

# Lighting a Luxury Train for the 21st Century

Scheduled to launch in 2009, the Tangula Luxury Train in China is a unique addition to the current renaissance in rail travel. China's first luxury train experience will feature state-of-the-art, custom-built cars—including all of the lighting.

Dr. Linnaea Tillett and her team at Tillett Lighting Design Inc. in New York City designed an entirely custom lighting program. Their lighting scheme combines a modern sensibility with China's ancient culture of refinement, while meeting the demanding requirements of train travel.

Owned and operated by Tangula Group Ltd., the Tangula Train is scheduled for two routes out of Beijing. The southern route will cross scenic territory in Guilin and Yunnan Province. The northern route traverses the highest train track in the world across the Tibetan Plateau on its way to Lhasa. The train and all of its components have been manufactured to meet very stringent requirements for ruggedness, safety, distance and altitude.

"The challenge was to come up with a design that transformed the environment from the purely utilitarian to something authentically and appropriately luxurious," says Dr. Tillett. "At the same time, we couldn't deny the reality that passengers were traveling in a metal industrial machine. So, we softened that reality with lighting that comforts and indulges the passengers."

Dr. Tillett and her firm were especially suited for this project. An award-winning lighting





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designer, she also holds a doctorate in Environmental Psychology. Principal of her own firm since 1983, she has a reputation for crafting highly nuanced lighting programs for luxury residences, fine art and public spaces. She specializes in a thoughtful use of light to create unusual environments in often unusual places—from an "Ice Pool" in Finland's Snow Show to a light art installation on the iconic Brooklyn Bridge in New York City.

### **Special Lighting for a Special Train**

The lighting had to meet both unique technical and manufacturing prerequisites and high aesthetic standards. Common functional lighting fixtures typically used on trains were not suitable for a luxury environment, so even the 26 non-decorative fixtures had to be custom designed. These include down lights, art lighting, and shower, walkway and reading lights. They had to be of small enough depth to be fit into the train's thin exterior skin, and meet requirements for safety, maintenance and non-flammability.

Such a design required very close collaboration between Tillett Lighting Design, interior designer Elskop Scholz, a design and architecture firm in New York, lighting



fabricator Shenzhen Hengzhiyuan Electric Appliance Co. Ltd (HZY) in China, and train manufacturer Bombardier Sifang Power Transportation Ltd (BSP) in Qingdao, China.

“Every fixture was enfolded into the train structure itself,” says Dr. Tillett. “Every surface treatment chosen by the interior designer profoundly affected the type and structure of the lighting fixtures. In a sense, the process of designing for the train was more akin to designing a seamlessly integrated product rather than a architectural space.”

### Lighting for the Luxury Traveler

Although the train was inspired by the great luxury trains, the design was not to be traditional. The train’s contemporary interiors feature natural materials and subtle shades and textures. Accented with Chinese influences, they create a sense of harmony with the passing landscape.

In approaching the lighting

design, Dr. Tillett always considered the travelers’ experience of the journey. Passengers will be in the train for four or five days. They will experience the space during dawn, daylight, twilight and the deep darkness of wilderness night. They will wake, have breakfast in bed or in the dining room, walk the aisle to socialize, visit the Scenic Lounge, have tea in the Dining Car, or just sit and watch the extraordinary landscape pass by. At night passengers will dress for drinks, walk to dinner and then return to their cabin to read and sleep. The illumination system provides a variety of moods to support these activities. Unlike most train lighting, it is not simply utilitarian, sterile, or unchanging. The lighting is as flexible and dynamic as any hotel or home lighting system, entirely unobtrusive, yet easy to comprehend and use.

In daytime, the lighting will appear modest—delicately reflecting the changing landscape and angles of the

sun, without attempting to compete with the remarkable exterior views.

At night, the illuminated private suites will enfold passengers into an intimate environment that makes quiet thought, reading in bed, writing or video-viewing comfortable and pleasant.

Elegant evenings spent in the two dining cars will be lit with glitter and excitement. As the landscape outside darkens, intimate pools of light will emerge over the dining tables, complemented by sconces shimmering and glinting. The sconces shift their patterns of light with changes in viewers’ perspective. In the Scenic Lounge, Elskop/Scholz and Dr. Tillett created a golden moonscape to cover the ceiling, bathing the car in a soft glow and creating a theatrical stage at the heart of the train.

### Making Magic with Materials

The success of the lighting design lies in the customization of every single



lighting fixture. Opulent materials such as mica and nickel are integrated into utilitarian fixtures, harmonizing with the soft leathers, rich woods and exotic stone of the interior design. Just as importantly, they transform the harsh, unpleasant quality of utility lighting into a sumptuous experience.

The fixture surfaces will echo the play and change of sunlight through the enormous windows. These multifaceted fixtures that fade modestly into the ceiling during the day, will take center stage at night.

The over-scale lighting fixtures in the Suite cars, Corridors and Scenic Lounge all feature an elegant natural surface of mica. These thin slices of ancient stone give texture and play, affecting chiaroscuro. As the sun passes, the mica surfaces unobtrusively alter their look. At night, when the sun and landscape disappear, these fixtures become luminous. They become a new sky, a ceiling-scape, a starry night, referencing the depth and quality of

a warm full moon in which to discover new shadowy shapes and faces.

Mica is an extraordinarily beautiful material. It also meets the practical requirements of the train: Inflammable; lightweight; delicately translucent and able to diffuse the harsh but necessary LED lighting sources. Mica has a slightly refractive quality—sparkling in a subtle reference to the sidewalks of New York, where mica pieces are imbedded in the concrete.

The sconces of nickel sit demurely next to the windows, inspired by old train lanterns. Their mirror-like surfaces reflect the passing landscape during the day. At night, the sconce interior is illuminated by tiny diffused LEDs, mimicking candle light. They shimmer and moiré, creating a play of light along the wall surfaces of the dining rooms.

#### LED Light Sources

To create visual complexity in an interior environment, such as a restaurant or a residence, a lighting

designer chooses an array of light sources. Usually an inviting feeling of warmth is provided by incandescent sources. However, because of the high altitude at which this train will travel, the air is too thin to safely disperse the heat generated by incandescent sources. Even fluorescents would not be sufficient for the task. Only one light source, the LED, was allowed on the Tangula Train.

LEDs are prized for their small size, long life and color changing capacities. However, as lighting designers know, they are difficult to use in interior situations because the quality of the light emitted is not very pleasant. Unlike incandescent sources, which have a rich quality of light due to their various lengths of light waves, LED sources only emit one length of light wave.

The designers took advantage of the LEDs' small size which allowed for needed compact fixtures. But they needed to reshape the quality of its



light. By surrounding the LED sources in luxurious materials and rich diffusers, they created an illumination of warmth and complexity.

“The idea was to affect a kind of magic and transform the experience of a 21<sup>st</sup> century light source into the timeless appeal of candlelight and incandescent glows,” says Dr. Tillett.

### Cross-Cultural Communication Design

The design team collaborated closely with the train manufacturer in China. “BSP engineers know how to make a good and safe train,” recalls Dr. Tillett. “Elskop Scholz and

Tillett Lighting Design know how to make a luxury environment. Only by working together could we achieve a moving luxury environment.”

Dr. Tillett also credits HZY for upholding the Chinese tradition of fine production in their fabrication of most of the trains fixtures.

“It took a collective commitment between designers, engineers and manufacturers to successfully work

together across a distance of miles, cultural difference and language,” said Dr. Tillett. “We’re all very proud of having met the challenge of creatively developing this new luxury train,” ■

**Kate Gardner** is Senior Associate and Director of Special Projects at Tillett Lighting Design Inc. , New York (USA). She has worked with founder/principal Dr. Linnaea Tillett on new design approaches to public space and infrastructure since 1997.



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