



## QuikDeck® Key to \$7 Billion Bullet Train Upgrade in Japan

### *10-year project calls for underside retrofit of 90 miles of elevated railroad*

In Japan, it's common to travel to a morning meeting 200 miles away and be back at the office that afternoon. This is, after all, the country that invented the bullet train; keeping on schedule within seconds is a matter of national pride.

Here, there's only one thing more important than an on-time train: a safe train. That's why the JR Tokai Central Japan Railway Company does daily inspections and maintenance – to ensure that the train is in premium condition at all times. In addition, over the long term a railroad system like this requires regular, large-scale upgrades and enhancements. This is the reason behind the JR Tokai Central Japan Railway Company's plans to invest \$7 billion on a major, complex, 10-year refurbishment project, entailing a retrofit of 90 miles

of elevated track scattered across the California-sized country.

The access contractor for the massive undertaking is Japanese industrial service giant Nisso Industries. When Nisso considered the challenge, the first step was to find an access system that would let workers get at the underside of long stretches of elevated rail bridges – where the bulk of the work was needed. There were two requirements: First, the system had to provide a strong, flat and sturdy platform wider than the overhead structure; and second, it had to do it without touching anything below. There were a lot of access system options, including a Japanese suspended access platform that provides flat, rigid access on hundreds of worksites all over Japan. But for the

vast Shinkansen rail project, Nisso was looking for something even better. They found it on the other side of the world, in a product from Wisconsin-based Safway Group: the QuikDeck® Suspended Access System.

“There are a lot of systems out there, but none that can do what QuikDeck does,” said Dai Ono, the CEO of Nisso Industries.

QuikDeck is a modular suspended platform that provides an almost completely unobstructed, heavy-duty surface under virtually anything – an arena ceiling, a bridge, or an oil rig, for example. It's been described as a factory floor in the air, is strong enough to drive a car on, and has limited suspension points so that workers and large, heavy equipment



“We needed a temporary floor, which could cantilever out to safely reach well beyond the overhead structure. The QuikDeck platform is about 50-feet wide. This is key.”

- Toshi Nakagiri

can move around with ease and confidence. And it was just the thing for Japan Railway’s retrofit.

#### **Long-term view**

JR Tokai takes a comprehensive approach to safety, ranging from daily inspections and automatic emergency braking systems, to process review and long-range strategic planning. The results of this approach are clear: There has never been a single passenger fatality on the Shinkansen railroad, for any reason, since its start in 1968.

Now the railroad company is going all out to maintain Shinkansen’s excellent safety record. “The ongoing inspection of the infrastructure showed that while the structures were sound, they would need steel cladding to keep them strong in the years to come,” said Toshi Nakagiri, Safway’s QuikDeck representative in Japan. “This is what prompted the retrofit,” he said.

The solution involves applying steel cladding to the underside of concrete

members supporting 90 miles of elevated track. The project also entails replacing track-side noise barriers.

#### **QuikDeck just the ticket**

QuikDeck was developed by Safway in 2004, and was originally envisioned for locations where scaffolding could not be built up from below – either because the access location was too high, or there was not a viable base below – or both as in the case of a floating oil rig.

In Japan, land area itself is a valuable resource. “Those miles of track are elevated for a reason. Underneath are roads, businesses, canals and access routes for adjacent farmland. Just as they can’t be obstructed for passing trains, they can’t be obstructed by scaffolding either,” Nakagiri said.

QuikDeck is the perfect solution for many reasons, according to Ono. “We needed a temporary floor,” he said, “which could cantilever out to safely reach well beyond the overhead structure. The QuikDeck platform is about 50-feet wide. This is key.”



Another benefit is its fundamental strength. Depending on configuration and the spacing of suspension chains, QuikDeck can handle loads from 25 psf (pounds per square foot) to more than 75 psf.

Furthermore, Ono pointed out an invaluable benefit that the inventors of QuikDeck hadn't even considered in the product's design: The gust of wind generated by a train passing at 170 mph packs a nasty punch. But because QuikDeck provides such a sturdy, solid platform, workers can keep right on going without missing a beat, whenever the massive Shinkansen projectile goes racing by.

"JR Railway selected QuikDeck because it can take the wind load. It's sturdy," Ono said.

In this application, QuikDeck was integrated with traditional modular scaffolding, covering all aspects of the access challenge, he explained.

"Because we are able to provide a great work environment, where workers feel safe and have wide-open, flat spaces from which to work, our productivity has been very strong. We can cover yards of retrofit work in just a matter of months. QuikDeck has been critical to the success of this project," Ono said.

#### **Fast to install and move**

Another key benefit of QuikDeck is that it can be quickly and easily assembled in the air. Its patented modular design allows crews to build out from an existing platform – with no support from below. Specially designed trusses are attached to pivot points at the edge of the existing deck surface. These trusses are then swung out and secured in place, and solid four-by-eight-foot plywood decking panels are set in place over them. The new area is clamped into chain supports from above, and the process repeats. Each QuikDeck component can be easily handled by one person and requires no special tools or skills to assemble. A three-person crew can erect about 1,600

Through **SMART Safety** practices, **SMART Planning** methodologies, **SMART Process** discipline and **SMART Technology** advancements, our **SMART People** come up with ideas every day to deliver **THE SMART WAY™**. The result? Safe, productive work sites – and the lowest total installed cost.



square feet of QuikDeck in a day. And it comes apart just as fast.

An added benefit is that QuikDeck's continuous surface contains all debris and reduces any risk to people, facilities and businesses below from dropped objects.

The equipment is built to last for repeated use in an exposed long-term project such as the Shinkansen retrofit. All structural steel components are hot-dip galvanized, so they'll maintain their full load rating over many years.

In fact QuikDeck is so critical to the success of the project that Nisso entered into a strategic agreement with Safway.

Mat Grumberg, a Safway engineering manager, explained, "Nisso is the sole distributor of QuikDeck in Japan, and is now cranking up Japanese manufacturing of the product under license by Safway, expressly for the Shinkansen project. In all, 600,000 square feet of QuikDeck will be produced. The plan is for each piece to be put into use, removed, and

relocated 10 times throughout the course of the project. The simplicity of QuikDeck installation and removal makes this 'leapfrog' approach viable."

With nearly six miles of QuikDeck in place across Japan thus far, Nisso has firm plans to use QuikDeck on the Shinkansen project for at least the next three years.

With more than 90 locations in the U.S. and Canada and a growing system of distributors worldwide, Safway Group companies deliver efficient, high-performance multiservice solutions – The Smart Way™



Safway Group Holding LLC  
N19 W24200 Riverwood Drive  
Waukesha, WI 53188  
Toll free: (800) 558-4772  
Telephone: (262) 523-6500  
[www.safwaygroup.com](http://www.safwaygroup.com)

Safway Group Companies:

