups introduced to provide input on the layout was the Access Transit Users' Advisory Committee, which ensures that TransLink's Access Transit Strategy is implemented and provides ongoing advice on all TransLink plans, programmes and initiatives,







### ◀ WHERE AM I?

Each new SkyTrain carriage is equipped with an interior route map display by Spanish manufacturer Ikusi. An LED display indicates the vehicle's current location on the SkyTrain system, and also shows whether the train is on the Expo or Millennium line. "Until now all our cars have been very static environments, with nothing that flashed or did anything visual," says Sauvé.

"Now lights flash and show which line you are on. It's easy to make a mistake when the line branches from the Millennium line or Expo line. This new addition will prevent many people from travelling on the wrong branch."



## "We concluded that the stanchions should go right down the middle of the car rather than the middle of the aisle"

making sure that accessibility issues are always considered. Committee members promote awareness and work towards solving accessibility issues through open-minded and inclusive thinking.

In the standard Mark II, wheelchair users can only exit the door nearest to them and are unable to make their way along the aisle. With the development of Mk2\*, a secondary exit path removes the concern of an obstructed doorway. Via the teamwork of the Access Transit Users' Advisory Committee and TransLink, the interior of the new cars fully accommodates physically, visually and hearing-impaired passengers. Wheelchair parking areas, passenger intercoms and visual and audible destination announcements are all conveniently located.

For hearing-impaired passengers, indicator lights have been installed in the upper corners of the doorways to signal their impending closure. These lights are a new addition to complement the audible chime that alerts the visually impaired to door activity.

### Hold tight

For many years travellers on SkyTrain have been asking for stanchions on the ceiling for standing passengers to hold on to, but previous configurations made this impossible. With the

creation of Mk2\*, TransLink was keen to install horizontal stanchions running along the length of the roof for those standing in the now-wider central aisle of the vehicle; however, with the new configuration the company was unsure where to locate them. Sauvé elaborates: "To create a mock-up we took one of the existing Mk2 cars and removed all the seats, then installed 25 new ones and fashioned some temporary stanchions. We then brought in people from within the SkyTrain group, as well as representatives from the Committee to Promote Accessible Conventional Transit (ComPACT). Through the feedback we received on the layout we concluded that the stanchions should go right down the middle of the car rather than the middle of the aisle."

Sauvé would be the first to acknowledge that when he became project manager for the new SkyTrain development back in the autumn of 2006, neither he nor his close colleagues at TransLink knew much about interior detail.



"We were not experts in seating or upholstery," he says. "It was clear we needed educating."

To address this issue, Sauvé was instrumental in setting up a seat design working group within TransLink. Seat vendors were brought in, and meetings were arranged with upholsterers. All working group members became knowledgeable in an area about which they were previously ignorant. "It was an invaluable exercise," says Sauvé. "When it came to selecting a seat for the new-generation car we had already been 'trained'."

When Bombardier informed TransLink that there were relatively few seat vendors interested in supplying seats for the Mk2\* order, and that bids received were of older-style seats, which did not provide the new look being sought for the Mk2\*s, Sauvé et al were able to inform the manufacturer of American Seating's brand-new model, Insight. American Seating was very keen to introduce its new product into the rail market, and TransLink

ABOVE: Much thought went into improving the interior lay out  
 RIGHT: Trans-Link decided on American Seating's Insight range





was eager to try something comfortable, stylish and ergonomically designed. The Insight, a maintenance-free, wear-resistant, custom stainless-steel framework, was purchased and installed.

TransLink frequently surveys its customers to obtain feedback prior to making important design decisions. When reviewing seating upholstery alternatives for the Mk2\*, the project team shortlisted two upholstery options and cushion thicknesses. Prototype seats were produced and, during October 2007, a third party – NRG Research Group – conducted a passenger seat survey. Over 300 SkyTrain passengers were interviewed, and each was asked to sit in all four seat options before rating them. The survey found an equal preference for vinyl and fabric upholstery but a strong leaning towards the 1.25in cushion thickness over the 0.5in alternative. After weighing up the options, the project team decided on the vinyl upholstery with 1.25in cushion.

TransLink was founded in 1999, bringing together under one umbrella a number of different companies providing transit services in the Vancouver region. "If you were to walk onto a local bus, train or even the SeaBus, you wouldn't get a sense that you were on the same company's vehicles," says Sauvé. "Slowly but surely we are trying to come up with a consistent look for TransLink." One of Sauvé's objectives back in 2006 was to establish a coherent look for the seating on the different vehicles. The vinyl upholstery chosen for the train was a Morbern navy blue Wave Freestyle pattern; it is now in the process of being employed on TransLink's buses too.

The Morbern upholstery is just one of the elements that go to creating a stylish look and feel to the overall vehicle interior. Light, contemporary shades of grey on the floor, walls and ceiling, combined with the darker grey Insight seats upholstered with the blue patterned vinyl, are all designed to create a brighter ambience for passengers.

### Watching you watching me

The introduction of CCTV into the SkyTrain cars is a brand-new feature. Manufactured by March Networks of Ottawa, the cameras are visible as ceiling bubbles. Although there are over 900 cameras deployed throughout the SkyTrain network, none had previously been featured within the vehicles. In Canada the issue of privacy is a very delicate one, and any perceived invasion of personal privacy through the recording of images must be justified. Michael Sauvé explains, "Here in the province of British Columbia we have the Office of the Information and Privacy Commissioner and we have to explain what, why and how we record the images, where we store them, who can access them and how."

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Other notable suppliers include Curtis Door Systems for the improved side-door system, Sigma Coachair Group from Australia, which provides the HVAC designed with environmentally friendly CFC-free refrigerant, and interior wallboard panelling by Maltina.

The flooring by Baultar of Canada is a reversion to the original surface found in the Mk1 vehicles. "With the Mk2 model of 2002 TransLink went for a different vinyl floor than previously," says Sauvé. "However, it was discovered that it didn't have the wear and tear resistance of the original Baultar flooring so for the new model we have reverted to the original. It's almost like rock, you can order it in any colour or pattern, it provides excellent slip resistance, and once it's installed it basically lasts forever."

### The next generation

The building of the latest-generation SkyTrain cars lasted 18 months and took place in Sahagun, Mexico, where Bombardier has a large manufacturing plant with 3,000 employees. "Our Spanish has certainly improved during this process," remarks Sauvé who, along with his colleagues from TransLink, has undertaken many trips to Mexico during the past two years. Half the cars are now in place, and the remaining 24 are due by the end of the year.

An engineering task force is secretly working on SkyTrain Mk3, which is set to be in service in the not too distant future. "Bombardier is looking at a worldwide market for this car," remarks Sauvé. "It can see some opportunities to bring down costs by doing things differently." For now, though, he remains excited about the second-generation Mark II cars, which already make journeying on British Columbia's SkyTrain a more enjoyable and convenient experience. ☺

# Fit for Olympians



Visitors to the 2010 Olympic and Paralympic Winter Games are likely to be enjoying their first elevated view of Vancouver from the comfort of American Seating's new seats

**U**ancouver residents and visitors attending the 2010 Winter Olympics can travel on SkyTrain's new elevated Canada Line and enjoy incredible views from new seats, supplied by American Seating. The city's transportation authority, TransLink, and SkyTrain's car builder, Bombardier, partnered with American Seating for the supply of nearly 1,400 InSight seats in the initial 21 cars, in time for the Canada Line's launch and the Winter Olympics.

"If passengers are able to relax and enjoy the ride – if they exit the train thinking about the views and their experience – then we've done our job," says Gary Thompson, transportation market manager for American Seating, headquartered in Grand Rapids, Michigan, USA. "Comfort and style should be inherent in seating and the overall riding experience. They should be so integrated into the product that only their absence would be noticed."

## Rooted in research

American Seating designed, engineered and tested InSight seats in close collaboration with public transportation stakeholders throughout North America, including transit authorities, OEM builders, advocacy groups, industry associations and riders. After three years of research and development, InSight launched in 2006.

"It really marked a milestone for us," continues Thompson. "In the three years it's been in existence, it's changed the look of transportation seating in buses and is now doing so in rail."

"To challenge existing designs and preconceived notions about seating and to reach a truly customer-driven solution, we deliberately began the process with a blank slate."

All told, the company spent more than 1,000 hours conducting research for the new product line. The results showed that passengers and transit agency operators want seating to meet several key needs: comfort and style, accessibility and safety, and ease of maintenance and installation.

"Our challenge was to develop a seat that met all these needs while still being affordable," admits Thompson. "InSight is all about 'form follows function'. It offers passengers a comfortable ride and vehicle manufacturers and transit authorities a stylish and durable seating solution."

Research showed that style and design are particularly important to the riding public – they want and expect to ride in comfort and in environments that are modern and sleek – designs that let them enjoy the ride.

"Meeting these needs has proved to increase customer satisfaction," adds Thompson. "Adoption rates across North America have been outstanding."

Chicago's major transit authorities were the first to purchase InSight seating for more than 1,000 buses. The InSight seat



## ◆ CONFIGURATOR ONLINE

The interior configurator ([www.americanseating.com/insightconfigurator](http://www.americanseating.com/insightconfigurator)) is a free, interactive tool in which users can specify colours and fabrics for seating components, and, with a few clicks, see how these choices will look in a photo-realistic interior. The interior configurator currently features American Seating's InSight product line, with plans to add additional lines.

"Users can easily design a custom interior in a virtual environment and get a 'snapshot view' before a vehicle is even built," remarks Gary Thompson.

Users can specify the colours and/or fabrics of components such as seats, flooring and walls, stanchion poles and barriers. The interior of the vehicle transforms on screen in seconds with each choice. Users can also save and print designs and specifications. American Seating has collaborated with leading textile suppliers to include digital fabric images in the tool.

"The possible colour and fabric combinations are endless," adds Thompson. "The interior configurator can facilitate collaboration, be used to present concepts, and streamline decision-making."

"The goal is to make our customers' seating-product decisions as easy, effective and efficient as possible – and, ultimately, to help them meet their riders' needs. The image of public transportation can be changed with just a few clicks!"

Potential users of the tool include transport authority managers, engineers, procurement and specification specialists, maintenance personnel, marketing and sales teams, design consultants and OEMs.



creates a business-class look that riders appreciate, whether they are relaxing or working during their commute.

The contoured thin-line profile provides aesthetic appeal and delivers increased legroom and a larger personal sitting area. The seat module is made of energy-absorbing material, and the seats and backs can be upholstered using a variety of materials and covers.

The seat was also designed to meet the needs of an ageing population and those with disabilities.

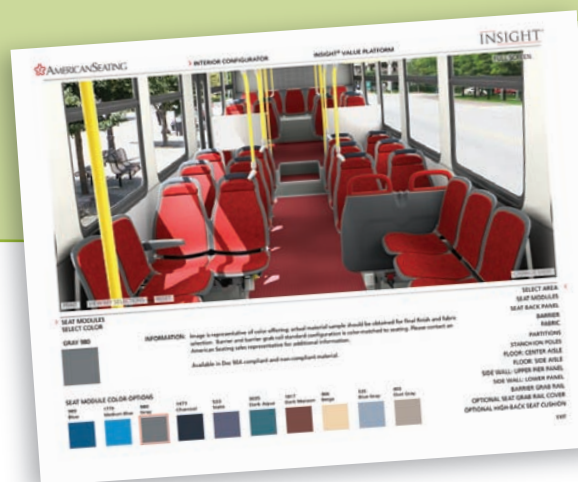
The contoured shape and thin profile allow for spaciousness and easy entrance and exit.

InSight offers durable, advanced-technology composite resin, corrosion-resistant materials and no exposed fasteners. Exclusive vandal- and cut-resistant cushions are also available, along with stainless-steel back panels. The modular design and patent-pending lightweight mounting system supports easy installation and part replacement.

InSight works in all mass transit layouts. The family of seats consists of a variety of model types and an array of colour options and fabrics to enhance transit interiors and support the transit provider's unique personality.

### Enhancements

Towards the end of last year, the InSight offering was enhanced. A 'back-to-back model' that meets requirements for selected customer layouts and provides a face-to-face arrangement for passenger interaction was introduced, along with a



'high-back model' that enhances passenger comfort and styling.

Exclusive systems to secure mobility aids (such as wheelchairs) can be integrated, offering easier, quicker and more convenient operation. To aid the visually impaired, a grab-rail cover in distinct colours was also made available as an option.

An interactive design tool, an interior 'configurator' (see above), enables users to design a unique vehicle interior. The tool, which launches directly from the American Seating website, allows users to select InSight seating components, colours and actual fabrics – all in a virtual environment. Prior to placing an order, in a few mouse clicks customers can immediately see how their choices will look in a photo-realistic interior.

A related tool, the InSight Value Platform, presents interactive animation, which explains the product's benefits to viewers. It also rotates products so that they can be viewed from different angles and so it can be seen how products fit and work together.

Vancouver joins a list of cities across the USA and Canada where American Seating has provided products for rail transit, including Seattle, Los Angeles, Cleveland, Toronto, Miami and Philadelphia. Founded in 1886, American Seating has been in the transportation market since the 1930s, when it introduced the first ever cantilevered bus seat. The company entered the rail market in the 1960s. ❌

# American Seating will take you to the Olympics.

American Seating is proud to be the seating supplier for  
Vancouver's SkyTrain in support of the 2010 Winter Olympic Games.



**InSight**<sup>®</sup>, an advanced transportation seating solution, will take  
riders to the games and other destinations in comfort and style.

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