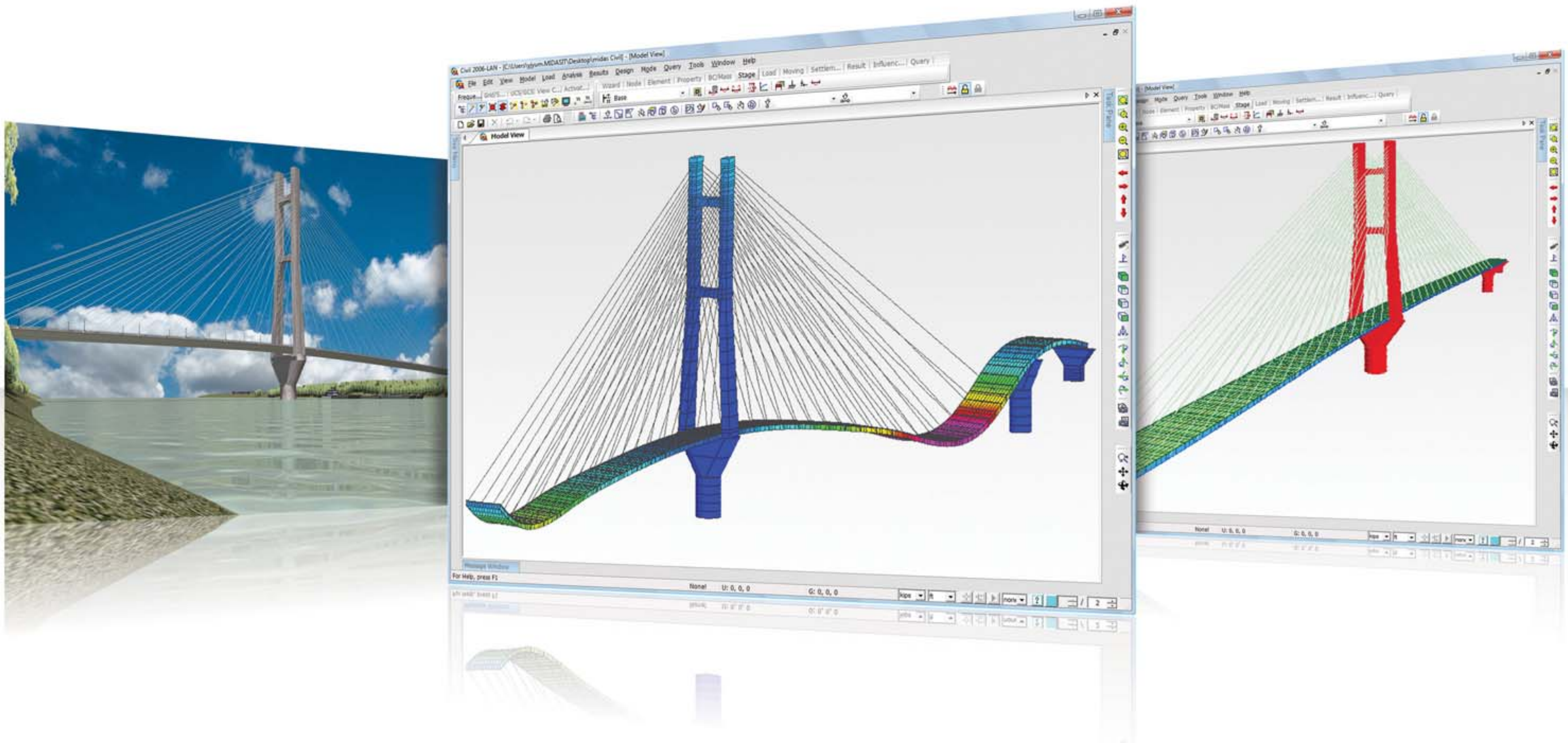
Ironton-Russell Bridge in USA

The Ironton-Russell Bridge is a single tower cable-stayed girder bridge. Girders are I-shaped steel plate girders. The girders are of a composite system with the concrete deck. The cable system is a dual-plane system consisting of 70 cables and the tower is made up of reinforced concrete.

Overview

Overall bridge length	1,900 ft
Main span	950 ft
Tower height	519 ft
Location	Between Ironton, Lawrence County, Ohio, USA and Russell, Greenup County, Kentucky, USA
Function/usage	Roadway Bridge
Designer	Michael Baker, Jr., Inc.
Cost of construction	$110 Million
Elements	Truss: 70 / Beam: 2088 / Shell: 2730
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Cable Tension Optimization / Eigenvalue Analysis Thermal Analysis / Vehicle Load Optimisation

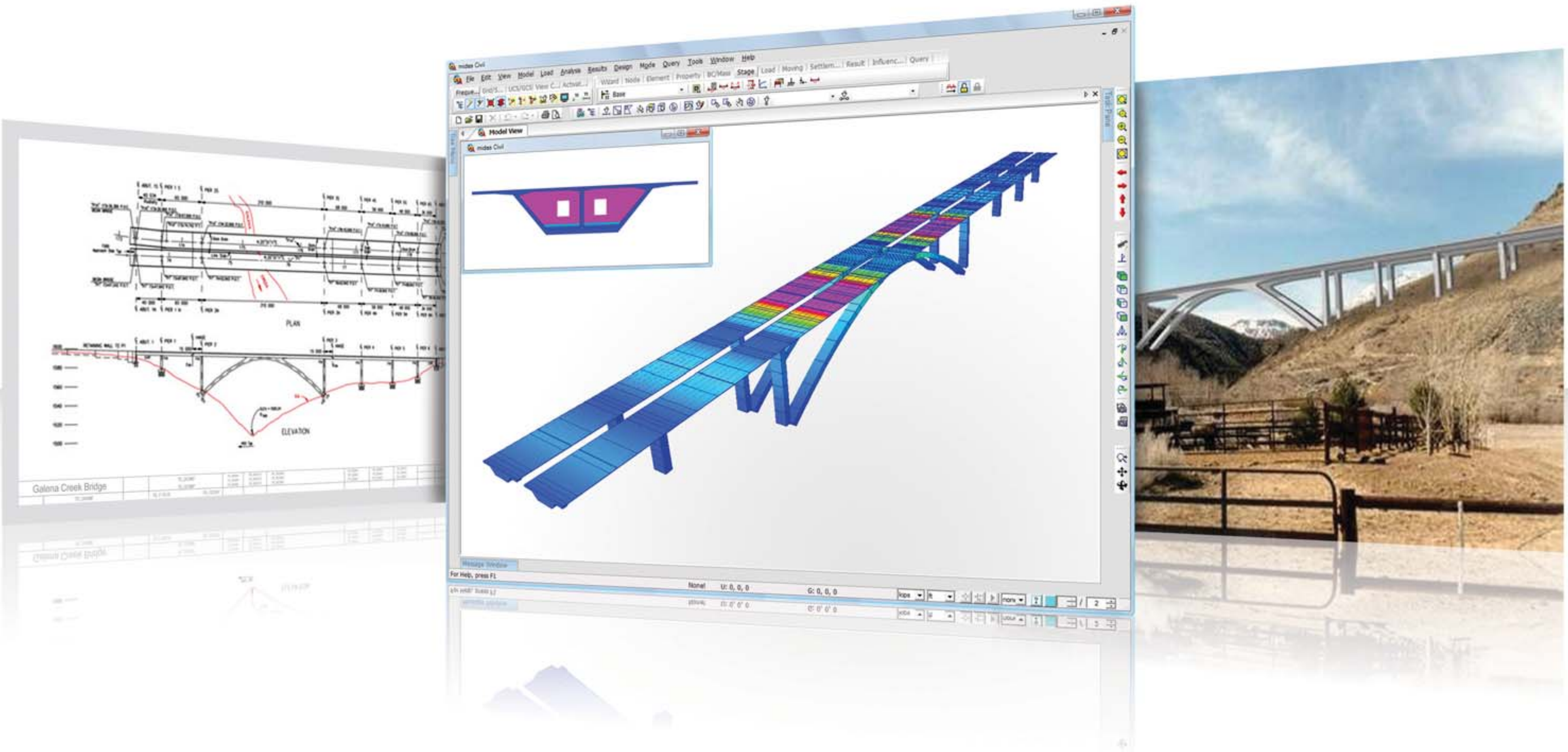


Galena Creek Bridge in USA

The Galena Creek Bridge is a concrete arch bridge under construction 5 miles south of Reno, Nevada. The bridge is part of a new freeway construction project along I-580 eventually connecting Reno south to the state's capital, Carson City. The six-lane bridge represents one of the most expensive public works projects ever in the state of Nevada. Once constructed, the 1,700-foot (520 m) Galena Creek Bridge with its 690-foot (210 m) span over the creek will be the longest concrete arch bridge in the United States.

Overview

Overall bridge length	525m
Main span	210m
Location	Nevada, United States
Function/usage	Roadway Bridge
Designer	H. C. Bond, P.E. (of Parsons)
Number of elements and element types used	Beam: 400 Tendon Profile: 10 (lumped representative tendons)
Type of analysis	Constrution Stage Analysis with Time-Dependent Effects Vehicle Load Optimization

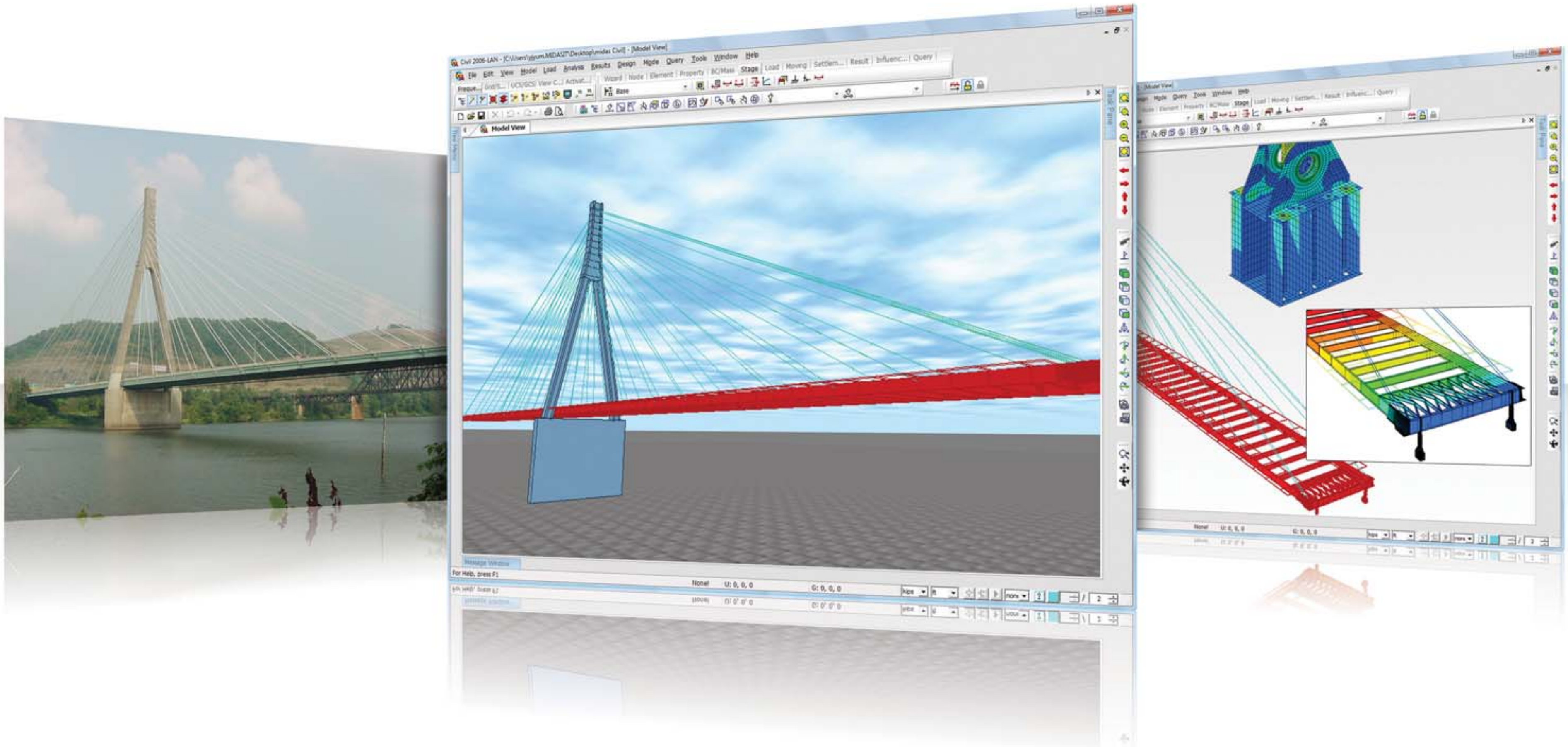


Weirton-Steubenville Bridge in USA

The Weirton-Steubenville Bridge is an asymmetrical cable-stayed bridge with a single tower.
The girders are I-shaped steel plate girders with a skewed web at 10˚. The 52 cables create a dual-plane system.
The concrete deck is treated as a composite system. The tower is reinforced concrete with an inverted Y-shape.
In addition to the 3D analysis, a detail analysis for the anchor block has been performed.

Overview

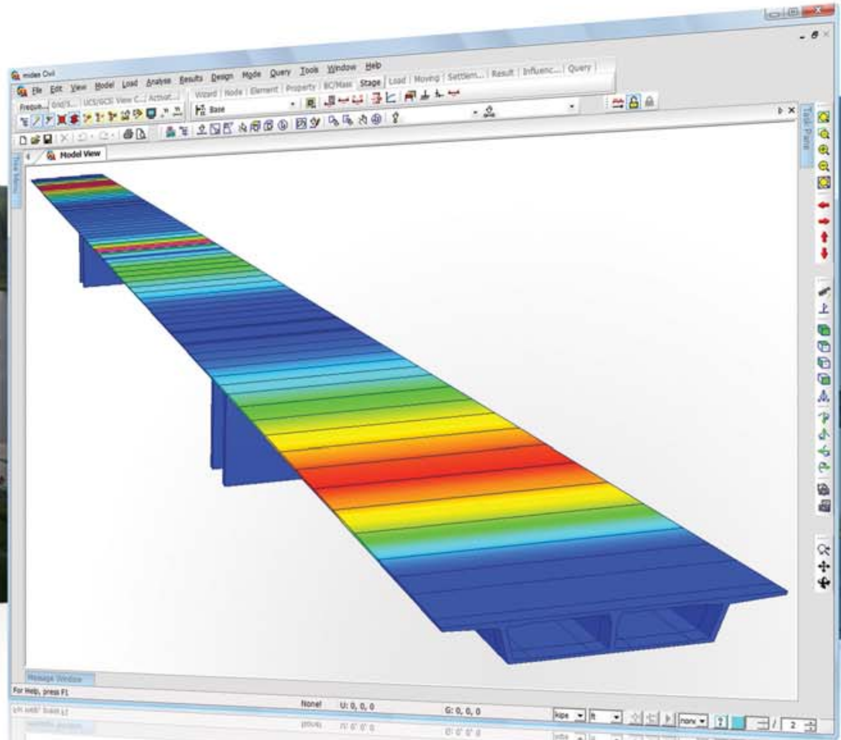
Overall bridge length	1,965 ft
Main span	820 ft
Tower height	365 ft
Location	Crossing the Ohio River between Weirton, West Virginia, USA and Steubenville, Ohio, USA
Function/usage	Roadway Bridge
Contractor	S.J. Groves & Sons Co.
Designer	Michael Baker, Jr., Inc.
Consultant	T.Y. Lin International
Year of completion	1989 (opened in May, 1990)
Cost of construction	$30 Million
Elements	Truss: 52 / Beam: 484 / Shell: 13312
Type of analysis	Construction Stage Analysis / Cable Tension Optimisation Detail Analysis

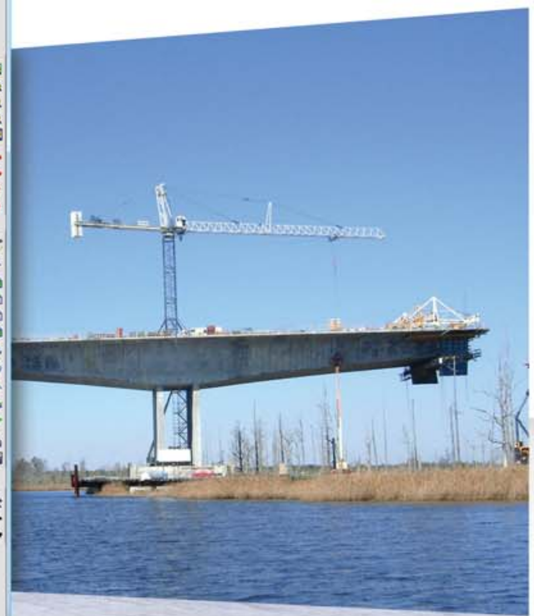


US 17 Wilmington By Pass in USA

Overview

Overall bridge length	316 m
Location	North Carolina, United States
Function/usage	Roadway Bridge
Designer	H. C. Bond, P.E. (of Parsons)
Number of elements and element types used	Beam: 84 Tendon Profile: 256
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Vehicle Load Optimization

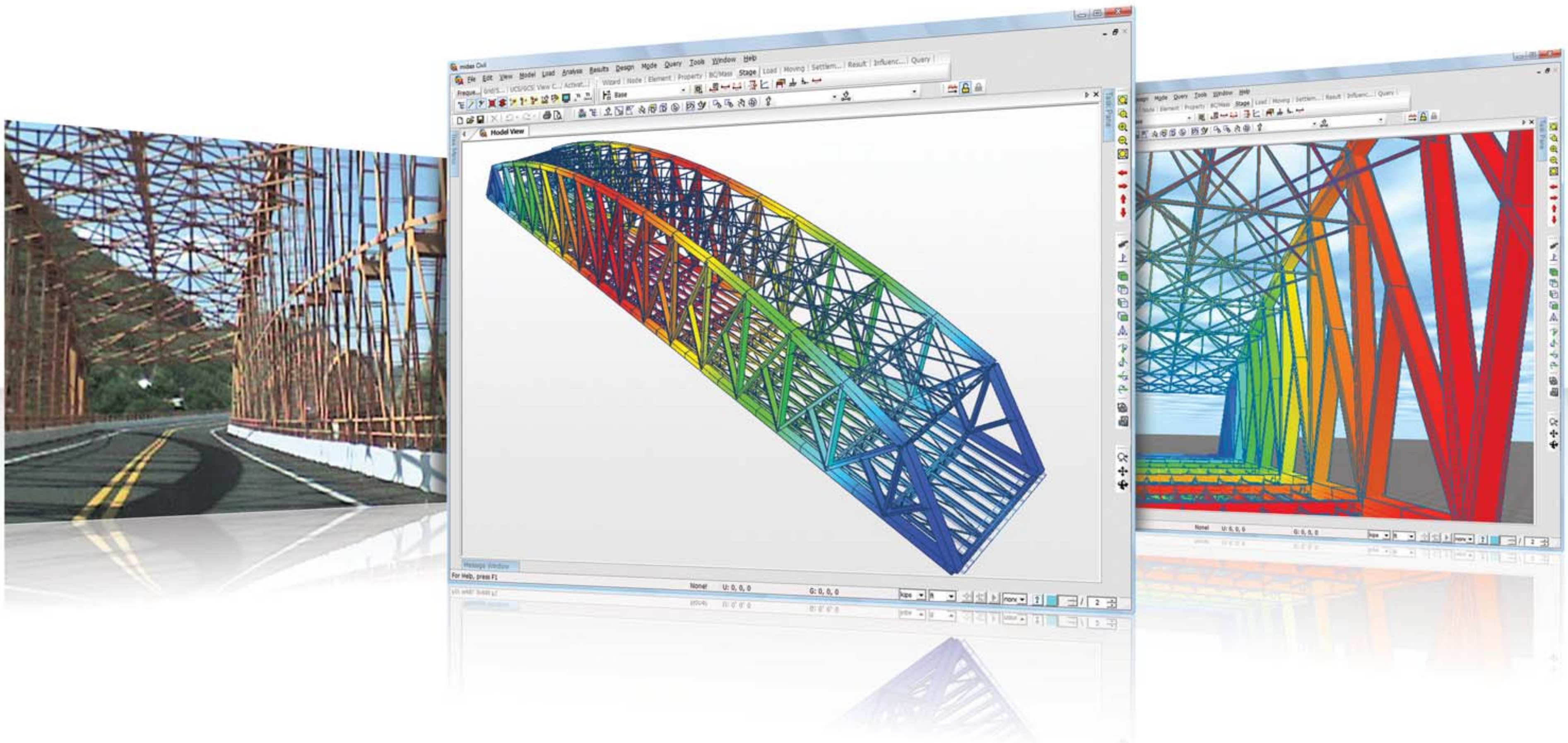




El Marquéz Bridge in Mexico

Overview

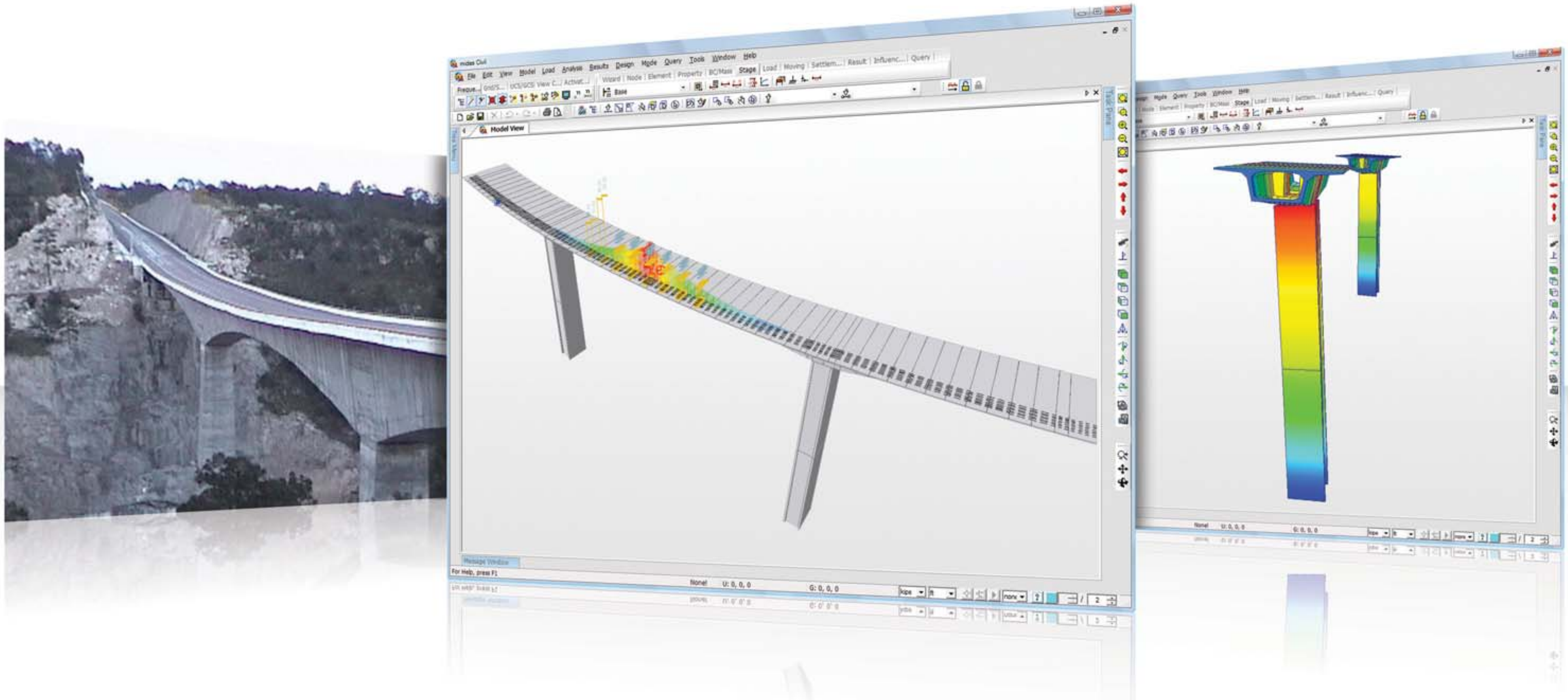
Overall bridge length	102 m
Location	Michoacán, Mexico
Function/usage	Roadway Bridge
Designer	COPECSA de CV
Number of elements and element types used	Beam: 2224
Type of analysis	Response Spectrum Analysis Eigen Value Analysis Vehicle Load Optimization



La Jabalina Bridge in Mexico

Overview

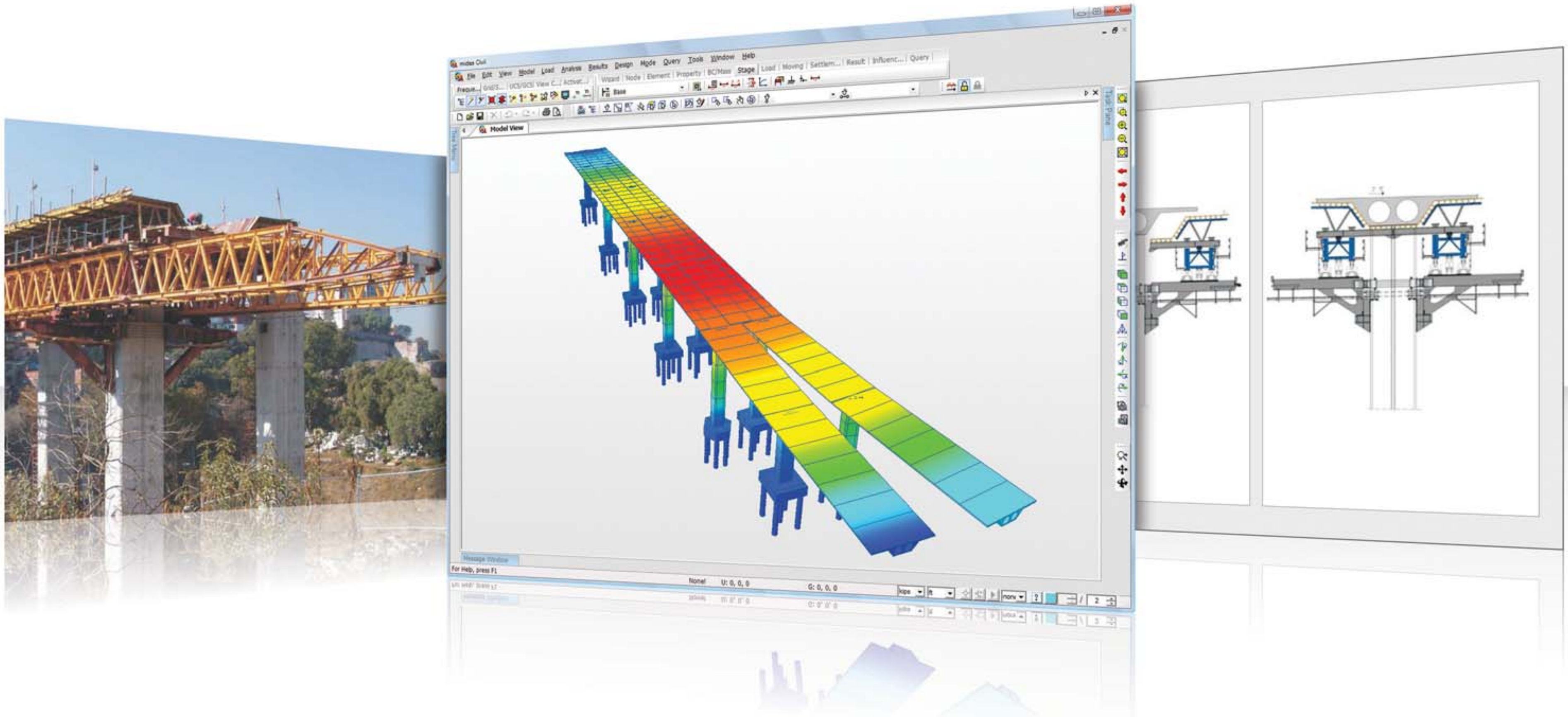
Overall bridge length	191 m
Location	Durango, Mexico
Function/usage	Roadway Bridge
Designer	TRIADA SA de CV
Number of elements and element types used	Beam: 63 Tendon Profile: 64
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Response Spectrum Analysis Eigen Value Analysis Vehicle Load Optimization



Tarango Bridge in Mexico

Overview

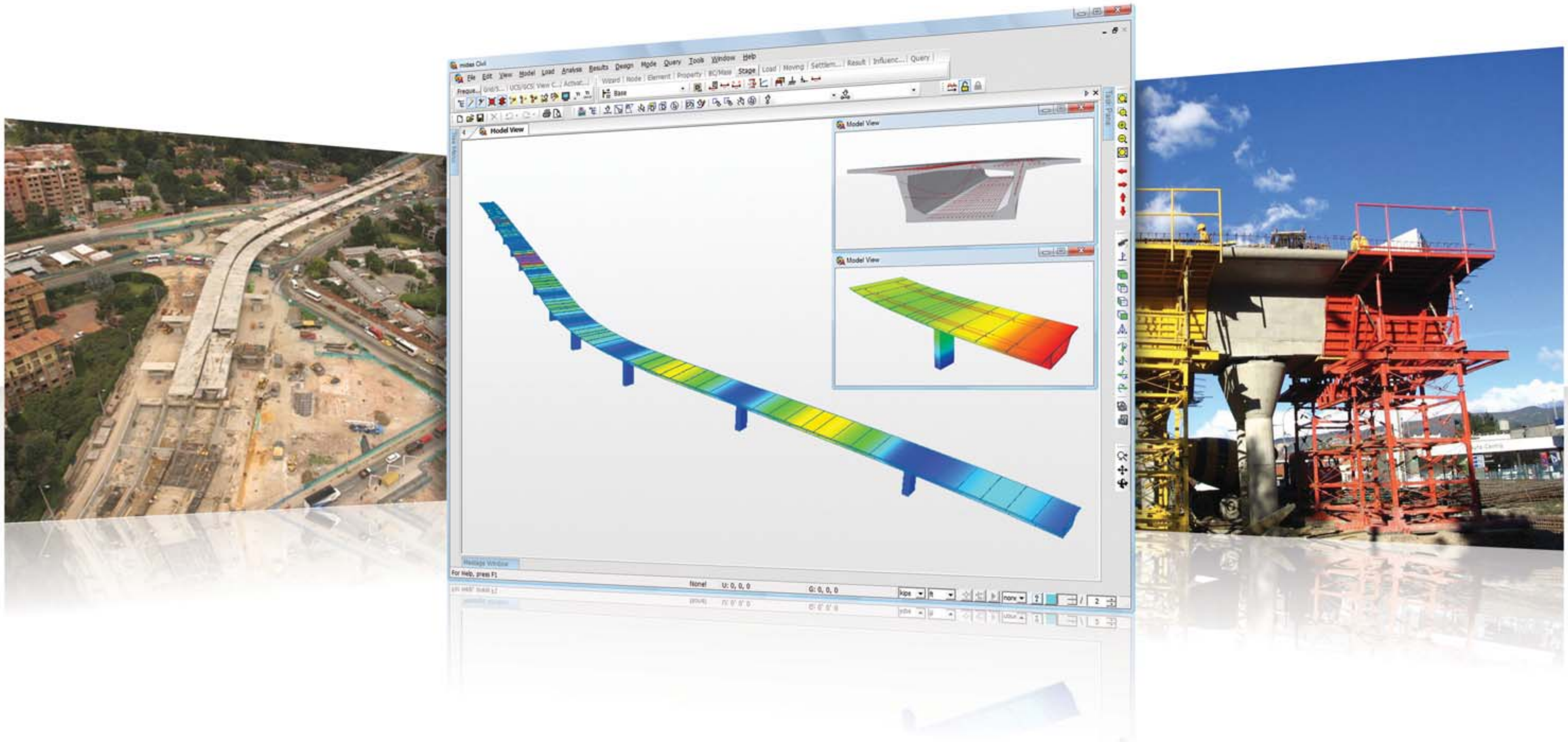
Overall bridge length	206 m
Location	Mexico City, Mexico
Function/usage	Roadway Bridge
Designer	Carlos Fernandez Casado S de RL
Number of elements and element types used	Truss (Cable): 176 Beam: 1653
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Response Spectrum Analysis Eigen Value Analysis Vehicle Load Optimization



Intersección Elevada Av. Suba x Av. Boyacá in Colombia

Overview

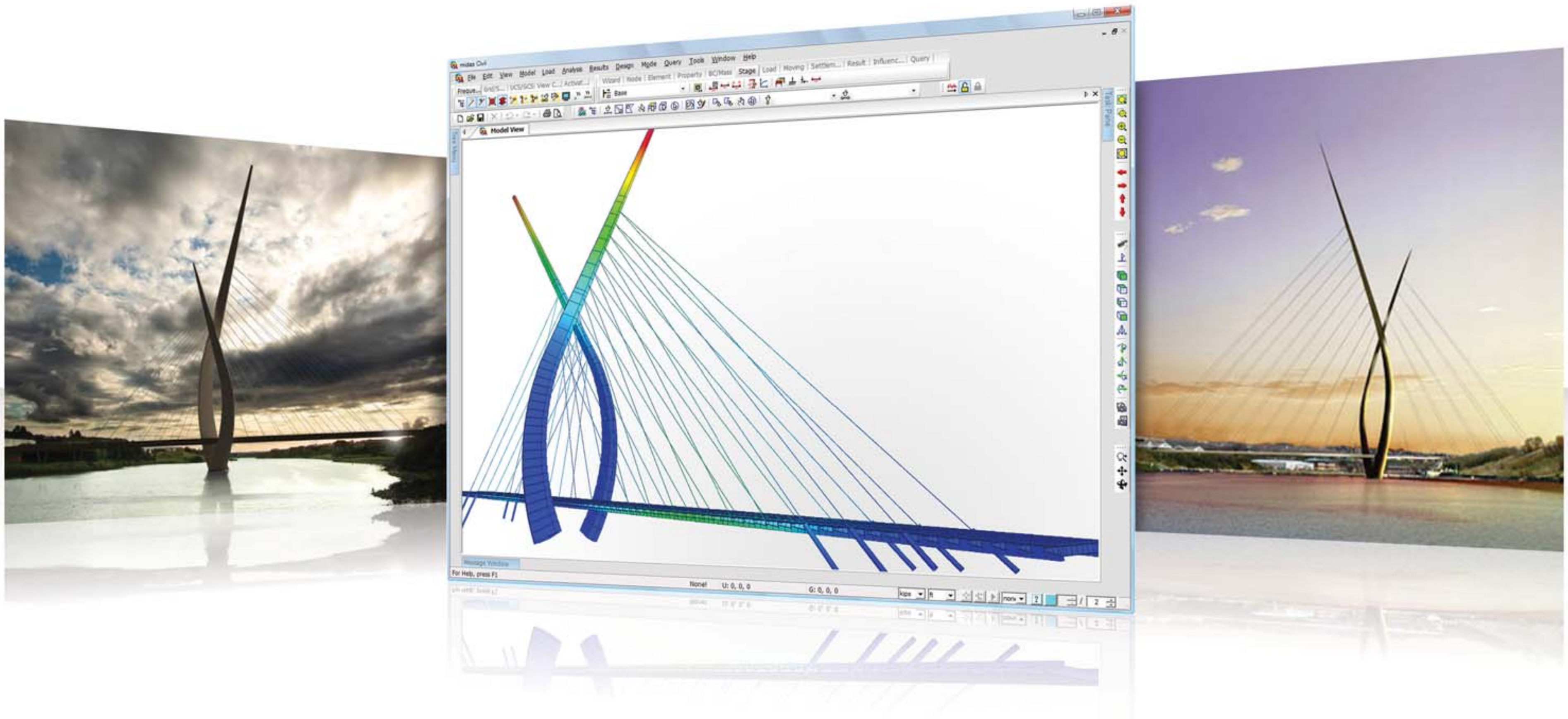
Overall bridge length	370 m
Location	Cali, Colombia
Function/usage	Roadway Bridge
Designer	Gregorio Renteria Ingenieros S. A
Number of elements and element types used	Beam: 153 Tendon Profile: 140
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Response Spectrum Analysis Eigen Value Analysis Vehicle Load Optimization



New Wear Bridge in United Kingdom

Overview

Overall bridge length	1,102 ft
Tower height	590 ft
Location	Sunderland, United Kingdom
Function/usage	Roadway Bridge
Designer	Techniker and Hewson Consulting
Cost of construction	£ 104 Million
Number of elements and element types used	Truss (Cable): 38 / Beam: 1446 Plate: 1800 / Tendon Profile: 96
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Unknown Load Factor Analysis Eigenvalue Analysis Thermal Analysis Vehicle Load Optimization Settlement Analysis

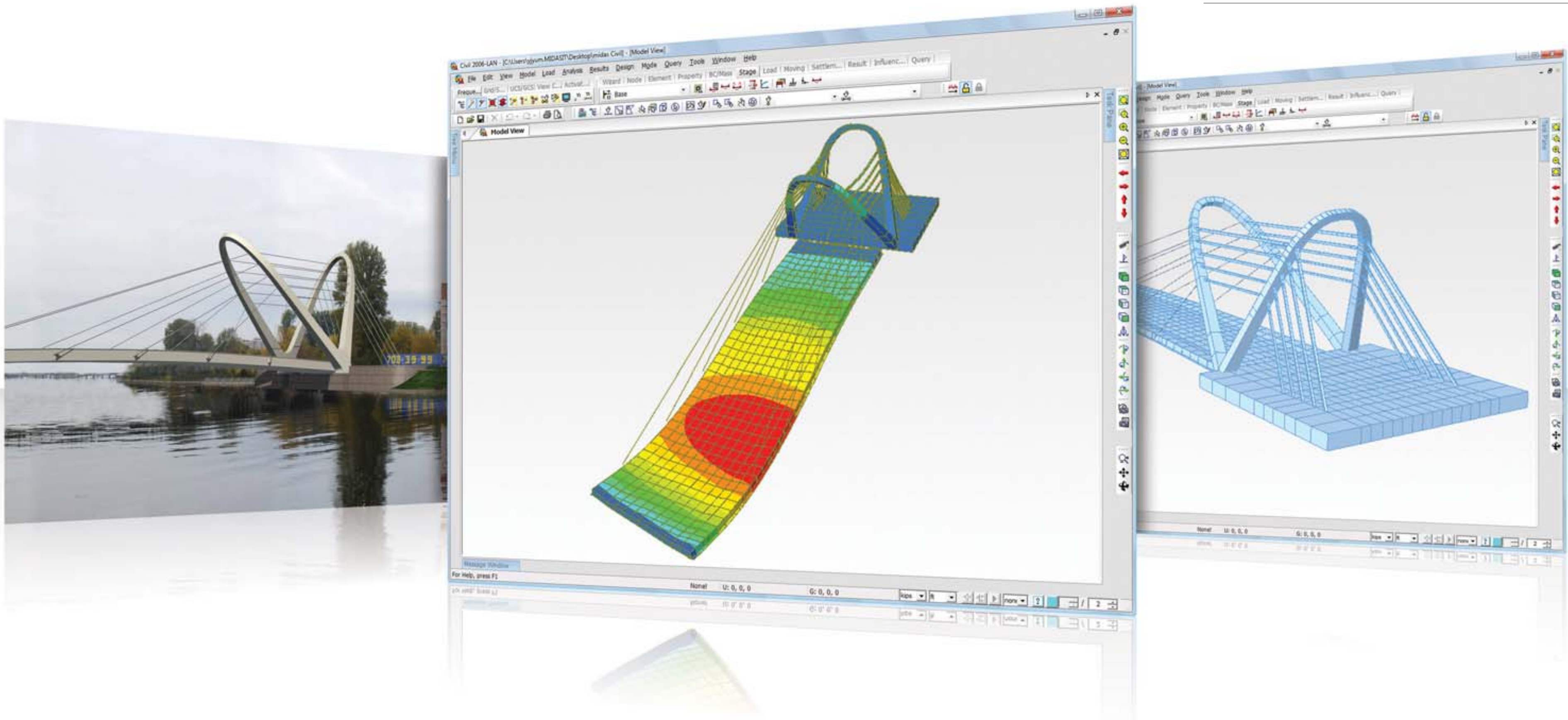


Lazarevsky Bridge in Russia

The Lazarevsky Bridge has five pairs of cable-stays and ten pairs of rigid anchor trusses.

Overview

Overall bridge length	120 m
Main span	120 m
Tower height	26 m
Location	Saint-Petersburg, Russia
Function/usage	Roadway Bridge
Contractor	Mostostroj 6
Designer	Institute Strojproject
Year of completion	2009
Cost of construction	$ 30 Million
Number of elements and element types used	Truss: 10 / Beam: 903 Shell: 637
Type of analysis	Static Analysis Vehicle Load Optimization Eigenvalue Analysis Construction Stage Analysis



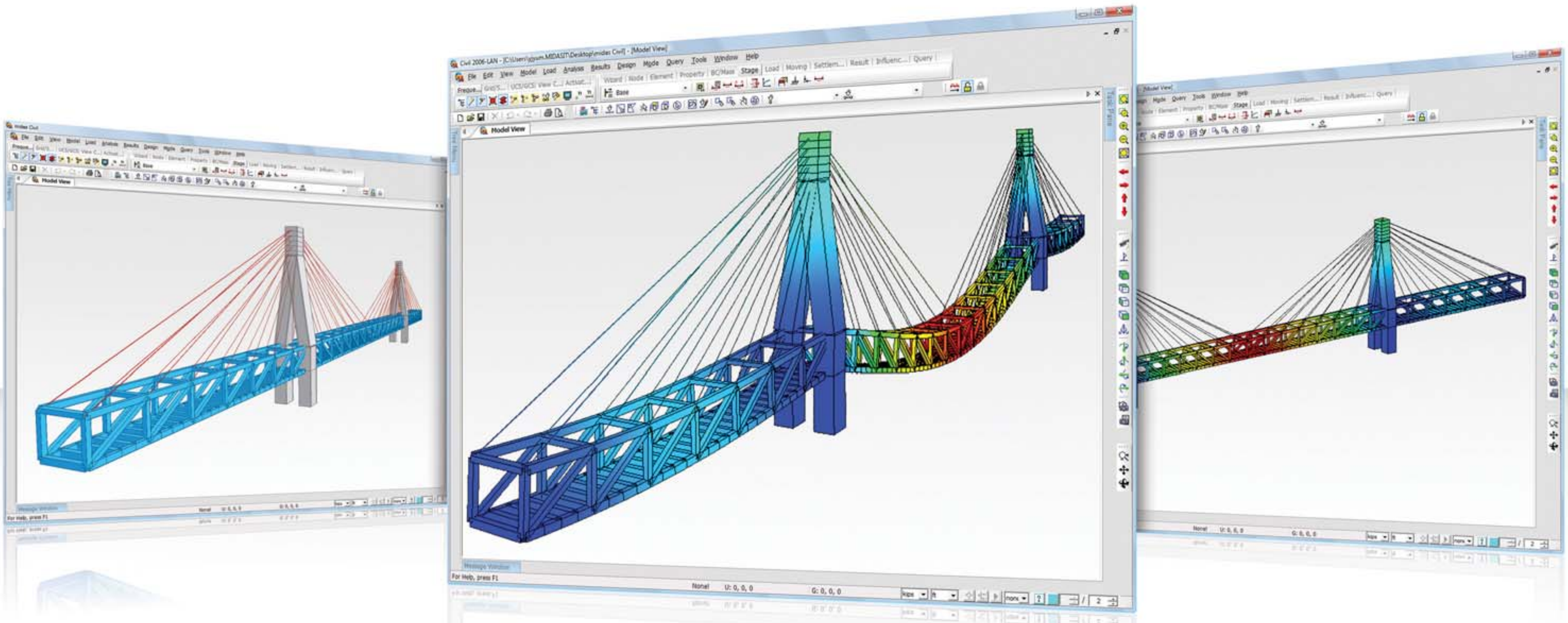
Train-Structure Interaction

TUDelft/Movares Research Project

The bridge is a symmetrical cable-stayed bridge with three spans. The tower is composed of a concrete rectangular hollow section. The main girder is a truss-girder composed of steel girders, crossbeams and trusses. The center-to-center distance of stay cables is 13.33 m at deck and 2 m at tower. The dynamic effect of a train crossing the bridge at high speed has been investigated.

Overview

Overall bridge length	400 m
Main span	200 m
Tower height	75 m (60 m above the deck)
Function/usage	Railway Bridge
Consultant	Movares Nederland BV
Number of elements and element types used	Truss: 56 (Stay cables) Beam: 582 (Deck and Tower)
Type of analysis	Static Analysis Vehicle Load Optimization Time History Analysis Buckling Analysis
FE model by	A. Steenbrink

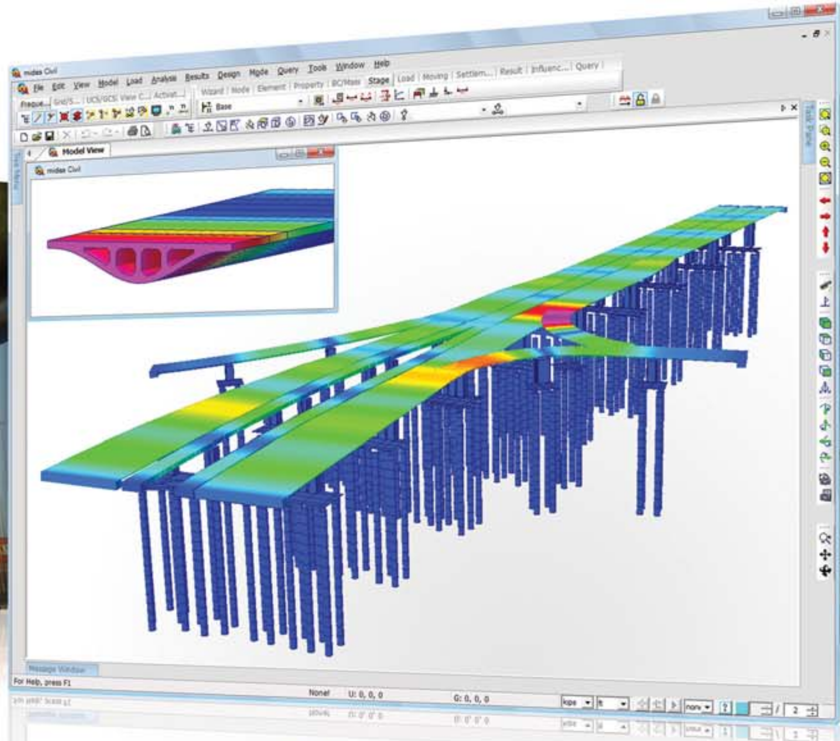


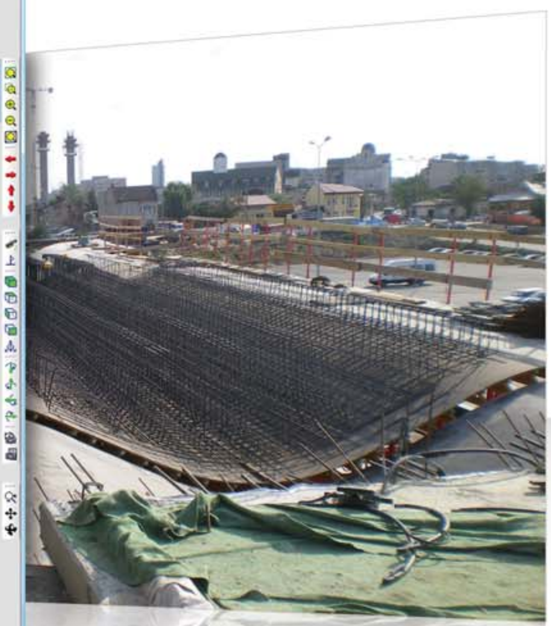
Basarab viaduct in Romania

The Basarab Flyover Bypass connects the central rail station with the Grozavesti Bulevardul, across the Dambovita River in downtown Bucharest. The 1,479 m Long crossing consists of a 125 m long arch bridge over the river, a complex 791 m long road and tramway viaduct, and a 302 m long, 40 m wide cable-stayed bridge over the railway. The new link is completed by three side ramps connecting the flyover with secondary roads at ground level.

Overview

Overall bridge length	1478.5 m
Main span	125 m
Location	Bucharest, Romania
Function/usage	Roadway / Tramway Bridge
Designer	C&T Engineering Srl
Number of elements and element types used	Beam: 3073 Plate: 549
Type of analysis	Nonlinear dynamic time history analysis with Lead Rubber Bearing Isolators (LRB) and Viscous Dampers A. Steenbrink



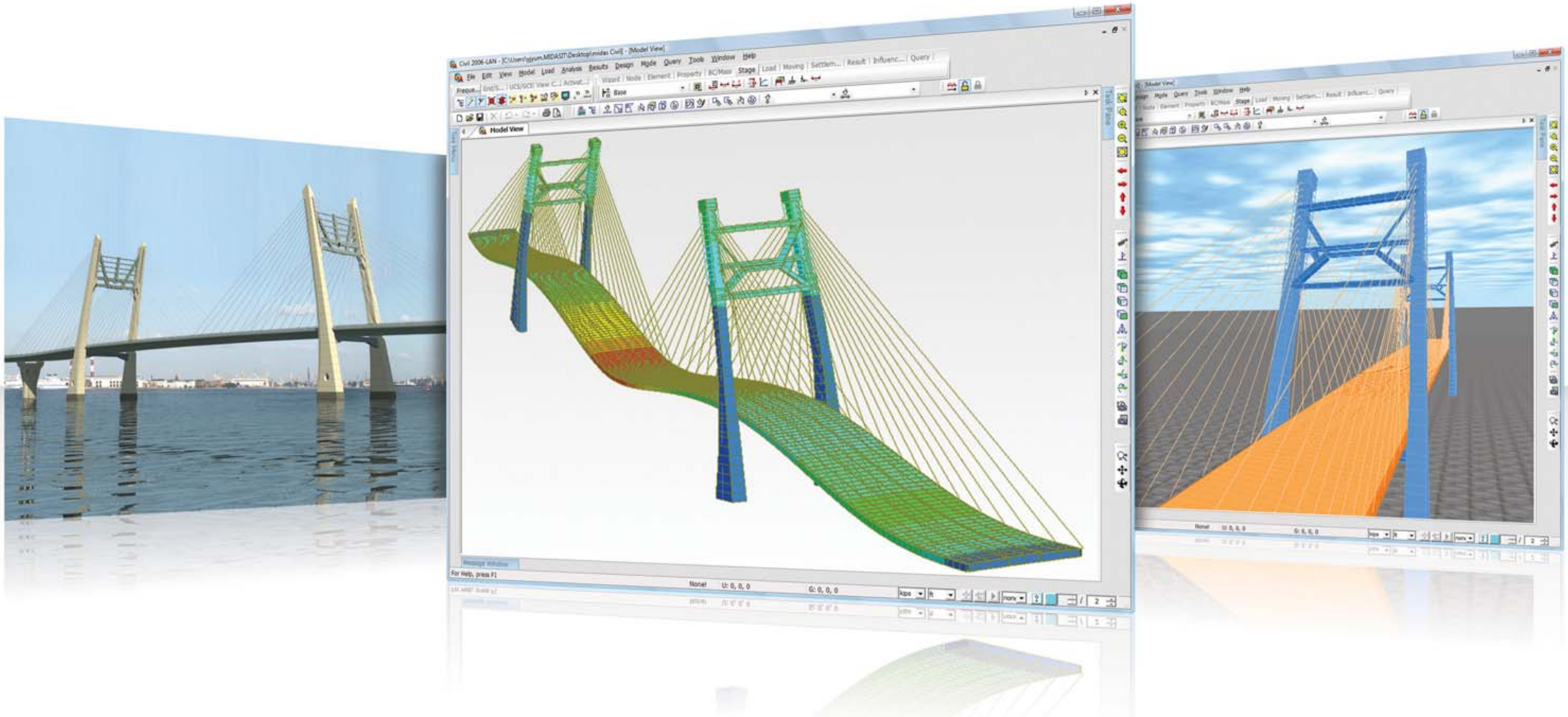


Korabelny Farvater Bridge in Russia

The Korabelny Farvater Bridge has a dual-plane cable system of 54 cables. The concrete deck is a composite system. The tower is reinforced concrete.

Overview

Overall bridge length	620 m
Main span	310 m
Tower height	128 m
Location	Saint-Petersburg, Russia
Function/usage	Roadway Bridge
Designer	Institute Strojproject
Consultant	Freyssinet International
Year of completion	Under design
Cost of construction	$ 20 Million
Number of elements and element types used	Truss (Cable): 104 / Beam: 4063 Shell: 2288
Type of analysis	Static Analysis Vehicle Load Optimization Eigenvalue Analysis

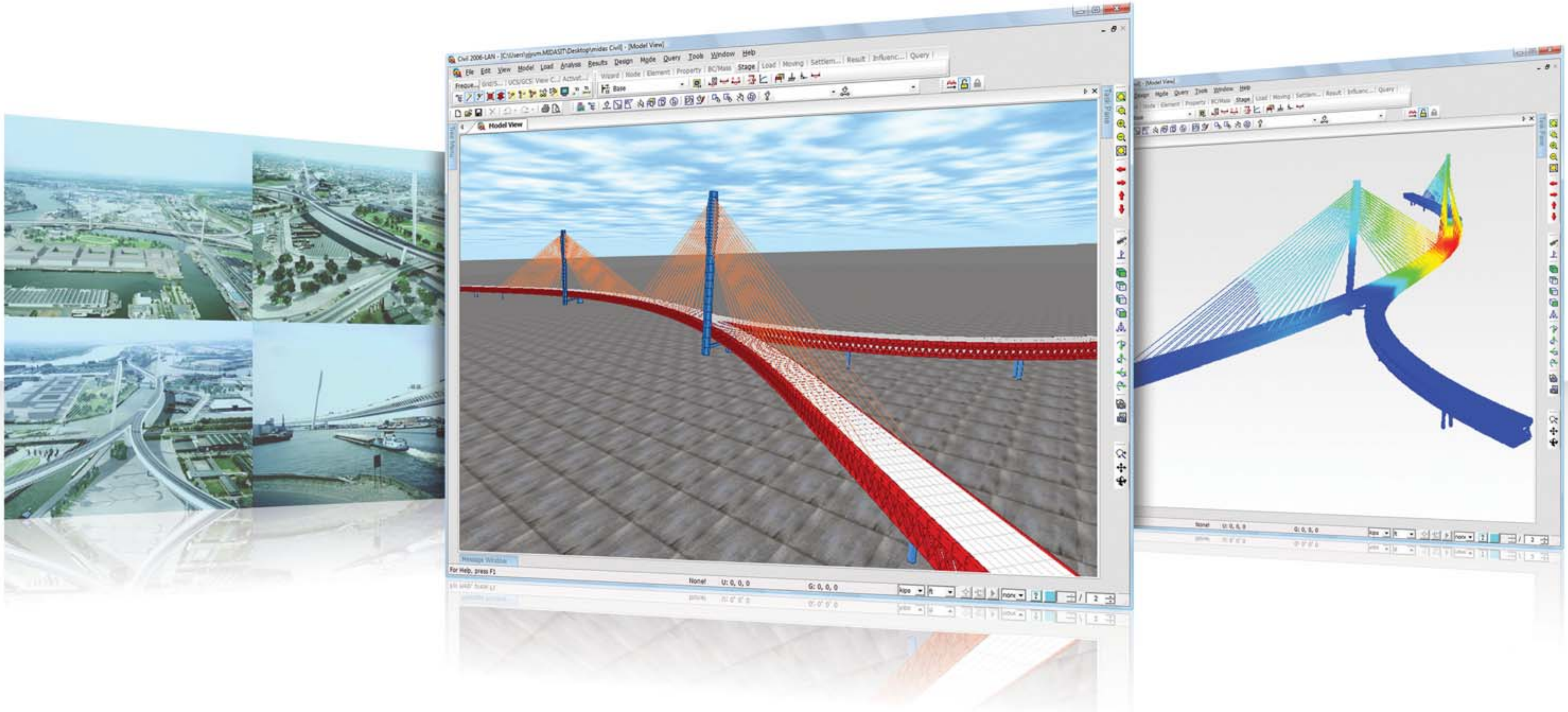


Lange Wapper Bridge in Belgium

The bridge has two asymmetrically inclined pylons and a unique horizontally curved double-deck.
The use of an inclined pylon form and a high deck bending stiffness, which is different from classic cable-stayed bridge design, was questioned but it was concluded that it showed the same mechanical behavior as a classic cable-stayed bridge.

Overview

Overall bridge length	1,520 m
Main span	600 m
Tower height	150 m
Location	Antwerp, Belgium
Function/usage	Roadway Bridge
Consultant	C+E, TUDelft
Number of elements and element types used	Solid: 7930 (concrete deck) / Shell: 7733 (crossbeam's web) Beam: 20151 (crossbeam's flange, truss's top and bottom chord and diagonal) Truss: 128 (Stay cables)
Type of analysis	Construction Stage Analysis Cable Tension Optimization Vehicle Load Optimization
FE model by	N. Löfgren

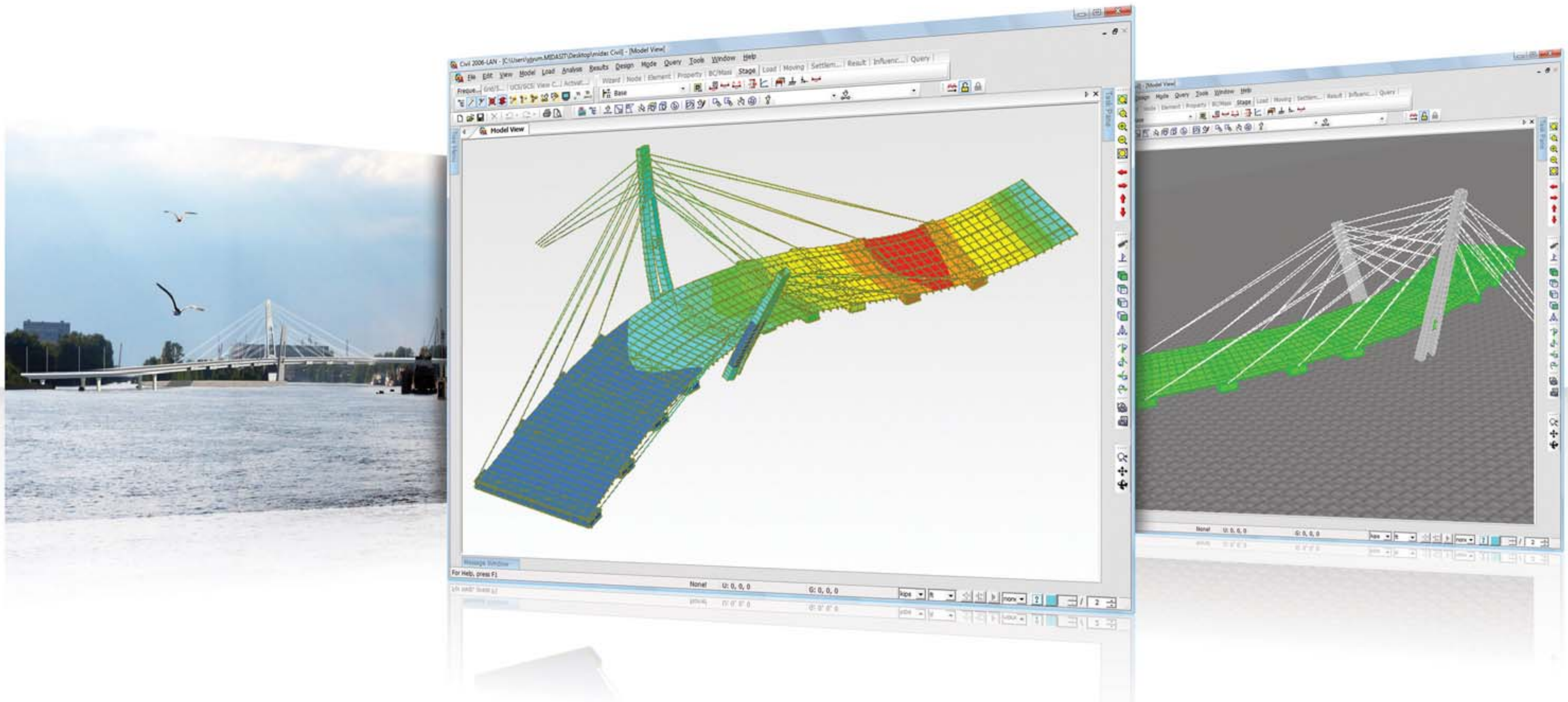


Sernyi Bridge in Russia

The Sernyi Bridge is designed to be much curved in plan. 16 pairs of cable-stays are supporting the deck and 8 cable-stays connect the steel towers.

Overview

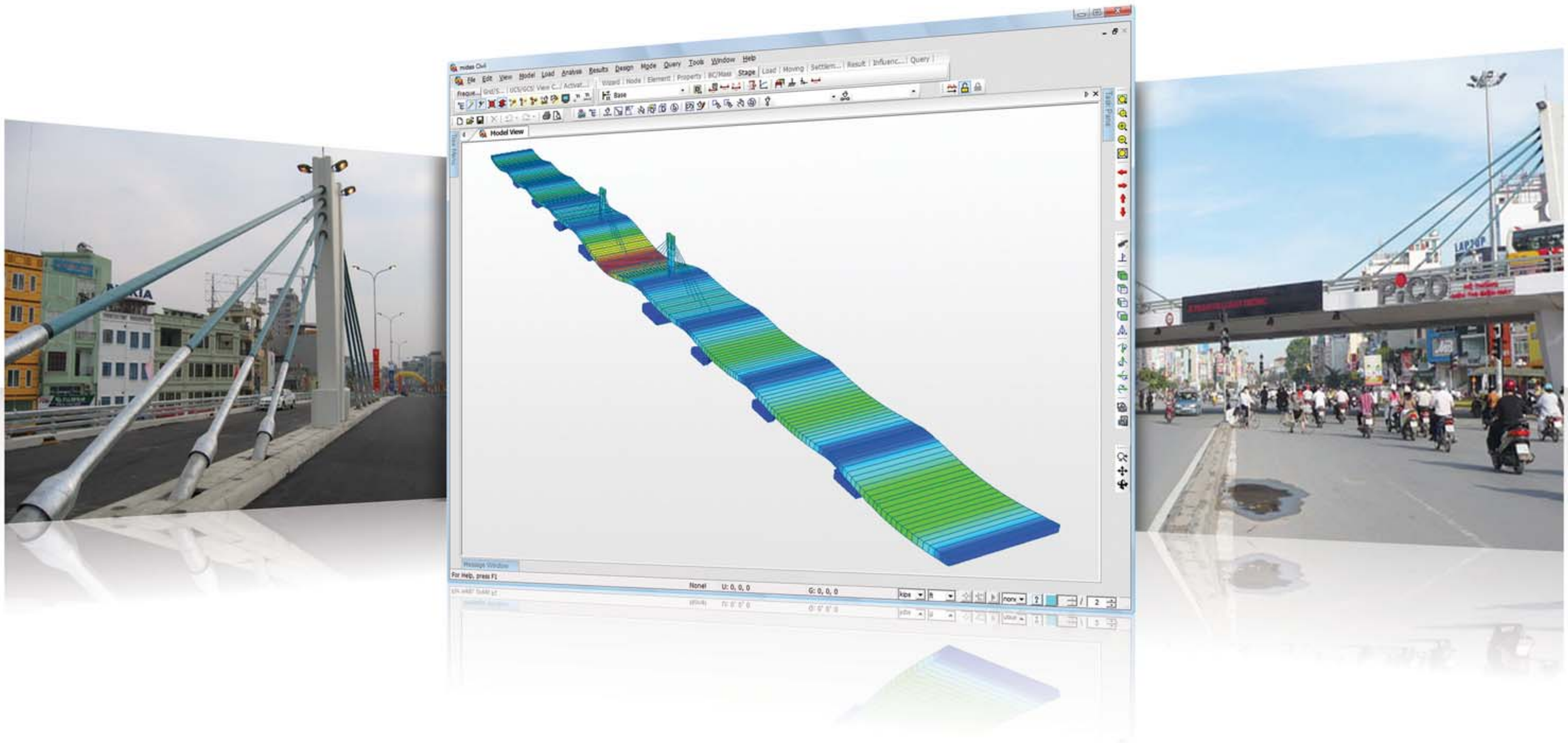
Overall bridge length	248 m
Main span	144 m
Tower height	66 m and 48 m
Location	Saint-Petersburg, Russia
Function/usage	Roadway Bridge
Designer	Institute Strojproject
Year of completion	Under design
Cost of construction	$ 50 Million
Number of elements and element types used	Truss (Cable): 40 / Beam: 1633 Shell: 926
Type of analysis	Static Analysis Vehicle Load Optimization



Nga Tu So Overfly Bridge in Vietnam

Overview

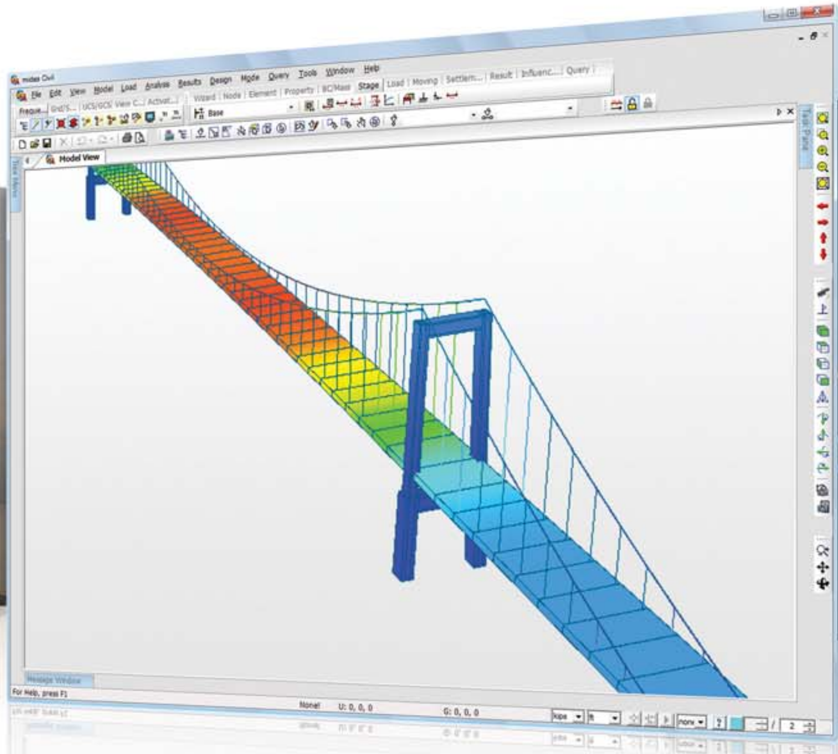
Overall bridge length	189 m
Location	Hanoi, Vietnam
Function/usage	Roadway Bridge
Designer	VINACONEX, CIPHanoi
Number of elements and element types used	Truss (Cable): 16 Beam: 308
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Response Spectrum Analysis Eigen Value Analysis Vehicle Load Optimization

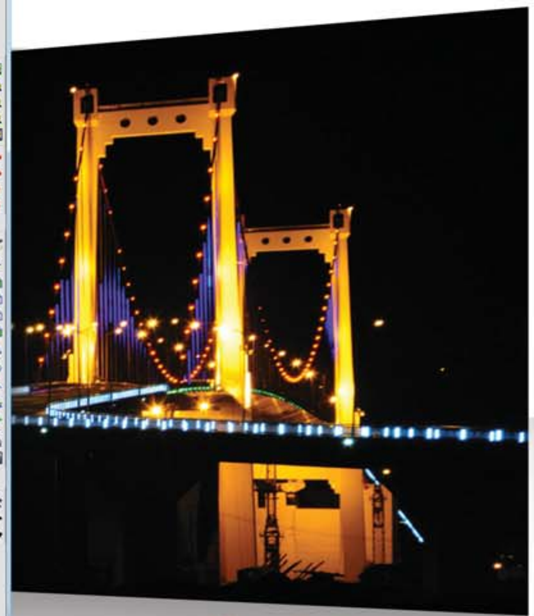


Thuan Phuoc Bridge in Vietnam

Overview

Overall bridge length	654 m
Location	Da Nang, Vietnam
Function/usage	Roadway Bridge
Designer	Tecco533, CIPHanoi
Number of elements and element types used	Truss (Cable): 266 Beam: 82
Type of analysis	Response Spectrum Analysis Eigen Value Analysis Large Displacement Analysis Vehicle Load Optimization

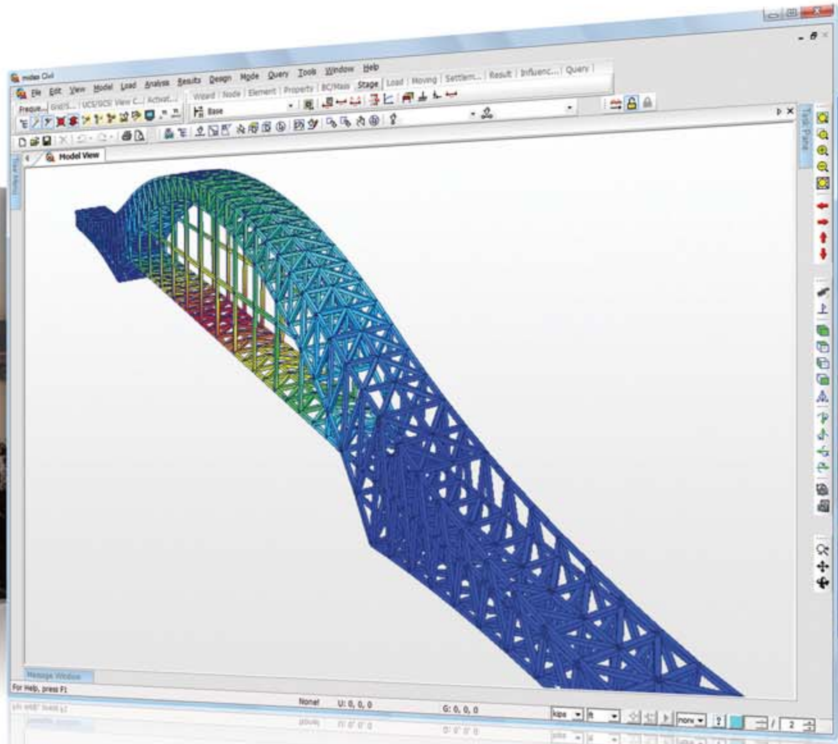


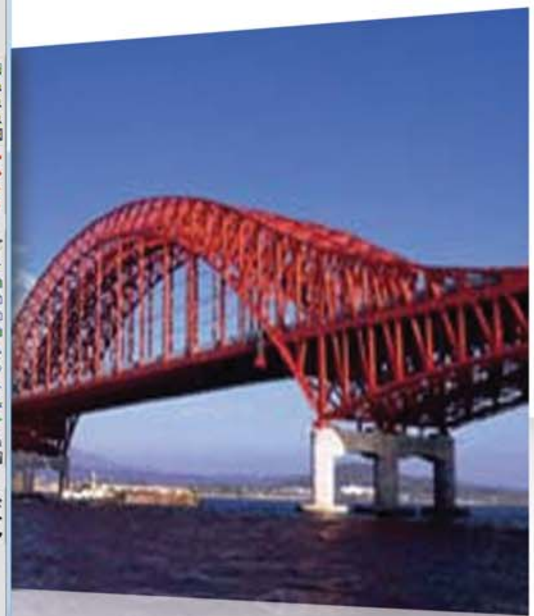


Bang Hwa Bridge in South Korea

Overview

Overall bridge length	2,559 m
Location	Seoul, South Korea
Function/usage	Roadway Bridge
Designer	Sam An Engineering
Year of completion	2000
Cost of construction	$ 0.2 Billion
Number of elements and element types used	Beam: 2603
Type of analysis	Eigen Value Analysis Response Spectrum Analysis Vehicle Load Optimization

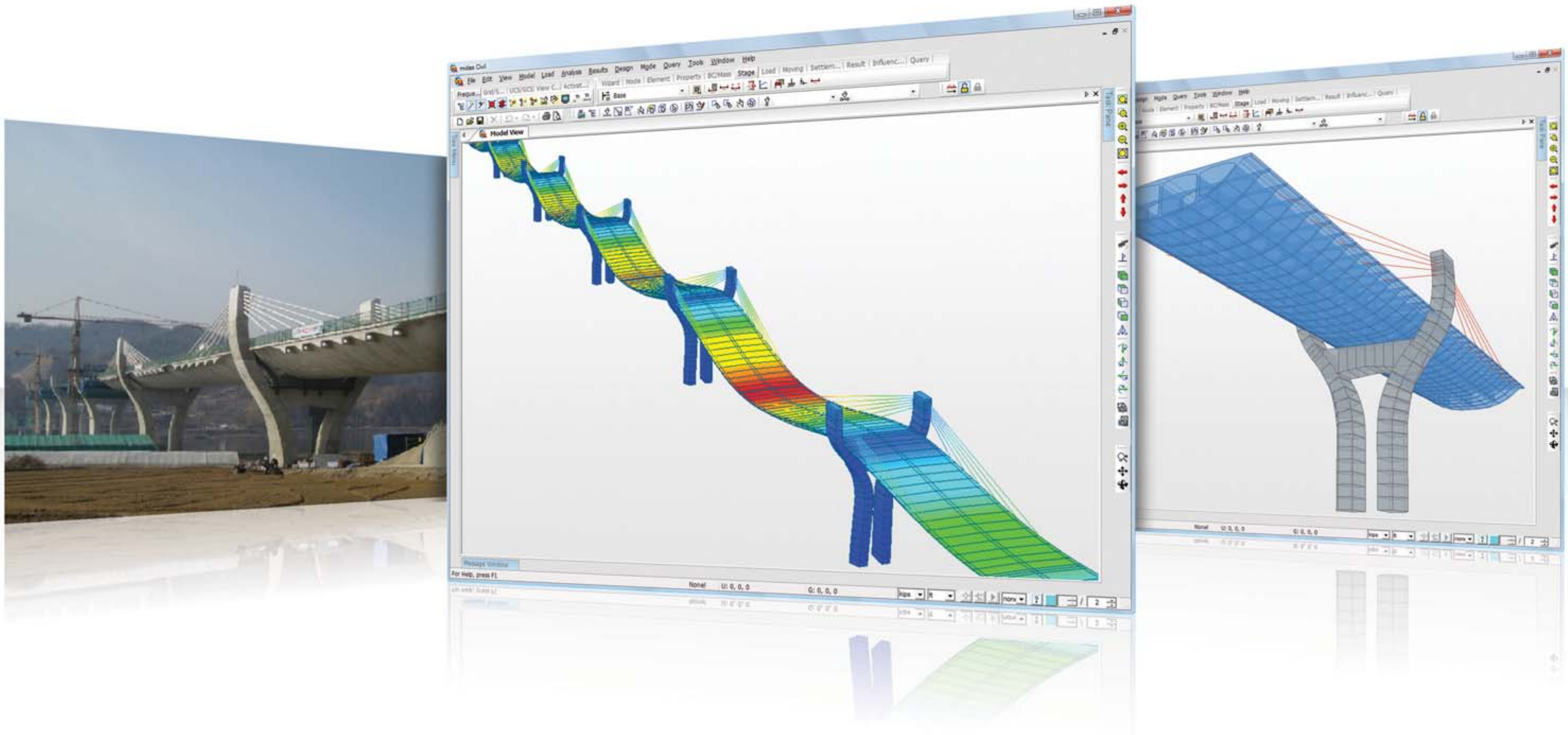




Kum Ga Bridge in South Korea

Overview

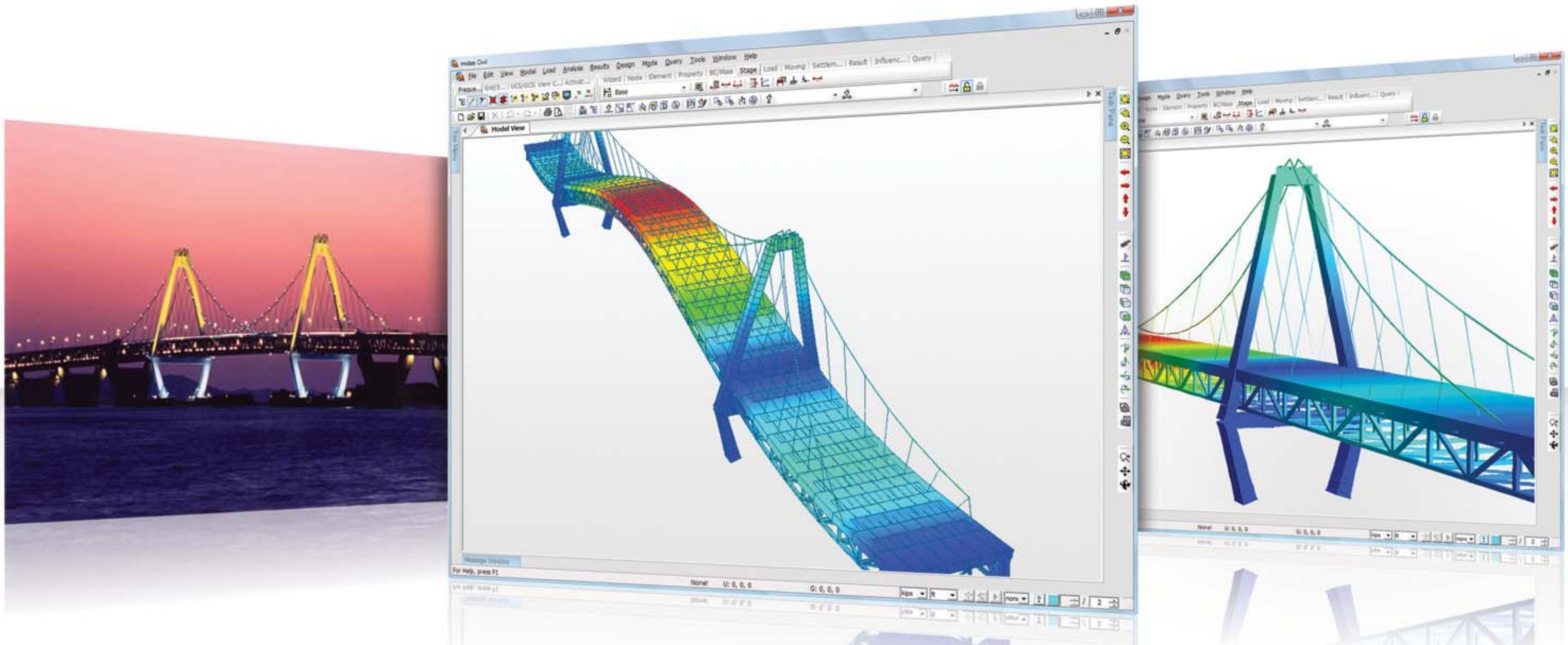
Overall bridge length	795 m
Location	Chung Ju, South Korea
Function/usage	Roadway Bridge
Designer	Chung Suk Engineering
Number of elements and element types used	Truss (Cable): 144 Beam: 644
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Cable Tension Optimization Geometric Nonlinear Analysis Vehicle Load Optimization



Young Jong Bridge in South Korea

Overview

Overall bridge length	4,420 m
Tower height	107 m
Location	Incheon, South Korea
Function/usage	Roadway / Railway Bridge
Designer	U Sin Corporation
Year of completion	2000
Cost of construction	$ 0.9 Billion
Number of elements and element types used	Truss (Cable): 162 Beam: 1930
Type of analysis	Response Spectrum Analysis Eigen Value Analysis Large Displacement Analysis Vehicle Load Optimization

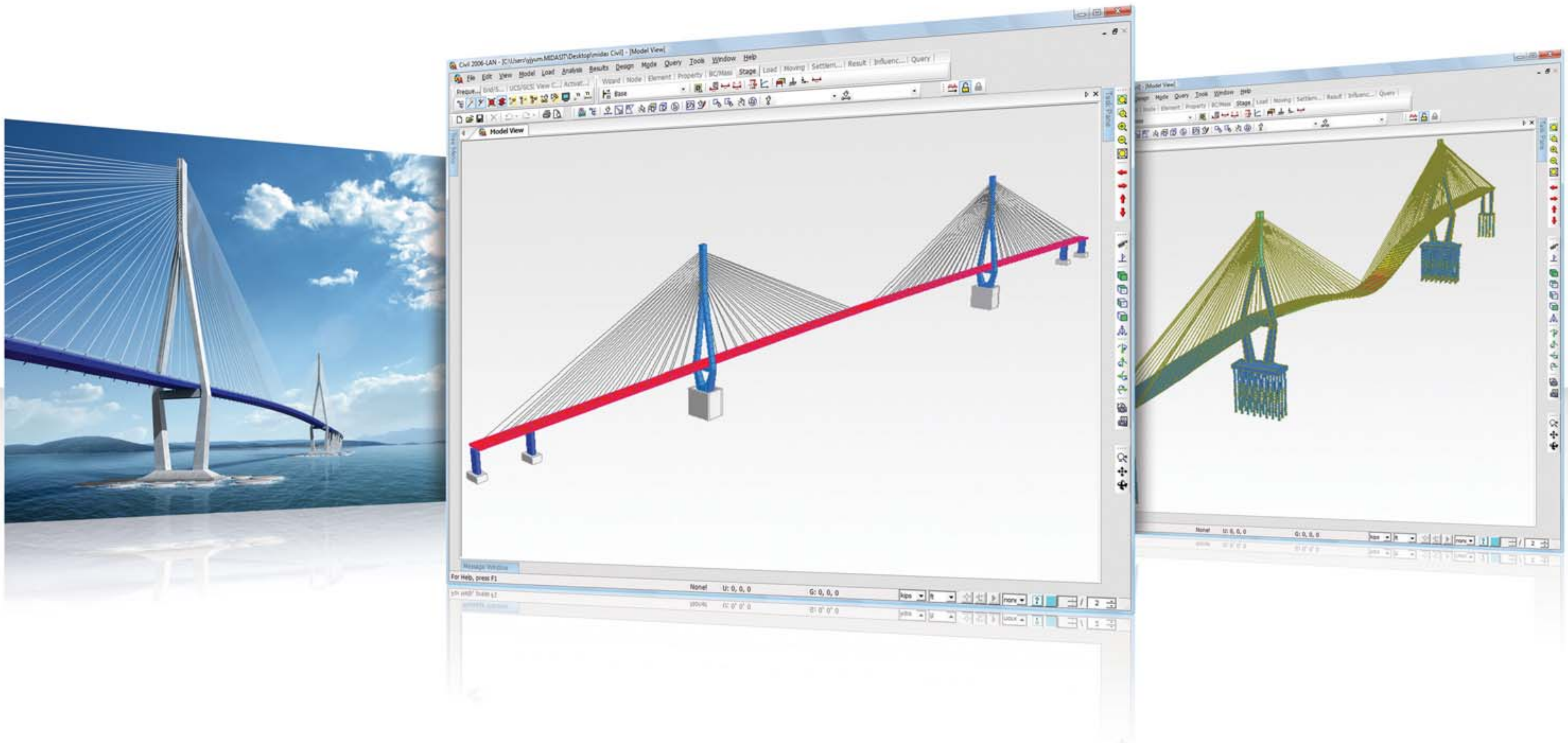


Incheon Bridge in South Korea

The Incheon 2nd Bridge is a cable-stayed bridge of a steel deck box supported on two inverted Y-shape main concrete towers. In the model of this bridge the influence of the piled foundation has been included. This holds the record of being the world's 3rd longest cable stay bridge to date.

Overview

Overall bridge length	1,480 m
Main span	800 m
Tower height	230 m
Location	Incheon, South Korea
Function/usage	Roadway Bridge
Designer	Seoyeong Engineering and Chodai Co., Ltd.
Year of completion	2009
Cost of construction	$ 2.4 Billion
Number of elements and element types used	Truss (Cable): 176 Beam: 1653
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Cable Tension Optimization Geometric Nonlinear Analysis Vehicle Load Optimization



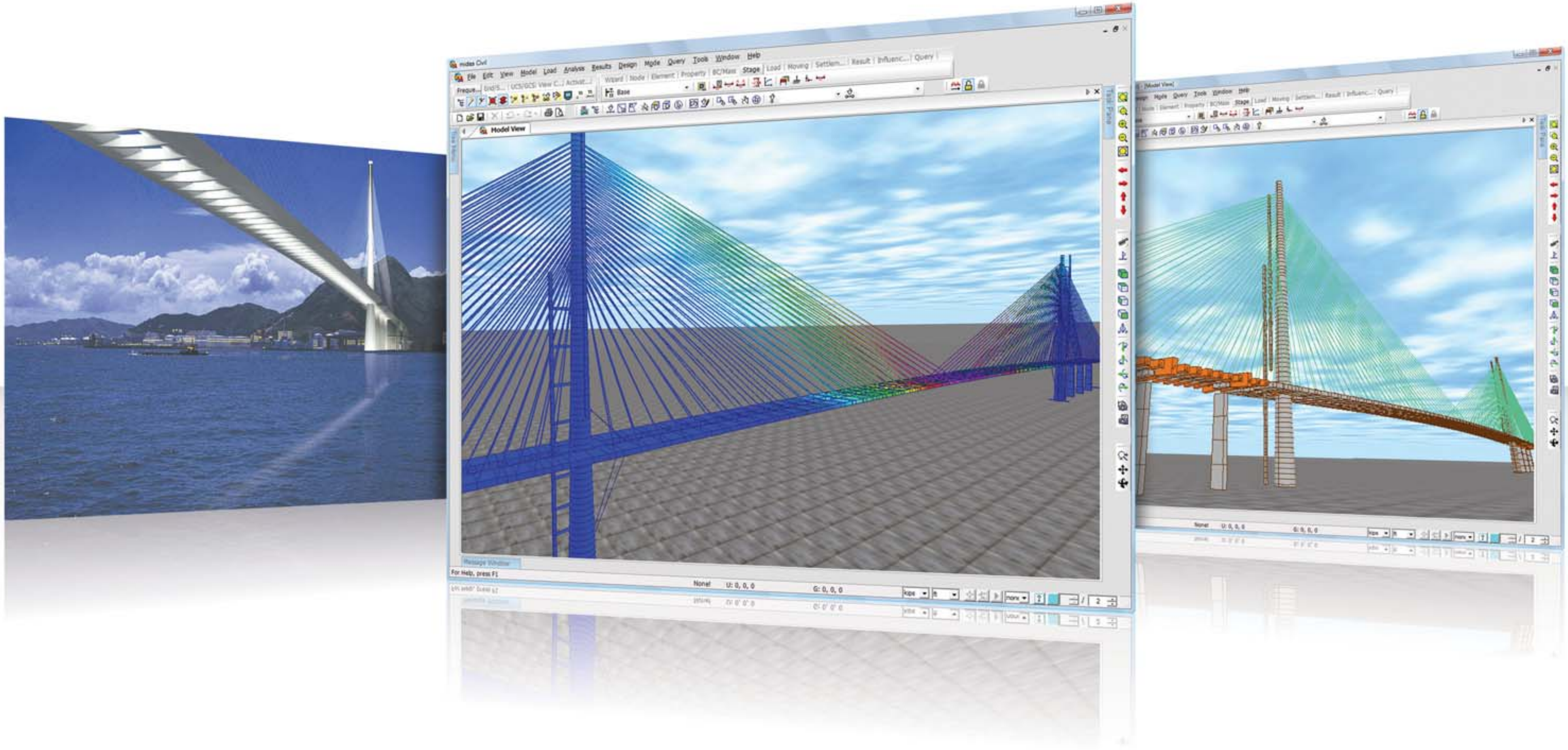
Stonecutters Bridge in Hong Kong

* 2nd Longest Cable Stayed Bridge

The concept is for a cable-stayed bridge with a twin aerodynamic deck suspended from two 295m-high single pole towers. These towers will have bases measuring 24m x 18m tapering to 7m diameter at the top, and the deck will allow a navigation clearance of 73.5m over the full entrance to the Container Port.
This sets a record of being the world's 2nd longest cable stay bridge to date for which full erection engineering was carried out.

Overview

Overall bridge length	1,600 m
Main span	1,018 m
Tower height	295 m
Location	Between Tsing Yi and Kowloon City, Hong Kong, China
Function/usage	Roadway Bridge
Designer	Ove Arup & Partners
Cost of construction	$355 Million
Number of elements and element types used	Truss (Cable): 224 Beam: 1638
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Cable Tension Optimization Geometric Nonlinear Analysis Eigenvalue Analysis Thermal Analysis Buckling Analysis



Sutong Bridge in China

* The World's Longest Cable-Stayed Bridge

The total length of the crossing is 8,206m. The main bridge is a double-cable-plane, double-pylon steel box girder cable-stayed bridge. The central span of 1,088m will have a navigation clearance of 62m, which will allow fourth and fifth generation container ships to pass through in all weather. The bridge and its approaches will be of a six-lane expressway design, with a maximum speed of 100km/h. This sets a record of being the world's longest cable stay bridge to date.

Overview

Overall bridge length	8,206 m
Main span	1,088 m
Tower height	306 m
Location	Crossing Yangtze River in China between Nantong and Changshu
Function/usage	Roadway Bridge
Designer	Jiangsu Province Communications Planning and Design Institute
Cost of construction	$750 Million
Number of elements and element types used	Truss (Cable): 272 Beam: 760
Type of analysis	Construction Stage Analysis with Time-Dependent Effects Cable Tension Optimization Geometric Nonlinear Analysis Eigenvalue Analysis Thermal Analysis Buckling Analysis