THE MASTERWORKS OF CIVIL ENGINEERING

MIDAS Project Applications

BRIDGE

MIDAS

www.MidasUser.com

MIDAS IT Tower, 17, Pangyo-ro 228 beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13487, Korea

MIDAS

THE MASTERWORKS OF CIVIL ENGINEERING

MIDAS Project Applications

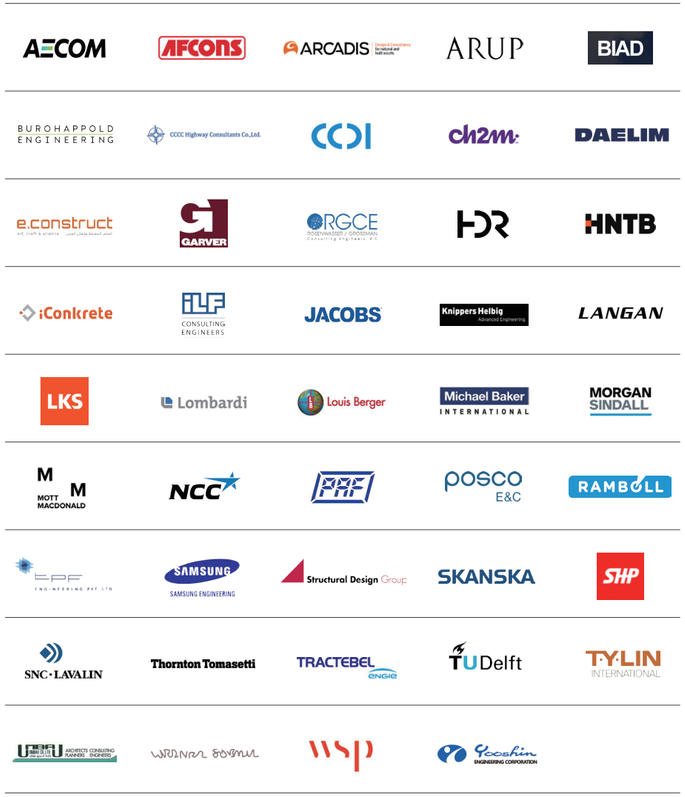
BRIDGE

MIDAS IT always strives for constant growth and progress with midas users who have made us a trusted leader in technology.

This project application book was published by MIDAS IT, but what MIDAS IT did was just collecting the masterworks of midas users. This book is dedicated to the midas users without whom it would not exist.

MIDAS IT will keep providing the world with utilitarian values that support human pursuit of happiness with our creative technology.

MIDAS Power Users



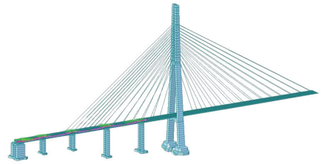
Contents

06 Russky Island Bridge
08 Sutong Bridge
10 Stonecutters Bridge
12 Incheon Bridge
14 Sultan Abdul Halim Muadzam Shah Bridge
16 Korabelny Fairway Bridge
18 Lange Wapper Bridge
20 Nanjing Eye Footbridge
22 Aramchan Bridge
24 Temburong CC3 Bridge
26 Weirton-Steubenville Bridge
28 China and North Korea Yalu River Bridge
30 Lazarevsky Bridge
32 Skrecon Bridge
34 Three Sisters Bridges
36 Thuan Phuoc Bridge
38 Liede Bridge
40 Freeway D47, Section 9
41 Greystone Footbridge
42 Serny Bridge
43 Wujiang Bridge
44 Tapi Cable-stayed Bridge
45 Tulur Aji Jejangkat Bridge
46 Balang Bridge
47 Jinshajiang Jin'an Bridge
48 Miaoli Xin-Gang Bridge
49 Fuling Wujiang Bridge
50 Yangluo Yangtze River Bridge
51 Xiangjiang Sanchashi Bridge
52 Luding Dadu River Bridge
53 Pearl Harbor Memorial Bridge (Q Bridge)
54 Nga Tu So Flyover Bridge
55 Povazska Bystrica Bridge
56 The Basarab Overpass
58 Bedew Bridge
60 Byker Viaduct
62 Lee Roy Selmon Flyovers
64 Buttim Bridge
66 Third Orbital Expressway
68 Nitra Bridge
70 Kostivarska Junction
71 Mumbai Monorail (Line 1)
72 Expressway R1
73 Mistecka Junction
74 Turda Motorway Bridge
75 La Jabalina Bridge
76 Tarango Bridge
77 North Road Corridor Flyover Interchange
78 Lusail Marina Interchange
79 Delhi Metro Bridge
80 Truckee River Bridge
82 Roath Dock Viaduct - EAV and WAV
84 Decking of Sungei Ketapang
86 Portishead Skew Bridge
88 Nowolazurowa Flyover
90 Shibanpo Yangtze River Bridge
92 No. 05561 Bridge
93 Fruit Street Bridge
94 Freeway D47, Section 8
95 River Devon Viaduct
96 Bridge Over SJ near Stuvsta Station
97 I-95 Bridge
98 Connel Bridge
100 Crescent Bridge
102 Nanning Bridge
104 Missouri River Bridge
106 Bridge Across R1
108 National Palace Museum View Bridge
110 BangHwa Bridge
112 San Ignacio Bridge
114 Nanjing Dashengguan ChangJiang Bridge
116 Inner Harbour Bridge
117 Foshan Dongping Bridge
118 Bahia Honda Bridge
119 Pedestrian Bridge
120 Caiyuanba Bridge
121 Hangzhou Xinjing Expressway Qiandao Lake Extension Jinzhu Bridge
122 Ireland Young Hurling & Football Spectator Stand
123 Monorail Station

Russky Island Bridge

Vladivostok, Russia

Owner	Russian Federal Road Agency-Directorate for Construction of Road Facilities in Vladivostok
General Contractor	SK Most / Mostovik
Engineering Consultant	Mostovik
Construction Period	2009 - 2012
Type of Project	Cable-stayed Bridge
Size of Structure	1.1km Main Span, 3.1km Total Length

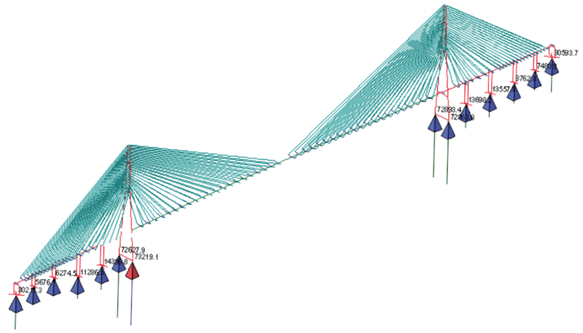


Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Construction stage analysis with composite action
- Moving load analysis

Description on this project

The bridge to the Russky Island is one of the world's largest cable-stayed bridges with the 1,104m long of the central span and it establishes a new record of bridge building practice in the world. The bridge also has the highest bridge towers and the longest stayed cables.



Mostovik	
Address	Mira prospekt 5 Omsk, 644080, Russia
Introduction	NPO Mostovik offers construction contract services which includes construction of roads and bridges. Also, it was founded in 1982 and is based in Omsk, Russia. As of 2016, it is in reorganization.
Website	www.mostovik.ru

Sutong Bridge

Suzhou, China

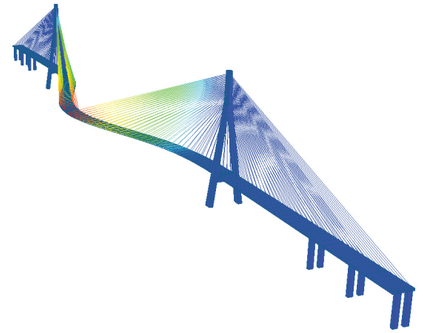
Owner	Jiangsu Provincial Communications Department
Engineering Consultant	Jiangsu Province Communications Planning and Design Institute
Construction Period	Completed in 2008
Type of Project	Cable-stayed Bridge
Size of Structure	1.1km Main Span, 8km Total Length

Main features used in this application

- Construction stage analysis with time-dependent effects
- Cable tension optimisation
- Thermal & buckling analysis

Description on this project

The Sutong Bridge crosses the Yangtze River upstream from Shanghai and carries a six-lane highway with emergency lanes. The total length of the bridge is 8km. The main bridge is a cable-stayed bridge with a world record-breaking 1,088m main span. A concrete bridge with a main span of 268m provides a secondary navigation span. The approach bridges have spans varying between 42m and 75m.



Jiangsu Province Communications Planning and Design Institute

Address	Nanjing Qinhuai District Ziyun Avenue on the 9th 210014, China
Introduction	It is a comprehensive engineering consulting group, formerly known as the Jiangsu Province Transportation Planning and Design Institute built in 1996. The firm has won more than 300 awards with excellent engineering survey design and consulting Achievements.
Website	www.jsjty.com

Stonecutters Bridge

Kowloon, Hongkong

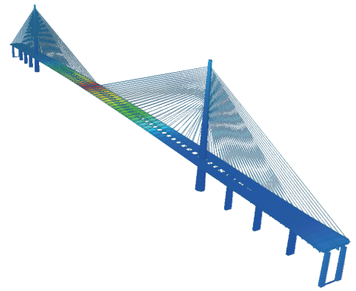
Owner	Hong Kong Department of Highways
General Contractor	Hitachi Zosen / Yokogawa Bridge Corporation / Maeda Corporation / Hsin Chong Group
Engineering Consultant	Ove Arup & Partners
Construction Period	2004 - 2009
Type of Project	Cable-stayed Bridge
Size of Structure	1km Main Span, 1.6km Total Length

Main features used in this application

- Construction stage analysis with time-dependent effects
- Cable tension optimization
- Geometric nonlinear analysis

Description on this project

Stonecutters Bridge is the world's second longest spanning cable-stayed bridge with a main span of 1,018m. The bridge straddles the Rambler Channel at the entrance to the Kwai Chung container terminals, providing a landmark gateway to Hong Kong, one of the world's most vibrant trade centers. The 1.6km long crossing is the centerpiece of the new Route 8 strategic link, a 7.6km long, dual three-lane expressway linking Cheung Sha Wan and Tsing Yi Island. The route improves access between the International Airport and the urban areas of West Kowloon, and provides enhanced links to the container port.



Ove Arup & Partners

Address	Level 5 Festival Walk 80 Tat Chee Avenue Kowloon Tong Kowloon 2265 5000, Hong Kong		
Introduction	Arup is a multinational professional services firm headquartered in London which provides engineering, design, planning, project management and consulting services for all aspects of the built environment. The firm has over 14,000 staff based in 92 offices across 42 countries. Arup has participated in projects in over 160 countries.		
Website	www.arup.com	**Email**	hongkong@arup.com

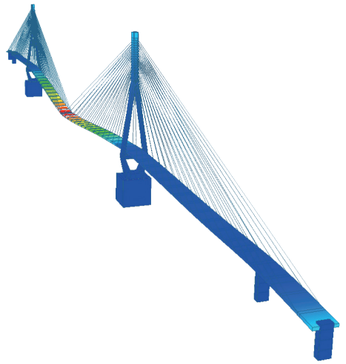
Incheon Bridge

Incheon, Korea

Owner	Incheon Bridge Corporation
General Contractor	Samsung Engineering & Construction
Engineering Consultant	Seoyoung Engineering / Chodai
Construction Period	2005 - 2009
Type of Project	Cable-stayed Bridge
Size of Structure	800m Main Span, 11.6km Total Length

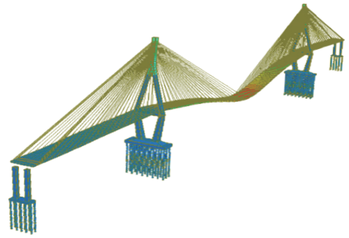
Main features used in this application

- Construction stage analysis with time-dependent effects
- Cable tension optimization with geometric nonlinearity
- Moving load analysis with concurrent member forces



Description on this project

Incheon Bridge is the longest cable-stayed bridge in Korea and ranked the 5th longest in the world with the main span of 800m. It is not only accumulated technological capabilities and know-how through the construction of the cable-stayed bridge, but also manages to leave behind numerous historical footsteps including the technologies in cable supported bridges, format of the execution, design, construction, and maintenance of the project. The design is executed in the format of limit state design(LSD). It is challenging to complete the maritime bridge with length of more than 10km within 5 years. However, manufacturing and installing the structures through automated manufacturing processes for the majority of the processes including the application of FSLM construction executed in Korea for the first time shorten the construction period and to overcome the differences in the tides.



Seoyoung Engineering

Address	246, Hwangsaeul-ro, Bundang-gu, Seongnam-si, Gyeonggi-do 13595, Korea
Introduction	Since the company was established in 1991, Seoyoung has been successfully providing consulting services for key infrastructure projects on highways, transportation, geotechnical, tunnels, bridges, railways, urban planning, land development, landscape architecture, environment, water resources, and harbors.
Website	www.seoyoungeng.com

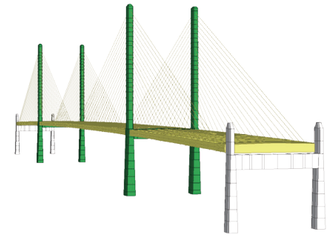
Sultan Abdul Halim Muadzam Shah Bridge

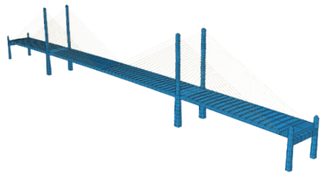
Penang, Malaysia

Owner	Malaysian Highway Authority
General Contractor	China Harbour Engineering (CHEC)
Engineering Consultant	MMSB Consult
Construction Period	Completed in 2014
Type of Project	Cable-stayed Bridge
Size of Structure	250m Main Span, 24km Total Length

Main features used in this application

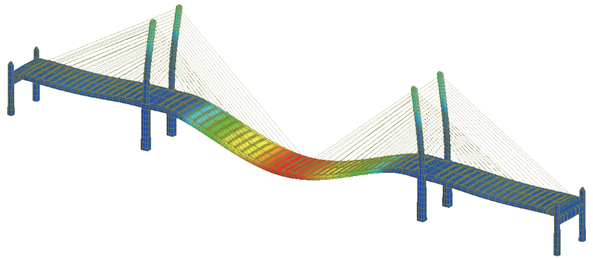
- Unknown load factor and lack of fit force for cable optimization
- Cable force tuning
- Construction stage analysis with post-tensioning





Description on this project

The Sultan Abdul Halim Muadzam Shah Bridge, popularly called the Second Penang Bridge, is a bridge linking Penang Island to Penang Mainland. The total length of the bridge is 24km with length over water at 16.9km, making it the longest bridge in Malaysia and the longest in Southeast Asia. It carries the expressway route number of E28.



MMSB Consult

Address	A-8-2 & A-8-3, Plaza Kelana Jaya Jalan SS7/13A, Kelana Jaya 47301, Petaling Jaya, Selangor, Malaysia		
Introduction	MMSB Consult has participated in innovative delivery methods including Design & Build, Engineering Procurement Management and Alliancing. The firm performs feasibility studies, project evaluation, design and design management, project planning, contract and financial, project and construction management, project audits and operation and maintenance planning and management.		
Website	www.mmsbconsult.com.my	**Email**	enquiry@mmsbconsult.com.my

Korabelny Fairway Bridge

Saint-Petersburg, Russia

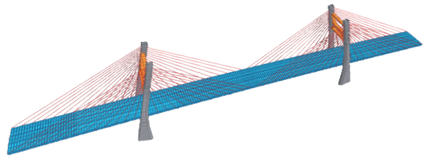
Owner	North Capital Highway LLC
General Contractor	Astaldi S.p.A. / IC ICTAS Construction
Engineering Consultant	AO Institute Stroyproekt
Construction Period	2004 - 2016
Type of Project	Cable-stayed Bridge
Size of Structure	320m Main Span, 620m Total Length

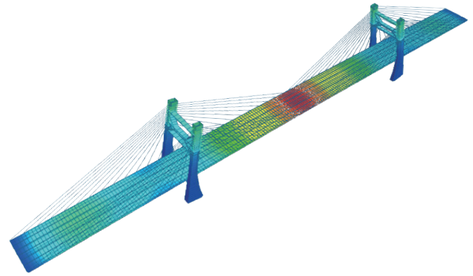
Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Vehicle load optimization
- Linear dynamic analysis with response spectrum

Description on this project

This modern multi-lane highway connects the southwest of the city, including the sea port area, with the Ring Road on Vasilievsky Island in Kurortny district and Scandinavia motorway. This is one of the first projects in Russia carried out on concession basis. The road includes a great number of engineering structures to cross the densely developed urban territory and water areas, including the vast spaces of the Neva Bay.





AO Institute Stroyproekt

Address	13/2, Dunaisky Prospect, 196158, St. Petersburg, Russia		
Introduction	Stroyproekt is an engineering group of companies and the leader of Russian road sector in the field of comprehensive design and construction control. Over the years, Stroyproekt have developed numerous outstanding transport structures in different regions of Russia (modern multi-lane highways, bridges, overpasses, flyovers and tunnels).		
Website	www.stpr.ru	**Email**	most@stpr.ru

Lange Wapper Bridge

Antwerp, Belgium

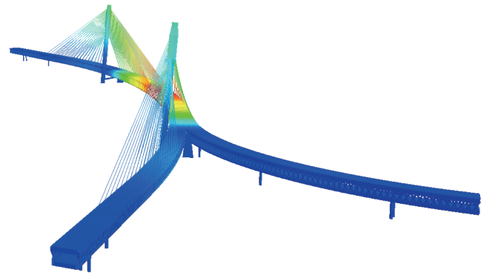
Owner	City of Antwerp, Flemish Government
General Contractor	BESIX / CFE / VINCI Concessions / Victor Buyck Steel Construction N.V.
Engineering Consultant	TUDelft / C+E
Design Period	Completed in 2012
Type of Project	Cable-stayed Bridge
Size of Structure	600m Main Span, 1.5km Total Length

Main features used in this application

- Construction stage analysis
- Cable tension optimization
- Vehicle load optimization

Description on this project

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.



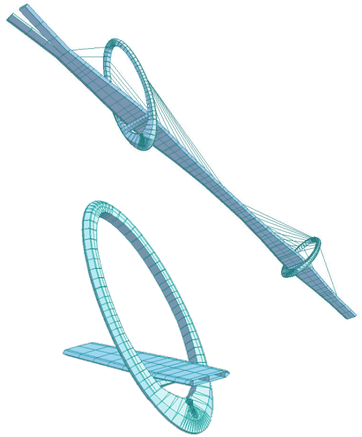
TUDelft

Address	Stevinweg 1, 2628 CN Delft, Nederland		
Introduction	TUDelft cooperates with many other educational and research institutions, both in the Netherlands and abroad. The high quality of their research and teaching is renowned. TU Delft has numerous contacts with governments, trade associations, consultancies, industry and small and medium-sized companies.		
Website	www.tudelft.nl	**Email**	info@tudelft.nl

Nanjing Eye Footbridge

Nanjing, China

General Contractor	Nanjing Public Engineering Construction Center
Engineering Consultant	CCCC Second Harbor Engineering Company
Construction Period	2013 - 2014
Type of Project	Cable-stayed Bridge
Size of Structure	240m Main Span, 828m Total Length

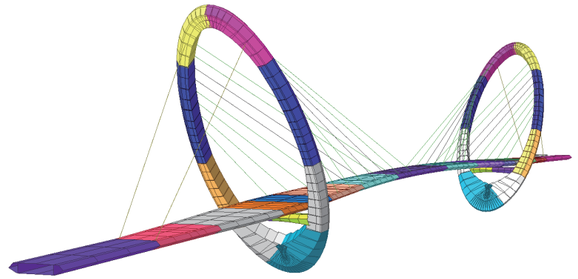


Main features used in this application

- Linear dynamic analysis with response spectrum
- Unknown load factor and lack of fit force for cable optimization

Description on this project

Located at the axis of The Youth Olympic Games in Nanjing Hexi New Town, Nanjing Eye is the first sightseeing footbridge across the Yangtze River. It is a double tower and double plane cable-stayed bridge with steel-box girder, connecting two parks in Hexi and Jiangxinzhou Islet. It has been a new landmark and tourist attraction since it has been completed.



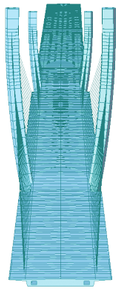
CCCC Second Harbor Engineering Company

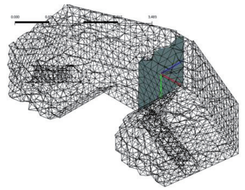
Address	No.85 Deshengmenwai Street, Xicheng District, Beijing 100088, China		
Introduction	The firm is the largest port construction and design company in China and leads in road, railway and bridge construction and design areas. In additionally, it covers the following fields: transportation, tunnel, civil work design and construction, container crane, heavy marine machinery, large steel structure and road machinery manufacturing, and international project contracting, import and export trading services.		
Website	en.ccccltd.cn	**Email**	webmaster@ccccltd.cn

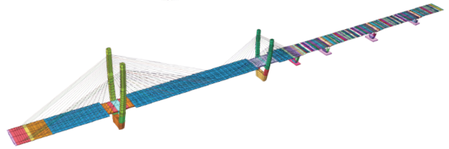
Aramchan Bridge

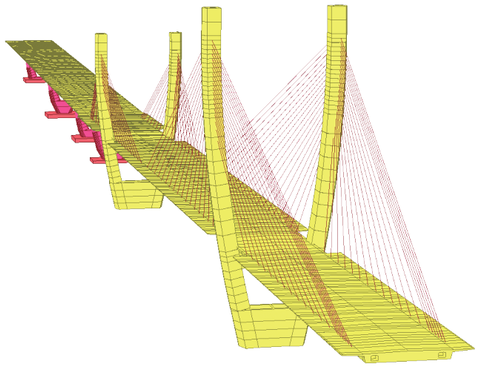
Sejong, Korea

Owner	Korea Land and Housing Corporation
General Contractor	SK E&C
Engineering Consultant	SAMBO Engineering
Construction Period	2011 – 2015
Type of Project	Cable-stayed Bridge
Size of Structure	250m Main Span, 840m Total Length









Main features used in this application

- Seismic analysis
- Construction stage analysis with transverse model
- Detail analysis with finite elements

Description on this project

Aramchan bridge is the first open-type high-altitude pylon cable-stayed bridge in South Korea that designed and built the pylon in U shape to connect the pylon in 114m long with the curse tower (83m) asymmetrically and maximize beauty and River's safety.

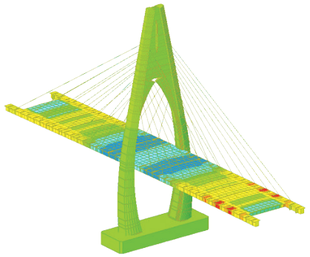
SAMBO Engineering

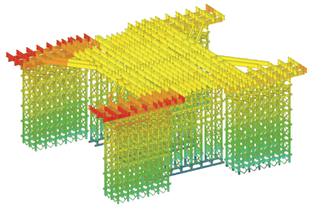
Address	30, Wiryeseong-daero 16-gil, Songpa-gu, Seoul, 05640, Korea
Introduction	Sambo Engineering & Construction Company provides construction and civil engineering services internationally. The company specializes in foundation engineering including grouting and boring.
Website	www.samboeng.co.kr

Temburong CC3 Bridge

Muara, Brunei

Owner	Jabatan Kerja Raya (Public Works Department of Brunei)
General Contractor	DAELIM
Engineering Consultant	ARUP, DAELIM
Construction Period	Under Construction
Type of Project	Cable-stayed Bridge
Size of Structure	260m Main Span, 1.1km Total Length



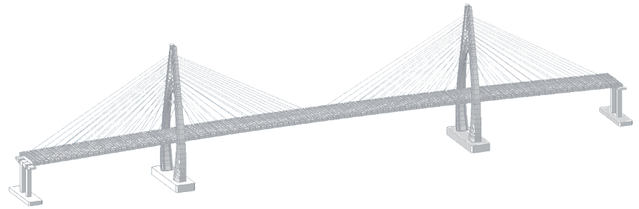


Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Moving load analysis with concurrent member forces
- Construction stage analysis with post-tensioning

Description on this project

- Navigation bridges across the Brunei Channel and Eastern Channel
- Viaduct between tunnel portal and Brunei Channel navigation bridge
- Connecting ramps to Jalan Kota Batu
- Administration building at Jalan Kota Batu



DAELIM

Address	146-12 Susong-dong, Jongro-gu, 03152, Seoul, Korea
Introduction	Daelim Industrial was established in 1939. The fields covered by Daelim Industrial as one of the top EPC Company in Asia to the Middle East include gas, petroleum refining, chemical and petrochemical, power and energy plants, building and housing, civil works, and industrial facilities.
Website	www.daelim.co.kr

Weirton-Steubenville Bridge

Ohio, USA

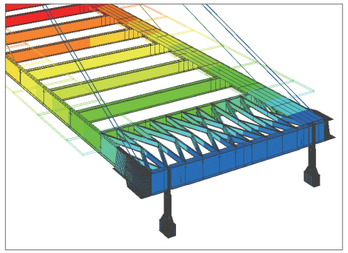
Owner	Ohio Department of Transportation
General Contractor	S.J. Groves & Sons
Engineering Consultant	T.Y. LIN INTERNATIONAL GROUP
Construction Period	Completed in 1989
Type of Project	Cable-stayed Bridge
Size of Structure	250m Main Span, 598m Total Length

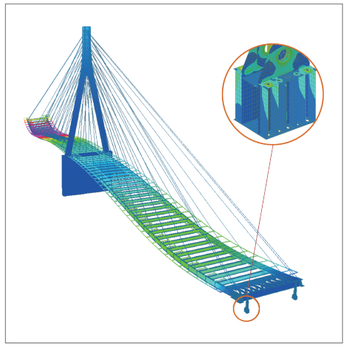
Main features used in this application

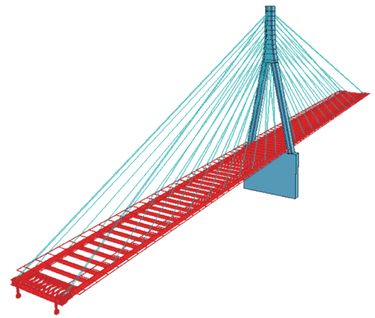
- Construction stage analysis
- Cable tension optimization

Description on this project

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 detailed analysis for the anchor block has been performed.







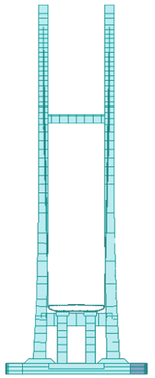
T.Y. LIN INTERNATIONAL GROUP

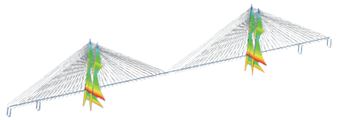
Address	345 California Street, Suite 2300, San Francisco, California 94104, USA		
Introduction	T. Y. Lin International is a global, multi-disciplinary infrastructure services firm. The firm provides a range of planning, design, construction and project management services to the aviation, bridge, facilities, planning, and management, ports and marine, rail and transit, and surface transportation industries. They operates more than 50 regional centers.		
Website	www.tylin.com	**Email**	maribel.castillo@tylin.com

China and North Korea Yalu River Bridge

Dandong, China

Engineering Consultant	Liaoning Province Transportation Planning and Design Institute
Construction Period	2011 - 2014
Type of Project	Cable-stayed Bridge
Size of Structure	636m Main Span, 3.03km Total Length



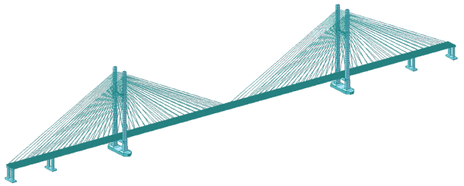


Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Moving load analysis with concurrent member forces
- Static and nonlinear dynamic time history analysis

Description on this project

The new Yalu River Bridge is the third bridge over the Yalu River between Dandong, Liaoning Province in China, and Sinuiju in North Korea. It is a cable-stayed bridge, 20km long including the supporting roads, and its construction began in October 2011. The new Yalu River Bridge was originally planned to be opened in October 2014, but due to delays on the North Korean side, the opening has been postponed indefinitely, as the bridge's road currently ends on a field outside of Sinuiju in North Korea. The bridge reportedly cost $350 million USD to build.



Liaoning Province Transportation Planning and Design Institute

Address	Hunnan, Shenyang, Liaoning, 110166, China
Introduction	The company, established in 1954, is attached to the Liaoning Provincial Department of Communications of the state-owned science and technology enterprises. Mainly engaged in highway planning survey and design consulting, rail transportation, municipal engineering, road maintenance, intelligent transportation, integrated transport system planning and project management business.
Website	www.sjy.lncom.gov.cn

Lazarevsky Bridge

Saint-Petersburg, Russia

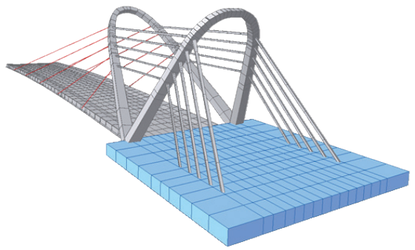
Owner	Committee for City Improvement and Road Infrastructure of St. Petersburg Administration
General Contractor	Mostostroj
Engineering Consultant	AO Institute Stroyproekt
Construction Period	2000 - 2009
Type of Project	Cable-stayed Bridge
Size of Structure	115m Main Span, 160m Total Length

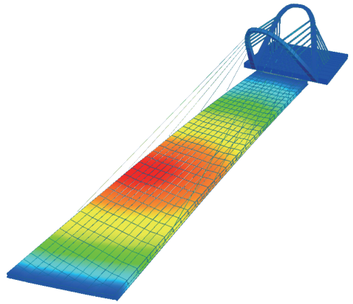
Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Vehicle load optimization
- Linear dynamic analysis with response spectrum

Description on this project

Lazarevsky Bridge connects Krestovsky and Petrogradsky Islands on alignment of Pionerskaya and Sportivnaya Streets. The original bridge built in 1949 was used for pedestrians and trams and was a multi-span beam system with wooden piers on steel piles. The deck of steel sections was paved with wooden boards; the width of the old bridge was 11.3m. After reconstruction the bridge has become a state-of-the-art cable-stayed bridge which has a new dynamic and elegant appearance.





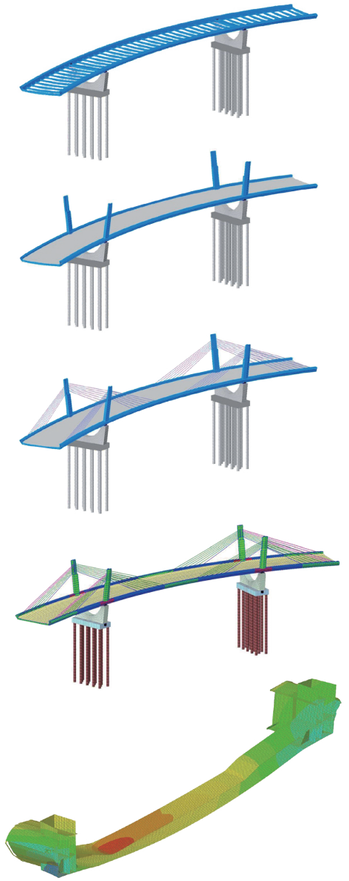
AO Institute Stroyproekt

Address	13/2, Dunaisky Prospect, 196158, St. Petersburg, Russia		
Introduction	Stroyproekt is an engineering group of companies and the leader of Russian road sector in the field of comprehensive design and construction control. Over the years, Stroyproekt have developed numerous outstanding transport structures in different regions of Russia (modern multi-lane highways, bridges, overpasses, flyovers and tunnels).		
Website	www.stpr.ru	**Email**	most@stpr.ru

Skrecon Bridge

Bohumin, Czech Republic

Engineering Consultant	Strasky, Husty and Partners
Construction Period	2009 - 2011
Type of Project	Cable-stayed Bridge
Size of Structure	70m Main Span, 140m Total Length

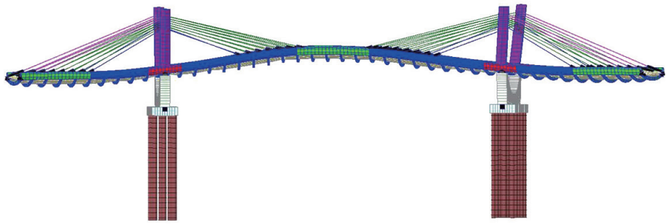


Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Construction stage analysis
- Moving load analysis
- Detail analysis with finite elements

Description on this project

The bridge with a total length of 140.3m has three spans with length of 30 + 70 + 30m. The deck, which is formed by a two-edge girder mutually connected by floor beams and a composite deck slabs, is suspended from two pylons.



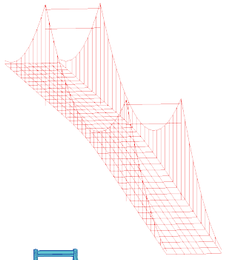
Strasky, Husty and Partners

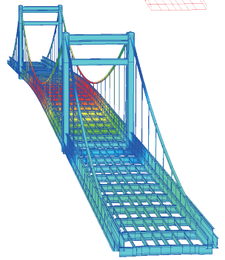
Address	Sumavska 524/31, 602 00 Brno, Czech Republic		
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.		
Website	www.shp.eu	**Email**	shp@shp.eu

Three Sisters Bridges

Pittsburgh, USA

Owner	Allegheny County
Engineering Consultant	Michael Baker International
Construction Period	Under Rehabilitation
Type of Project	Self-anchored Suspension Bridge
Size of Structure	
• Andy Warhol Bridge	135m Main Span, 323m Total Length
• Rachel Carson Bridge	120m Main Span, 303m Total Length
• Roberto Clemente Bridge	130m Main Span, 303m Total Length





Main features used in this application

- Construction stage analysis with composite action
- Suspension bridge analysis control

Description on this project

The bridges require rehabilitation because of accelerating age-related deterioration. The project work draws on Michael Baker's expertise in all areas of bridge inspections, structural analysis and rehabilitation design, utility coordination, roadway and lighting design, paint evaluation, field surveys, and public involvement. As part of the structural analysis, the Michael Baker team developed a series of three-dimensional, finite-element models for the Andy Warhol Bridge using MIDAS, an engineering software specifically developed for bridge modeling and analysis. This marks the first time that the bridge is modeled in 3D. The models are used to establish the existing forces on the bridge, determine the new dead loads based on the proposed rehabilitation, calculate the modern-design live loads, and evaluate proposed construction sequencing.

Michael Baker International

Address	4100 Horizons Drive, Suite 206 Columbus, Ohio 43220, USA
Introduction	Michael Baker is a global leader in engineering and consulting since 1940 to solve their most complex infrastructure challenges. Supported by 90 offices worldwide, they provide engineering consulting, specialized global construction, base operations, security management, systems integration and intelligence solutions.
Website	www.mbakerintl.com

Thuan Phuoc Bridge

Da Nang, Vietnam

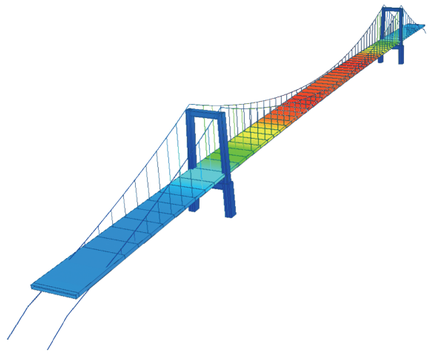
Owner	Department of Transport
General Contractor	BK Engineering and Construction Company
Engineering Consultant	TECCO533
Construction Period	2003 - 2009
Type of Project	Suspension Bridge
Size of Structure	405m Main Span, 1.9km Total Length

Main features used in this application

- Response spectrum & eigenvalue analysis
- Vehicle load optimization
- Large displacement analysis

Description on this project

The Thuan Phuoc Bridge is a suspension bridge that crosses the lower part of Han River at Da Nang, Vietnam. The bridge has 4 lanes, composed of 3 spans of 1,850m total long and 18m wide and the main span of 405m long. Its two major pillars are 80m in height. It is the longest suspension bridge in Vietnam, with total investment of nearly 1 trillion dong. Consulting firms from China, Cuba and Canada provided assistances for the bridge.



TECCO533

Address	09 Nguyen Phi Khanh, P. Hoa Thuan Tay, Q. Hai Châu, TP. Da Nang, Vietnam		
Introduction	Tecco533 was established in 1996 and has undertaken many large projects in Vietnam. It has been highly appreciated by the Owner in terms of progress, quality, fine art and especially works applying new and modern technology such as Han bridge, Thuan Phuoc bridge, Phu Nam bridge bridge, Nhat Le bridge 2, highways.		
Website	www.tecco533.com.vn	**Email**	tecco533@dng.vnn.vn

Liede Bridge

Guangzhou, China

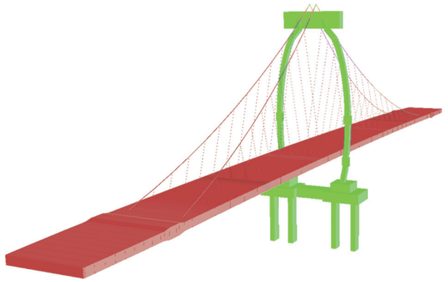
Architect	NEXT Architects
Engineering Consultant	Sichuan Southwest Jiaotong University Civil Engineering Design Co., Ltd.
Construction Period	Completed in 2009
Type of Project	Self-anchored Suspension Bridge
Size of Structure	219m Main Span, 4.3km Total Length

Main features used in this application

- Steel box composite girder
- Elastic catenary cable element
- Moving load analysis
- Temperature load analysis

Description on this project

Liede Bridge opened in 2009 is a bridge crossing over the Pearl River in Guangzhou, Guangdong, China. It's a single tower self-anchored suspension bridge structure to rewrite the history of Guangzhou without a suspension bridge. The total length is 4.3km and its single tower two span 219 + 167m main span.



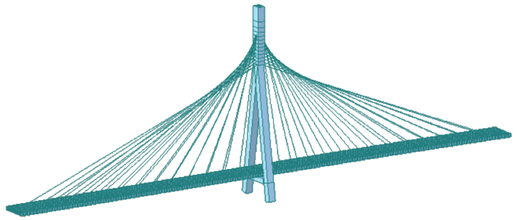
Sichuan Southwest Jiaotong University Civil Engineering Design Co., Ltd.

Address	No. 111, Southwest Jiaotong University Innovation Building, 18,19,20, Second Ring Road, Chengdu Jinniu District, China
Introduction	The firm was established in 1992. It's the first school which opened civil engineering. Training of well-known bridge experts Mao Yisheng, Mr. Zhang Tongyan prestige, phenology experts Zhu Kezhen and the Chinese Academy of Sciences, Academy of Engineering more than 50 people in the long-span bridge research has always been a leading position in the country.
Website	www.jdtm.com.cn

Freeway D47, Section 9

midas Civil

Ostrava, Czech Republic



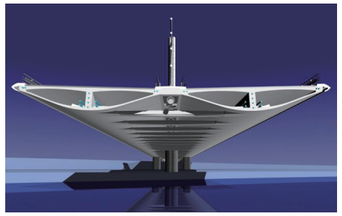
Owner	Road and Motorway Directorate of CR
General Contactor	Skanska
Engineering Consultant	Strasky, Husty and Partners
Construction Period	2004 - 2007
Type of Project	Cable-stayed Bridge
Size of Structure	105m Main Span, 605m Total Length

Main features used in this application

- Static and strength analysis of the combined cable-stayed road bridge
- Prestressed concrete design as per Eurocode

Description on this project

The twin bridge, with a total length of 605m, has 14 spans with length from 21.5 to 105m. Each bridge is formed by a two-cell box girder. In the main and two adjacent spans, the girders are mutually connected by top slab and individual struts, and they are suspended on a single pylon situated in the bridge axis.



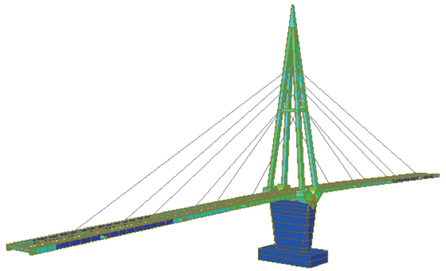
Strasky, Husty and Partners

Address	Sumavska 524/31, 602 00 Brno, Czech Republic
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.
Website	www.shp.eu
Email	shp@shp.eu

Greystone Footbridge

midas Civil

Liverpool, UK



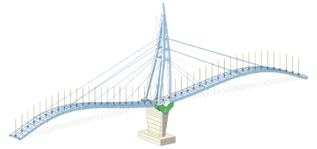
Owner	Knowsley Council
General Contractor	Eric Wright Civil Engineering
Engineering Consultant	WSP | Parsons Brinckerhoff
Construction Period	Completed in 2015
Type of Project	Cable-stayed Bridge
Size of Structure	40m Main Span, 80m Total Span

Main features used in this application

- Construction staged analysis
- Unknown load factor and lack of fit force for cable optimization
- Dynamic analysis

Description on this project

The bridge has two 40m spans and the steel pylon of 23.5m fixed on the shaped solid reinforced concrete piers on the piles. Stayed cables are arranged in two inclined planes and the lower adjustable anchorages are located on the side of the deck. The deck is supported by fully locked cable-stays.



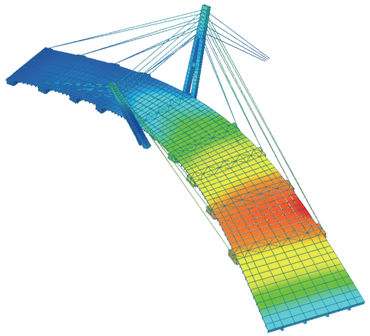
WSP \| Parsons Brinckerhoff

Address	Kings Orchard 1 Queen Street Bristol Avon BS2 0HQ, UK
Introduction	Parsons Brinckerhoff is one of the world's leading engineering professional consulting firms. Their expertise ranges from environmental remediation to urban planning, from engineering iconic buildings to designing sustainable transport networks, and from developing the energy sources of the future.
Website	www.wsp-pb.com

Serny Bridge

midas Civil

Saint-Petersburg, Russia



Owner	St. Petersburg Directorate for Transport Construction / Committee for Development of the City Transport Infrastructure
General Contractor	Pylon LLC
Engineering Consultant	AO Institute Stroyproekt
Construction Period	Under Construction
Type of Project	Cable-stayed Bridge
Size of Structure	1.2km Total Length

Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Vehicle load optimization
- Linear dynamic analysis with response spectrum

Description on this project

The construction of the bridge across the Small Neva is planned as a part of Stage I Reconstruction of Pesochnaya Embankment and Admiral Lazarev Embankment. The new six-lane bridge over the Malaya Neva River connects Vasilievsky Island to Petrogradsky District of the city, relieving Tuchkov Bridge and ensuring transit transport links. The bridge has sidewalks and cycling paths.

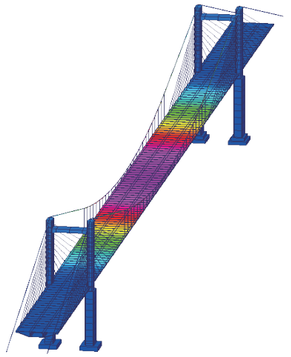
AO Institute Stroyproekt

Address	13/2, Dunaisky Prospect, 196158, St. Petersburg, Russia		
Introduction	Stroyproekt is an engineering group of companies and the leader of Russian road sector in the field of comprehensive design and construction control. Over the years, Stroyproekt have developed numerous outstanding transport structures in different regions of Russia (modern multi-lane highways, bridges, overpasses, flyovers and tunnels).		
Website	www.stpr.ru	**Email**	most@stpr.ru

Wujiang Bridge

midas Civil

Jiangsu, China



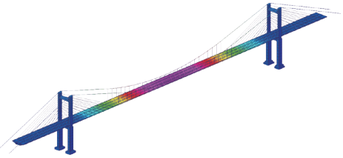
General Contractor	Guizhou Province Bridge Engineering Corporation
Engineering Consultant	Guizhou Provincial Transportation Planning Survey and Design Institute Co., Ltd.
Construction Period	1995 - 1997
Type of Project	Mixed Cable-stayed Suspension Bridge
Size of Structure	288m Main Span, 461m Total Length

Main features used in this application

- Construction phase analysis
- Moving load analysis
- Performance evaluation

Description on this project

The main girder of the bridge is prestressed concrete continuous stiffening beam composed of 168m in the middle cable and 60m of each ends.



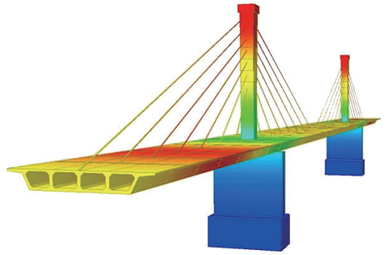
Guizhou Provincial Transportation Planning Survey and Design Institute Co., Ltd.

Address	Guizhou Province National Hi-Tech Industrial Development Zone Yang Guan Road, No. 100, Guiyang City, China		
Introduction	The firm was founded in 1958. The core business is the engineering consulting and engineering contracting of the highway industry.		
Website	www.gzjtsjy.com	**Email**	market@gzjtjs.com.cn

Tapi Cable-stayed Bridge

midas Civil

Surat, India



Owner	Surat Municipal Corporation
General Contractor	Gammon India
Engineering Consultant	S.N. Bhobe & Associates
Construction Period	Under Construction
Type of Project	Cable-stayed Bridge
Size of Structure	918m Total Length

Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Cable Force Tuning
- Construction stage analysis with post-tensioning

Description on this project

In Surat, the ambitious Rs 143-crore project involves the construction of the 918m long cable-stayed bridge over River Tapi. The construction of the cable-stayed bridge, which connects Athwalines to Pal, is scheduled for completion in December 2017.

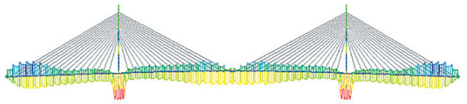
S.N. Bhobe & Associates

Address	4th Floor, Pudhari Bhavan, Plot No. 29-32, 36 & 37, Sector - 30A, Near Sanpada Railway Station, Vashi, Navi Mumbai, 400 705, India		
Introduction	S.N. Bhobe& Associates is one of the oldest civil engineering consulting firms in India. They provide services in bridge design, structural engineering & architecture and planning.		
Website	www.snbapl.com	**Email**	info@snbapl.com

Tulur Aji Jejangkat Bridge

midas Civil

West Kutai, Indonesia



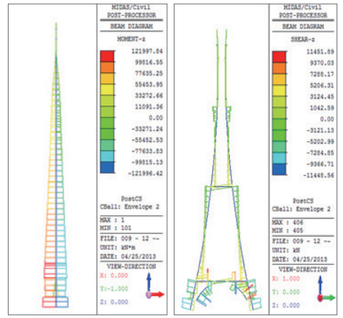
Owner	Indonesia Ministry of Public Works
General Contractor	Waskita Karya
Engineering Consultant	Partono Fondas Engineering Consultant
Construction Period	2008 - 2014
Type of Project	Cable-stayed Bridge
Size of Structure	304m Main Span, 1km Total Length

Main features used in this application

- Stress check & stayed-cable force
- Construction stage analysis
- Hinge properties for pushover analysis

Description on this project

Located near Melak & Manor Bulan city, Aji Tulur Jejangkat cable-stayed bridge is built between Western Kutai and Kutai Kartanegara District, as well as Samarinda, with the total span length of 1,040m.



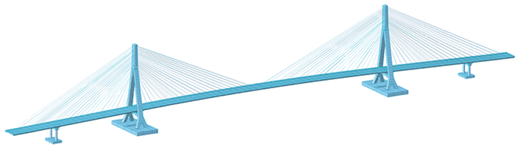
Partono Fondas Engineering Consultant

Address	Pusat Niaga Roxy Mas Blok C4 No.16 Jl. KH Hasyim Ashari No.125, Jakarta Pusat 10150, Indonesia		
Introduction	Established as the structural design & engineering consultancy office for more than 27 years, PT. Partono Fondas Engineering Consultant is specialized in industrial building and bridge structure design.		
Website	www.partonofondas.com	**Email**	office@partonofondas.com

Balang Bridge

midas Civil

Borneo, Indonesia



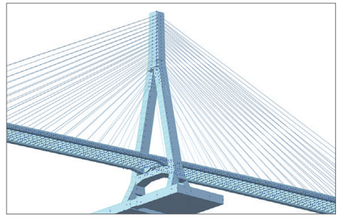
Owner	Indonesia Ministry of Public Works
General Contractor	Hutaa Karya / Adhi Karya / Bangun Cipta Joint Operation
Engineering Consultant	Partono Fondas Engineering Consultant
Construction Period	Under Construction
Type of Project	Cable-stayed Bridge
Size of Structure	402m Main Span, 804m Total Length

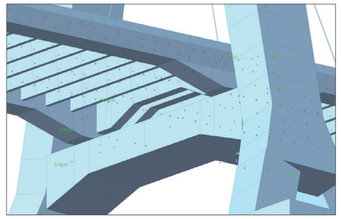
Main features used in this application

- Stay force tuning & stress check
- Construction stage analysis
- General link properties for viscous damper modelling

Description on this project

Located in Balikpapan Bay, Pulau Balang cable-stayed bridge is built to connect Balang Island with Balikpapan. With the total span lenght of 804m, this bridge construction process is done with balanced cantilever method, in which the deflection control for every connecting segment is essentially important to be checked.





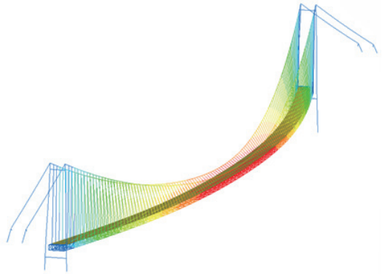
Partono Fondas Engineering Consultant

Address	Pusat Niaga Roxy Mas Blok C4 No.16 Jl. KH Hasyim Ashari No.125, Jakarta Pusat 10150, Indonesia		
Introduction	Established as the structural design & engineering consultancy office for more than 27 years, PT. Partono Fondas Engineering Consultant is specialized in industrial building and bridge structure design.		
Website	www.partonofondas.com	**Email**	office@partonofondas.com

Jinshajiang Jin'an Bridge

midas Civil

Yunnan, China



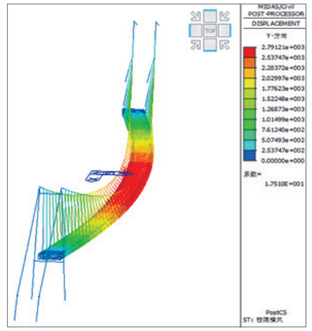
Owner	Yunnan Li Xiang Expressway Investment Development
Engineering Consultant	Broad Vision Engineering Consultants
Construction Period	Under Construction
Type of Project	Suspension Bridge
Size of Structure	1.4km Main Span, 1.7km Total Length

Main features used in this application

- Nonlinear static analysis
- Vibration characteristics analysis
- Stability analysis

Description on this project

The Jin'an Bridge is a suspension bridge currently under construction. Once the bridge is completed with 461m high, it will be the fourth highest bridge in the world. The bridge will be a part of the G4216 Chengdu-Lijiang Expressway carrying traffic over the Jinsha River. The main span of the bridge will be 1,386m making it one of the longest ever built. The bridge crosses the river 1.4km upstream from the Jin'anqiao Dam.



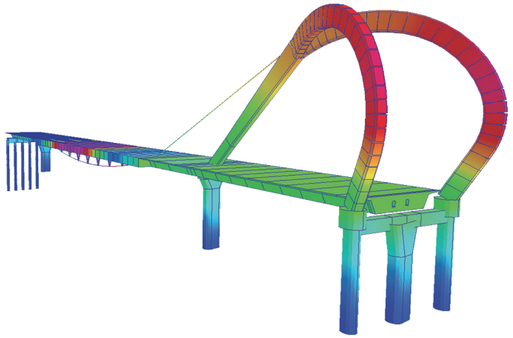
Broad Vision Engineering Consultants

Address	No.6, Shijia Lane, Tuodong Road, Guandu District, Kunming, Yunnan 650041, China		
Introduction	The company was established in 1956 and is state-owned enterprises as a consultant with a comprehensive engineering survey, engineering, consulting and supervision. It can engage in consulting business of various stages such as highway, municipal road, bridge, tunnel, construction, airport road, environmental engineering.		
Website	www.ynglsj.com	**Email**	ynglsj@ynglsj.com

Miaoli Xin-Gang Bridge

midas Civil

Miaoli, Taiwan



Owner	Miaoli County Government
Engineering Consultant	Gen Yeh Engineering Consultant
Construction Period	2005 – 2008
Type of Project	Steel Suspension Bridge
Size of Structure	885m Total Length

Main features used in this application

- Linear static and dynamic response analysis

Description on this project

Miaoli Xin-Gang Bridge is a steel suspension bridge. The 35 m high bull-shaped red concrete pagoda has a dynamic image of high-speed rail Mercedes-Benz. It was opened on September 17, 2008.

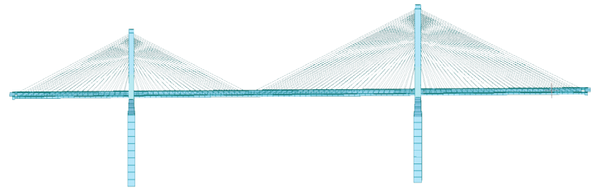
Gen Yeh Engineering Consultant

Address	13F., No.82, Sec. 1, Chenggong Rd., Yonghe Dist., New Taipei City 234, Taiwan		
Introduction	The company was established in the 1991. It is mainly engaged in civil engineering, structural engineering and environmental engineering Division of the planning, design, research, analysis, evaluation, identification, inspection and monitoring, supervision and construction management and other related business.		
Website	www.genyeh.com.tw	**Email**	gen.yeh@msa.hinet.net

Fuling Wujiang Bridge

midas Civil

Chongqing, China



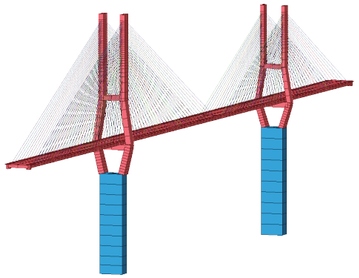
Engineering Consultant	T.Y. LIN INTERNATIONAL GROUP
Construction Period	2005 - 2009
Type of Project	Cable-stayed Bridge
Size of Structure	340m Main Span, 590m Total Length

Main features used in this application

- DFX import for spiral continuous curved bridge generation
- Construction stage analysis
- Moving load analysis

Description on this project

The bridge is the largest of several big bridges along the G69 Yinbai expressway that runs between Fuling and Fengdu along the east side of the Yangtze River. Located 6km upstream of the confluence of the Wujiang and Yangtze Rivers, the crossing is most notable for the double plane A-frame pylons which stand 204.8m tall on the Fuling side and 200m tall on the Fengdu side. The four-lane deck has a length of 630m with a configuration of (52 + 105 + 320 + 105 + 48)m. The deck is approximately 120m to the full reservoir formed by the 3 gorges dam or approximately 150m to the original level of the Wujiang River.



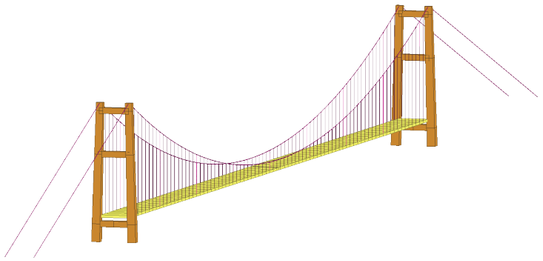
T.Y. LIN INTERNATIONAL GROUP

Address	6 Furong Lu, Renhe, Yubei District Chongqing 401121, China		
Introduction	T. Y. Lin International is a global, multi-disciplinary infrastructure services firm, Headquartered in San Francisco. The firm provides a range of planning, design, construction and project management services to the aviation, bridge, facilities, mobility, planning, and management, ports and marine, rail and transit, and surface transportation industries. They operates from more than 50 regional centers across four continents.		
Website	www.tylin.com	**Email**	rengl@tylin.com.cn

Yangluo Yangtze River Bridge

midas Civil

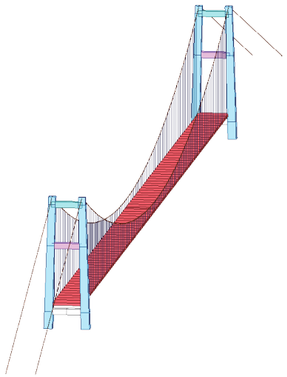
Wuhan, China



Owner	Wuhan Rao Cheng Highway Management Division
General Contractor	China Harbor Engineering Company Group / Major Bridge Engineering Bureau
Engineering Consultant	CCCC Highway Consultants
Construction Period	2003 - 2007
Type of Project	Suspension Bridge
Size of Structure	1.3km Main Span, 2.7km Total Length

Main features used in this application

- Suspension bridge analysis control
- Composite action with steel box girder
- Geometric nonlinear analysis
- Moving Load Analysis



Description on this project

Yangluo highway bridge over the Yangtze River, having a total length of 2.725km and a deck width of 33m with six traffic lanes in dual direction, is located in Wuhan, Hubei Province. The main bridge is a single suspension bridge with a central span of 1.28km. The bridge girder is a 38.5m wide and 3m deep steel box. The sag-to-span ratio of the main cables is 1/10.5. The south tower is 170m high and the north tower is 163m high. The northern and southern anchor blocks are deep-buried gravity anchorages.

CCCC Highway Consultants

Address	No.85 Deshengmenwai Street, Xicheng District, Beijing 100088, China
Introduction	CCCC Highway Consultants was founded in 1954. They own over 800 staffs now. The firm is set with production and operating systems for long span bridge, highway and transportation, international project, bridge and tunnel supervision and maintenance, municipal works, tunnel and rail traffic, and engineering construction management.
Website	www.hpdi.com.cn

Xiangjiang Sanchashi Bridge

midas Civil

Changsha, China

Engineering Consultant	Central South University / Changsha Planning Institute
Construction Period	Completed in 2006
Type of Project	Self-anchored Suspension Bridge
Size of Structure	328m Main Span, 1.6km Total Length

Main features used in this application

- Stiffened beam simulation with section stiffness scale factor
- Construction stage analysis with geometric nonlinear stiffness
- Moving load analysis
- Temperature load analysis

Description on this project

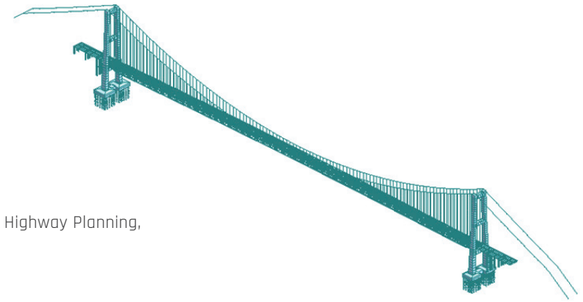
Sanchi Bridge is one of the largest self-anchored suspension bridge in China. The main span is 328m with side cross 132m, symmetrical arrangement on both sides. Also, it consists of the main girder (steel box girder) with tower column, hanging cable and pier.

Central South University / Changsha Planning Institute

Address	No.932 South Lushan Road, Changsha Hunan 410083, China		
Introduction	Central South University, a national key university has a highly regarded reputation as being a member of both 2 national key construction project 211 and 985 to support the development of high quality universities.		
Website	en.csu.edu.cn	**Email**	db01@csu.edu.cn

Luding Dadu River Bridge

midas Civil



Sichuan, China

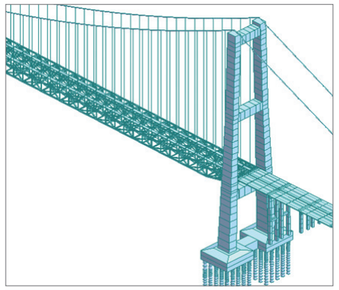
Owner	Sichuan Road and Bridge Group
Engineering Consultant	Sichuan Provincial Transport Department Highway Planning, Survey, Design and Research Institute
Construction Period	Under Construction
Type of Project	Suspension Bridge
Size of Structure	1.1km Main Span, 1.4km Total Length

Main features used in this application

- Suspension bridge analysis control
- Construction stage analysis
- Elastic catenary cable element

Description on this project

With the UAV(Unmanned Aerial Vehicle System) traction leading the success of the cable crossing the Dadu River, the bridge will be around 1,000m long connecting to the two sides of the Dadu River. This bridge is being built at a high altitude and high seismic intensity of the suspension bridge with steel truss girder.

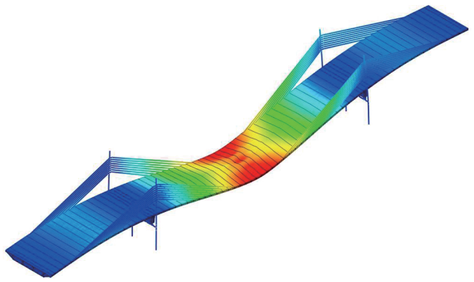


Sichuan Provincial Transport Department Highway Planning, Survey, Design and Research Institute

Address	1#, Wuhou Hen Jie St. Chengdu 610041, China
Introduction	SCHDRI was found at 1953. Also, They play important role in the field of survey, design, consulting, research, construction administration, environmental assessment, earth work for all kinds highway, road, bridge, tunnel and industry & residential building. SCHDRI has complete the design and consult work for 4000 highway, 200 bridges, 100 tunnels.
Website	www.schdri.com

Pearl Harbor Memorial Bridge (Q Bridge)

midas Civil



Connecticut, USA

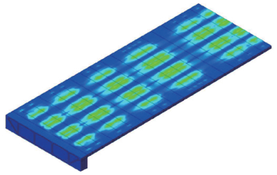
Owner	Connecticut Department of Transportation (CTDOT)
General Contractor	O&G Industries / The Middlesex Companies
Engineering Consultant	AECOM
Construction Period	2014 - 2016
Type of Project	Extradosed Bridge
Size of Structure	157m Main Span, 308m Total Length

Main features used in this application

- Construction stage analysis with creep and shrinkage
- Unknown load factor and lack of fit force for cable optimization
- Longitudinal & transverse post-tensioning
- Moving load analysis

Description on this project

The existing bridge was plate steel girder, opened in January 1958. Its main span was 118m which was the longest plate girder in Western Hemisphere. For the replacement of the old bridge, several alternatives studies were carried out and a concrete extradosed bridge was selected. Midas software was used for transverse review of the new bridge with 3D model using solid elements.



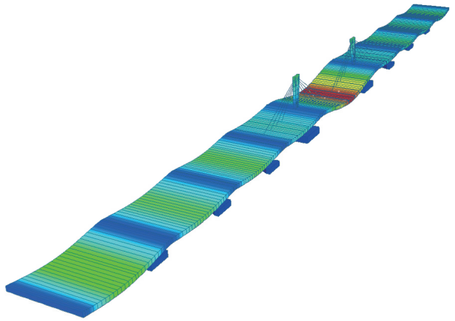
AECOM

Address	7650 W Courtney Campbell Causeway, Tampa, FL 33607, USA
Introduction	AECOM provides professional technical and management support services to both public and private sector clients. Services relate to areas including Architecture & Design, Construction, Cost Management, Decommissioning & Closure, Economics, Engineering, Environmental Services, Planning & Consulting, Program, Technical Services and else.
Website	www.aecom.com

Nga Tu So Flyover Bridge

midas Civil

Hanoi, Vietnam



Owner	Major Projects Management Unit for Urban Development of Hanoi (MPMU)
Engineering Consultant	VINACONEX E&C
Construction Period	2002 - 2006
Type of Project	Extradosed Bridge
Size of Structure	237m Total Length

Main features used in this application

- Construction stage analysis with time-dependent effects
- Response spectrum & eigenvalue analysis
- Vehicle load optimization

Description on this project

Nga Tu So Flyover is a first extradosed cable-stayed flyover designed and executed in Vietnam. It has a width of 17.5m designed for 4 lanes. Pre-stressed reinforcement concrete girders cast in place and include 9 spans. The abutments and piers of the flyover are constructed on a bored pile foundation including 76 piles.

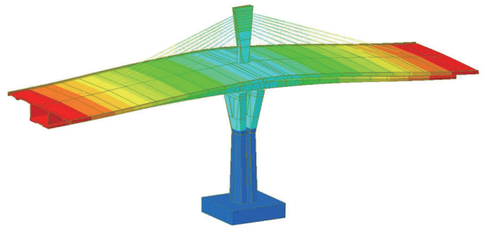
VINACONEX E&C

Address	No.34 Lang Ha Strt, Dong Da Dist, Hanoi City, Vietnam		
Introduction	Vinaconex E&C is a general construction company and offers a broad range of services in project management, procurement, construction and technology transfer to assist clients in all phases of development – from pre-construction to occupancy. They are now serving both public and private sector clients in construction investment projects of all sizes.		
Website	vinaconexec.com	**Email**	vinaconexec@vinaconexec.com.vn

Povazska Bystrica Bridge

midas Civil

Povazska Bystrica, Slovakia



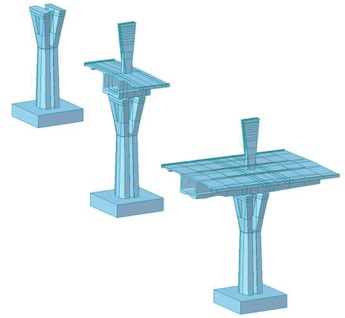
Engineering Consultant	Strasky, Husty and Partners
Construction Period	Completed in 2010
Type of Project	Extradosed Bridge
Size of Structure	122m Main Span, 872m Total Length

Main features used in this application

- Unknown load factor and lack of fit force for cable optimization
- Construction stage analysis
- Moving load analysis

Description on this project

The bridge, total length of 872m and span length of 68 + 6 x 122 + 68m, is formed by one cell box girders with large overhangs supported by the precast structure. The bridge is being casted in symmetrical cantilevers starting at piers.



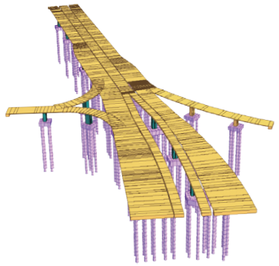
Strasky, Husty and Partners

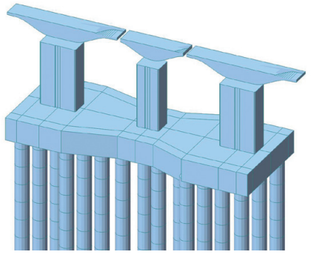
Address	Sumavska 524/31, 602 00 Brno, Czech Republic		
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.		
Website	www.shp.eu	**Email**	shp@shp.eu

The Basarab Overpass

Bucharest, Romania

General Contractor	JOINT VENTURE ASTALDI
Engineering Consultant	C&T Engineering
Construction Period	2007 – 2010
Type of Project	PSC Box Girder Bridge
Size of Structure	125m Main Span, 1.5km Total Length



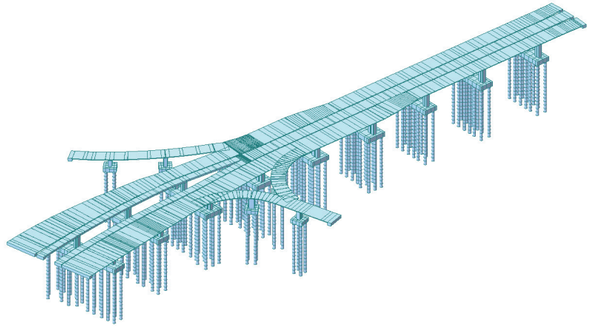


Main features used in this application

- Linear static and nonlinear dynamic analysis
- Time history analysis using lead rubber bearings isolators(LRB) and viscous dampers

Description on this project

The flyover connects the railway central station with the Grozavesti Bulevardul, beyond the Dambovita River in Bucharest downtown. The project is 1,478m long (including the begin/end ramps) and consists of an arch bridge over the Dambovita River (span 125m), a complex road/tramway viaduct 791m long, a cable-stayed bridge 302m long and 40m wide over the railway tracks. The new link is completed by three side ramps connecting the flyover with secondary roads.



C&T Engineering			
Address	via veneto 13, 31057 Lanzago di Silea TV, Italy		
Introduction	It is a service company operating in the field of civil engineering founded in August 1994 by the founding partners, ing. Francesco Toninato and ing. Ruggero Cervellini.		
Website	www.cetengineering.it	**Email**	info@cetengineering.it

Bedew Bridge

Ashgabat, Turkmenistan

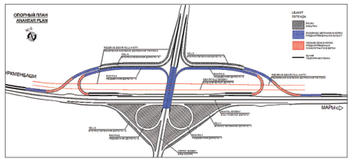
Owner	Governorship of Ashgabat
Engineering Consultant	Lava Engineering
Construction Period	2014- 2015
Type of Project	PSC Box Girder Bridge
Size of Structure	60m Main Span, 2.35km Total Length

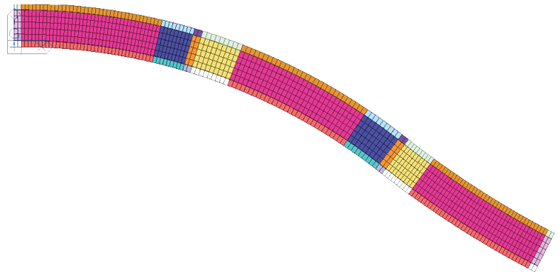
Main features used in this application

- Time dependent material properties for creep and shrinkage
- Tendon profile generator
- Russian moving load analysis
- Reinforced concrete design as per SNIP

Description on this project

To modernize the 59.14km highway, design and construction of 18 bridges, 39 pedestrian underpasses, 15 pedestrian overpasses including landscape.





Lava Engineering

Address	1314 cad. 1309. sok. 2/8 Aşağı Üveçler Çankaya Ankara, Turkey
Introduction	Lava engineering was founded in 2008 in Ankara. They provide services in transportation Projects, engineering structures (All kinds of precast, CIP, steel or steel composite bridges and viaducts on highways and railways), tunnels, Small structures (All kinds of retaining structures, underpasses, drainage systems etc.) and so on.
Website	www.lava.com.tr
Email	info@lava.com.tr

Byker Viaduct

London, UK

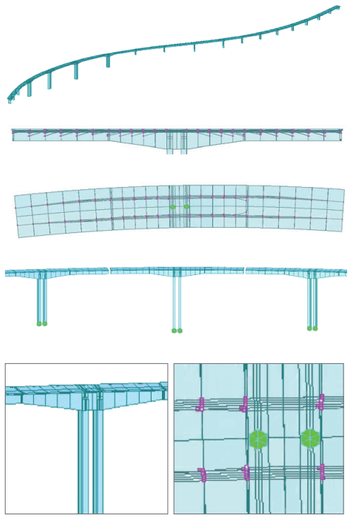
Owner	Tyne and Wear Passenger Transport Executive
General Contractor	John Mowlem & Co., Ltd.
Engineering Consultant	WSP I Parsons Brinckerhoff
Construction Period	1976 - 1979
Type of Project	Balanced Cantilever PSC Box Girder Bridge
Size of Structure	815m Total Length

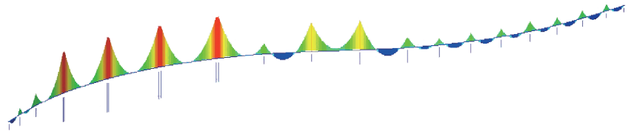
Main features used in this application

- Construction stages analysis with post tensioning considering creep and shrinkage
- Moving load analysis

Description on this project

The assessment of the Byker Viaduct is completed using a three-dimensional line model in. The viaduct is drawn up in AutoCAD and imported to midas Civil due to the complex geometry which saves a lot of time in creating the model. The bearings are modelled as elastic links which provide simple results extraction to check the bearing schedule. The load inputs for permanent and live loads are straightforward due to the intuitive menu. The way the program output results provide simple extraction of required data.





WSP I Parsons Brinckerhoff

Address	Kings Orchard 1 Queen Street Bristol Avon BS2 0HQ, UK
Introduction	Parsons Brinckerhoff is one of the world's leading engineering professional consulting firms. Their expertise ranges from environmental remediation to urban planning, from engineering iconic buildings to designing sustainable transport networks, and from developing the energy sources of the future.
Website	www.wsp-pb.com

Lee Roy Selmon Flyovers

Florida, USA

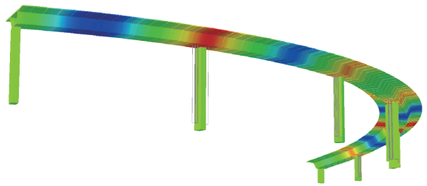
Owner	Tampa-Hillsborough Expressway Authority
General Contractor	WSP I Parsons Brinckerhoff
Engineering Consultant	WSP I Parsons Brinckerhoff
Construction Period	2010 - 2014
Type of Project	PSC Box Girder Bridge
Size of Structure	2.5Km Total Length

Main features used in this application

- Construction stage analysis with post-tensioning
- Moving load analysis with concurrent member forces

Description on this project

The project involves reconstruction and widening of I-4 from the existing six-lane divided interstate to a ten-lane divided interstate. The concept design proposes the addition of two new barrier-separated express lanes in each direction for a total of ten lanes. The project also includes reconstruction of several interchanges and arterial roads at those interchanges in order to relieve the traffic that backs up all the way to the interchanges.



WSP I Parsons Brinckerhoff

Address	2202 N West Shore Blvd, Suite 300, Tampa, Florida 33607, USA
Introduction	Parsons Brinckerhoff is one of the world's leading engineering professional consulting firms. Their expertise ranges from environmental remediation to urban planning, from engineering iconic buildings to designing sustainable transport networks, and from developing the energy sources of the future.
Website	www.wsp-pb.com

Buttim Bridge

Bursa, Turkey

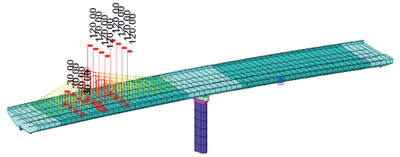
Owner	General Directorate of Highways
Engineering Consultant	Lava Engineering
Construction Period	2014 - 2015
Type of Project	PSC Box Girder Bridge
Size of Structure	33m Main Span, 66m Total Length

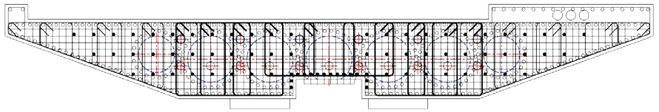
Main features used in this application

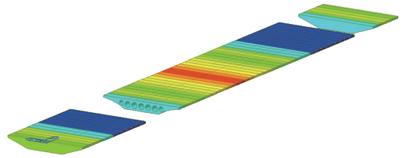
- Construction stage analysis with post-tensioning
- Section property calculator
- Vehicle load optimization

Description on this project

The bridge is two-span, continious, CIP post-tensionned, voided slab bridge. The span length 33m, total super-structure thickness is 1.2m.







Lava Engineering

Address	1314 cad. 1309. sok. 2/8 Aşağı Üveçler Çankaya Ankara, Turkey		
Introduction	Lava engineering was founded in 2008 in Ankara. They provide services in transportation Projects, engineering structures (All kinds of precast, CIP, steel or steel composite bridges and viaducts on highways and railways), tunnels, Small structures (All kinds of retaining structures, underpasses, drainage systems etc.) and so on.		
Website	www.lava.com.tr	**Email**	info@lava.com.tr

Third Orbital Expressway

Doha, Qatar

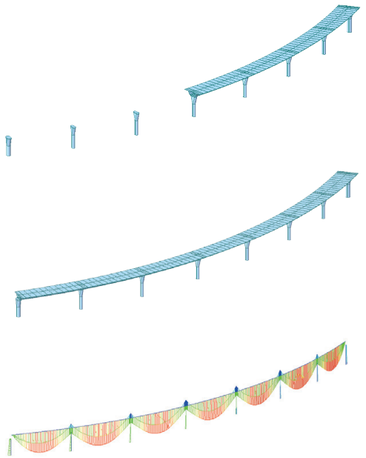
Owner	Public Works Authority, Qatar
Engineering Consultant	Mott Macdonald
Construction Period	Under Construction
Type of Project	PSC Box Girder Bridge
Size of Structure	56km Total Length

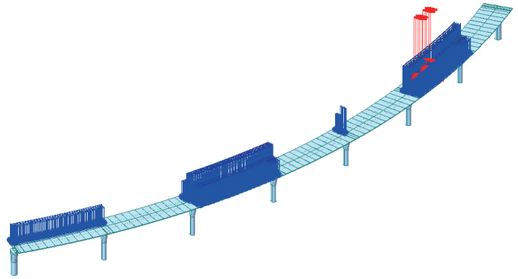
Main features used in this application

- Construction stage analysis with post-tensioning
- Settlement analysis
- Moving load analysis with concurrent member forces

Description on this project

This urban infrastructure is within the contract of the New Orbital Highway and Truck Route in Doha, Qatar. It connects the Mesaieed industrial area and New Port Projects to Salwa Road including a total of approximately 56km of road works. The new junction bridges are post-tensioned segmental box girders erected using the span-by-span method. Staged construction and seismic analysis have been included.





Mott Macdonald			
Address	Mott MacDonald House 8-10 Sydenham Road, Croydon, CR0 2EE, UK		
Introduction	The Mott MacDonald Group is a multidisciplinary consultancy with headquarters in the United Kingdom. It provides engineering, management and development services internationally, with 16,000 staff in 150 countries.		
Website	www.mottmac.com	**Email**	marketing@mottmac.com

Nitra Bridge

Banska Bystrica, Slovakia

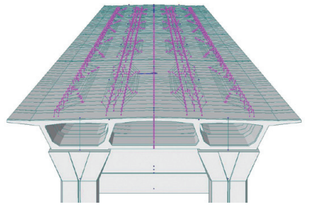
Engineering Consultant	Strasky, Husty and Partners
Construction Period	Completed in 2011
Type of Project	PSC Box Girder Bridge
Size of Structure	85m Main Span, 1.16km Total Length

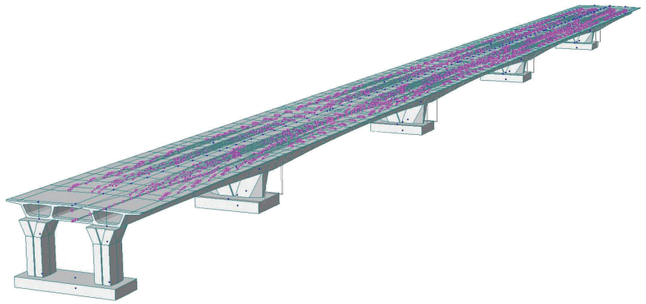
Main features used in this application

- Construction stage analysis with post tensioning concrete, creep and shrinkage
- Vehicle load optimization

Description on this project

The bridge with the total length of 1,164m is formed by 357.5m long main bridge across the River Nitra and the 806.5m long approach viaduct. The main bridge has 5 spans of length from 50 to 85m. The decks of three-cell box section are casted segment-by-segment in symmetrical cantilevers. The viaduct is formed by twin bridges of one-cell box section. The bridge with spans from 28 to 45m was incrementally launched.





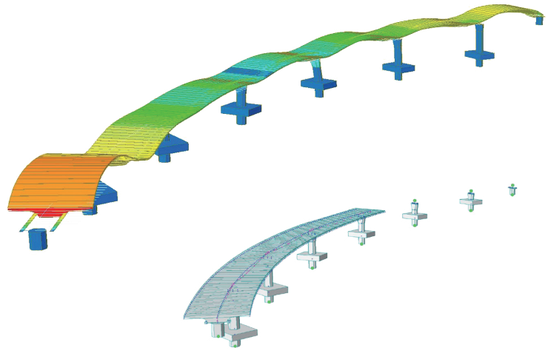
Strasky, Husty and Partners

Address	Sumavska 524/31, 602 00 Brno, Czech Republic		
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.		
Website	www.shp.eu	**Email**	shp@shp.eu

Kostivarska Junction

midas Civil

Banska Bystrica, Slovakia



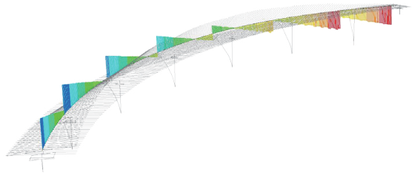
Engineering Consultant	Strasky, Husty and Partners
Construction Period	Completed in 2011
Type of Project	PSC Box Girder Bridge
Size of Structure	61m Main Span, 763m Total Length

Main features used in this application

- Construction stage analysis with post tensioning concrete, creep and shrinkage
- Vehicle load optimization

Description on this project

The bridge with the total length of 763.5m is formed with a continuous structure of 14 spans of the length from 33.5 to 61m. The deck is assembled of precast segments erected in symmetrical cantilevers.



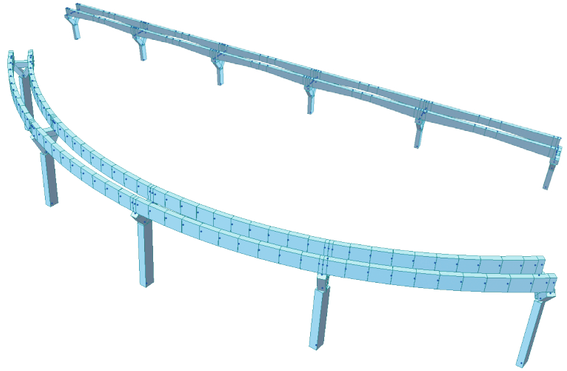
Strasky, Husty and Partners

Address	Sumavska 524/31, 602 00 Brno, Czech Republic
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.
Website	www.shp.eu
Email	shp@shp.eu

Mumbai Monorail (Line 1)

midas Civil

Mumbai, India



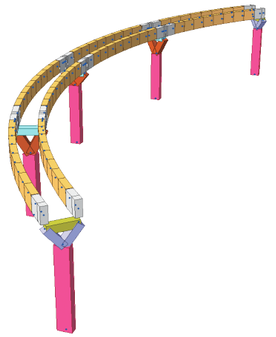
Owner	Mumbai Metropolitan Region Development Authority
General Contractor	Larson & Toubro / Scomi Engineering
Engineering Consultant	Louis Berger
Construction Period	Completed in 2014
Type of Project	PSC Girder Bridge
Size of Structure	8.9km Total Length

Main features used in this application

- Construction stage analysis with sub-structures
- Moving load analysis for train loads

Description on this project

Mumbai Monorail is a monorail system in the city of Mumbai, Maharashtra, built as part of a major expansion of public transport in the city. The project is implemented by the Mumbai Metropolitan Region Development Authority (MMRDA). The system started commercial operation after partially opening its Phase 1 to the public in 2014. Upon the completion of entire Phase 1, the Mumbai Monorail is set to become the fifth-largest monorail system in the world.



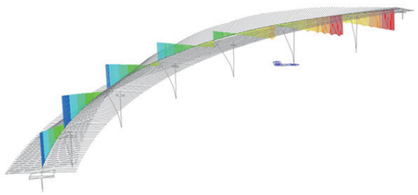
Louis Berger

Address	Naman Centre, Plot No. C-31, G Block, Bandra-Kurla Complex, Bandra East, Mumbai, India
Introduction	Louis Berger is a full-service engineering, architecture, planning, environmental, program and construction management and economic development firm. Founded in 1953 in Harrisburg, Pennsylvania by Dr. Louis Berger, the firm now employs nearly 6,000 employees in more than 50 countries worldwide.
Website	www.louisberger.com

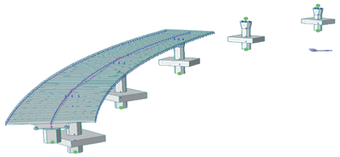
Expressway R1

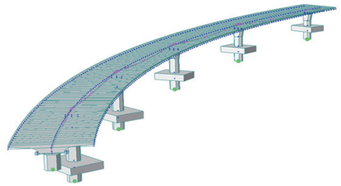
midas Civil

Banska Bystrica, Slovakia



Engineering Consultant	Strasky, Husty and Partners
Construction Period	Completed in 2011
Type of Project	PSC Box Girder Bridge





Main features used in this application

- Construction stage analysis with post-tensioning
- Lateral force checking

Description on this project

The overpass of the Expressway R1 has an uniform arrangement. The continuous girder of span is stiffened by parabolic haunches and spans are formed by a spine girder with large overhangs.

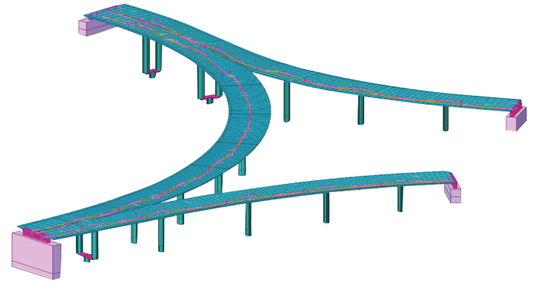
Strasky, Husty and Partners

Address	Sumavska 524/31, 602 00 Brno, Czech Republic
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.
Website	www.shp.eu
Email	shp@shp.eu

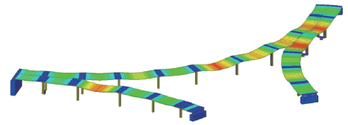
Mistecka Junction

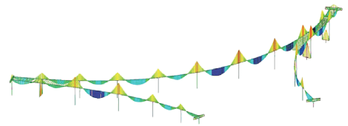
midas Civil

Ostrava, Czech Republic



Engineering Consultant	Strasky, Husty and Partners
Construction Period	Completed in 2007
Type of Project	PSC Box Girder Bridge
Size of Structure	27m Main Span





Main features used in this application

- Construction stage analysis with post tensioning concrete, creep and shrinkage
- Moving load analysis

Description on this project

The junction Místecka required construction of four new bridges with length from 115m to 239m and widths from 9m to 22m. The bridges No. 223 and 225, which have turned off ramps, are formed with two girders mutually connected by the deck slab of variable width. At those points where they bifurcate, the bridges become one-girder structure with large overhangs. The span length are from 16m to 27m.

Strasky, Husty and Partners

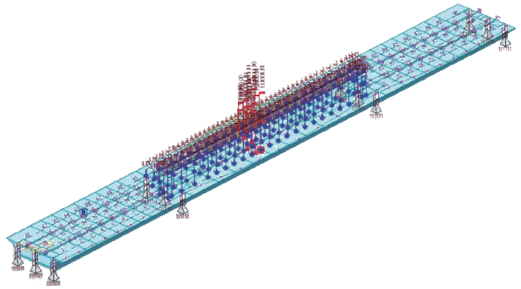
Address	Sumavska 524/31, 602 00 Brno, Czech Republic
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.
Website	www.shp.eu
Email	shp@shp.eu

Turda Motorway Bridge

midas Civil

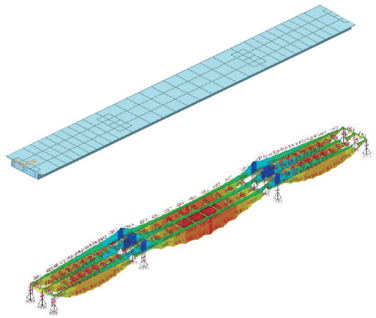
Cluj-Napoca, Romania

Owner	C.N.A.D.N.R. S.A.
General Contractor	PORR Construct
Engineering Consultant	INTEGRATED ROAD SOLUTIONS
Construction Period	2014 – 2017
Type of Project	Multi-cell Box Girder Bridge
Size of Structure	168m Main Span, 1.9km Total Length



Main features used in this application

- RC grillage wizard
- Moving load analysis with concurrent member forces
- Tendon loss results



Description on this project

The project includes planning and construction of a 16.30km long motorway section. Within this project, 17 highway bridges of which two run over viaducts, 13 overpasses and a parking space as well as road maintenance will be built. A total of 13 overpasses will be built on the route.

INTEGRATED ROAD SOLUTIONS			
Address	Str. Alexandru Lapusneanu, nr.20C, sector 1, Bucuresti 012867, Romania		
Introduction	IRS was established in 2011. The company is specialized in design and technical checks of bridges, passages, and viaducts. They also provides stability and dynamism verification.		
Website	www.irsol.ro	**Email**	office@irsol.ro

La Jabalina Bridge

midas Civil

Durango, Mexico

Engineering Consultant	TRIADA
Type of Project	PSC Box Girder Bridge
Size of Structure	191m Total Length

Main features used in this application

- Construction stage analysis with time-dependent effects
- Response spectrum & eigenvalue analysis
- Vehicle load optimization

Description on this project

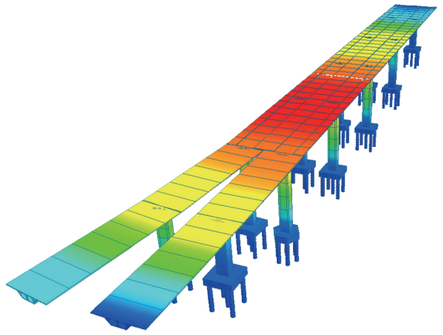
La Jabalina Bridge is located at Durango, Mexico and it is part of the Durango-Mazatlán highway. It is a 191m long and 70m high PSC box girder bridge.

TRIADA			
Address	Av. Revolución # 374, Col. San Pedro de los Pinos, CP 03800, Mexico City, Mexico		
Introduction	Triada is a group of Mexican companies dedicated to providing engineering and consulting services, specializing in transportation infrastructure projects. The firm has been recognized as a leader in the design and participation in bridges of great clear.		
Website	www.triada.com.mx	**Email**	contacto@triada.com.mx

Tarango Bridge

midas Civil

Mexico City, Mexico



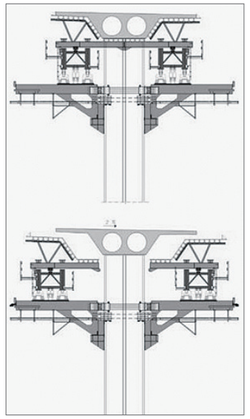
Owner	SEDUVI, Government of Mexico City
General Contractor	ATCO
Engineering Consultant	Carlos Fernandez Casado
Type of Project	PSC Box Girder Bridge
Size of Structure	206m Total Length

Main features used in this application

- Construction stage analysis with time-dependent effects
- Response spectrum & eigenvalue analysis
- Vehicle load optimization

Description on this project

Tarango Bridge is a 2-cell box girder bridge with total length of 206m. The four lane, 206m long bridge features a twin box girder superstructure. Two circular cells in each box girder function to reduce slab weight while easing stresses and supplying space for efficient post-tensioning trajectories.



Carlos Fernandez Casado			
Address	Calle Orense 10. 28020 Madrid, Spain		
Introduction	Established in 1966, the company is a project engineering firm specializing in bridges and large-scale structures and has carried out major engineering projects. They have designed bridges and high-tech buildings all over the world such as cable-stayed, suspension, cantilever and incrementally launched bridges.		
Website	www.cfcsl.com	**Email**	cfcsl@cfcsl.com

North Road Corridor Flyover Interchange

midas Civil

Doha, Qatar

Owner	Ashghal
General Contractor	Tekfen
Engineering Consultant	AECOM
Construction Period	Under Construction
Type of Project	PSC Box Girder Bridge
Size of Structure	74m Main Span, 343m Total Length

Main features used in this application

- Construction stage analysis with post-tensioning
- Settlement analysis
- Moving load analysis

Description on this project

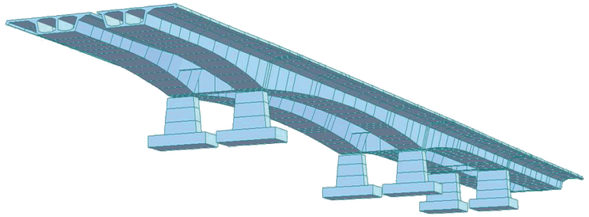
The project comprises 21 interchanges intending to maximize access to the frontage roads. The directional ramp bridge is a part of the modification to existing N5 interchange. The directional ramp bridge will provide a direct connection between Ras Laffan and Doha to ease the traffic predicted by the traffic model.

AECOM	
Address	Alfonso XII, 62, 5th floor, Madrid, 28014, Spain
Introduction	AECOM provides professional technical and management support services to both public and private sector clients. They provide services in architecture, design, construction, environmental services and planning and consulting.
Website	www.aecom.com

Lusail Marina Interchange

midas Civil

Lusail, Qatar



Owner	Lusail Real Estate Development Company
General Contractor	MIDMAC – YUKSEL JV
Engineering Consultant	CH2MHILL
Construction Period	Completed in 2016
Type of Project	PSC Box Girder Bridge
Size of Structure	90m Main Span

Main features used in this application

- Multi-cell box girder with post-tensioning
- Moving load analysis

Description on this project

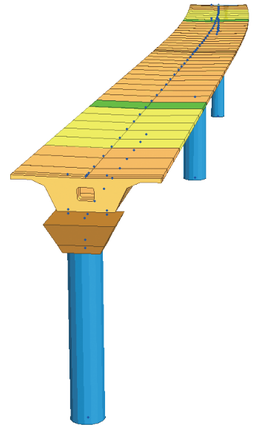
The bridge with the main span over the junction is about 90m. CH2MHILL was engaged to provide detailed design of 425m continuous concrete box girder bridge at Marina Interchange in Lusail.

CH2MHILL			
Address	9191 South Jamaica Street, Englewood, CO 80112, USA		
Introduction	The visionary team in CH2MHILL, based out of Abu Dhabi and Dubai are well placed to meet that challenge head on. Providing a full, cross-disciplinary approach to major projects and programs, the firm offers consulting, program management, design, construction and operations support across all markets.		
Website	www.ch2m.com	**Email**	Lorrie.Crum@ch2m.com

Delhi Metro Bridge

midas Civil

Nagpur, India



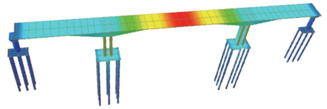
Owner	Delhi Metro Rail Corporation Limited (DMRC)
General Contractor	GAMMON India
Engineering Consultant	AECOM
Construction Period	Under Construction
Type of Project	PSC Box Girder Bridge
Size of Structure	218m Main Span

Main features used in this application

- Construction stage analysis with bearing
- Soil-structure interaction

Description on this project

Delhi Metro is the world's 12th longest metro system in length. The network has a total length of 218km serving 164 stations. The system has a mix of underground, at-grade, and elevated stations.



AECOM			
Address	9th Floor, Infinity Tower C, DLF Cyber City, DLF Phasell Gurgaon, HR 122002, India		
Introduction	AECOM provides professional technical and management support services to both public and private sector clients. They provide services in architecture & design, construction, environmental services, planning & consulting.		
Website	www.aecom.com		

Truckee River Bridge

California, USA

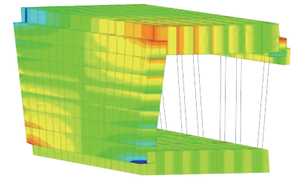
Owner	California Department of Transportation (Caltrans)
General Contractor	Caltrans
Engineering Consultant	CH2M Hill
Construction Period	Under Construction
Type of Project	PSC Composite Girder Bridge
Size of Structure	36m Total Length

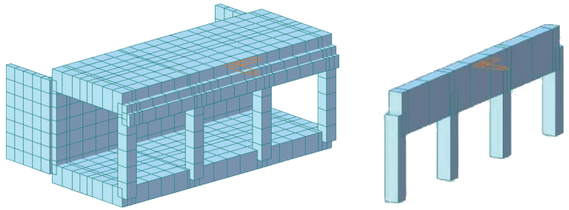
Main features used in this application

- Inelastic time history analysis
- General section designer
- Pushover analysis

Description on this project

The Truckee River Bridge is designed as a single span bridge simply supported on cellular abutments that are proposed to carry California State Route 89 over the Truckee River in the city of Tahoe City, CA. The cellular abutments allow bike paths to pass below the structure at each side of the River. This bridge is part of a larger realignment project led by Central Federal Lands and funded by the Federal Lands Access Program. During initial design, the proposed structure was detailed with three spans, a curved deck, and deep foundations. By reducing the spans to a single span supported on cellular cast-in-place abutments on spread footings, the project cost is greatly reduced. To design the columns that formed the river side of the abutment, the structure is modeled in midas Civil 3D to evaluate the plastic response of the columns under severe seismic loading.





CH2M Hill	
Address	9191 South Jamaica Street, Englewood, Colorado 80112, USA
Introduction	CH2M HILL, also known as CH2M, is a global engineering company that provides consulting, design, construction, and operations services for corporations, and federal, state, and local governments.
Website	www.ch2m.com

Roath Dock Viaduct – EAV and WAV

Cardiff, UK

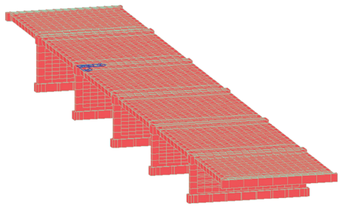
Client	Welsh Government
Contractor	JV Dawnus / Ferrovial Agroman
Engineering Consultant	CAPITA
Construction Period	2016 – 2017
Type of Project	PSC Composite Girder Bridge
Size of Structure	30m Main Span, 430m Total Length (WAV 260m, EAV 170m)

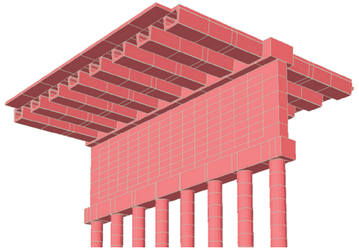
Main features used in this application

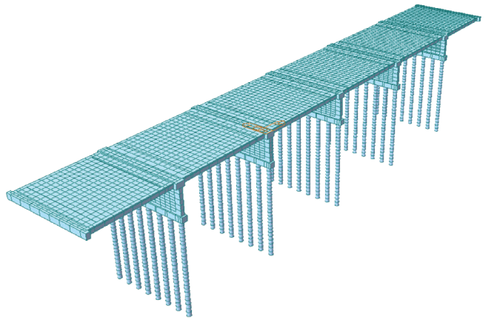
- Linear static analysis
- Soil structure interaction by multilinear point spring supports
- Construction stage analysis
- Time dependent materials

Description on this project

The whole project involves approximately 1km of new dual carriageway and 3.5m wide combined cycle/footway. The continuous superstructures for both the WAV and EAV viaducts comprise precast prestressed W-beams with a RC deck slab. The EAV structure is integral with the piers.







CAPITA	
Address	St Davids House, Pascal Close, St Mellons, Cardiff CF3 0LW, UK
Introduction	Capita does plan, design, build and manage transport infrastructure, working closely with clients from across local and central government. they have a long history of co-operation with government agencies and the organizations that supply transport infrastructure – such as airports, local and national roads and railways.
Website	www.capitaproperty.co.uk

Decking of Sungei Ketapang

Singapore

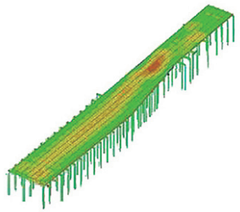
Owner	Land Transport Authority of Singapore (LTA)
General Contractor	HSL Constructor
Engineering Consultant	WRX Engineers
Construction Period	Completed in 2016
Type of Project	PSC Composite Girder Bridge
Size of Structure	12m Main Span, 650m Total Length

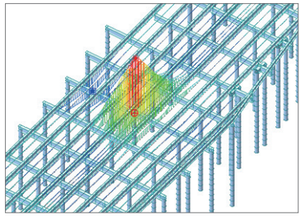
Main features used in this application

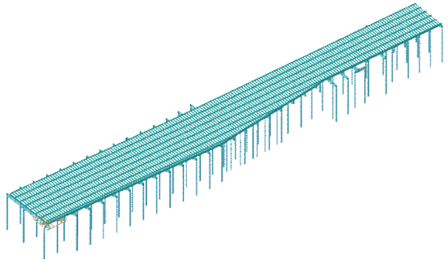
- Moving load analysis with standard and user-defined vehicle loads
- Construction stage analysis with composite action

Description on this project

The decking of Sungei Ketapang (LTA-T3009) serves to ease the vehicular movement in and out of the Laguna National Golf & Country Club into the busy Xilin Avenue and Changi South Avenue 3, when Laguna Golf Green Road has to make way for the tunneling work for the future Downtown Line (DTL). Prior to the marine piling work, Sungei Ketapang is the first widened to ensure that marine piling and steel structure works will not obstruct the canal water flow.







WRX Engineers			
Address	190 Middle Road #18-05 Fortune Centre, 188979, Singapore		
Introduction	WRX Consultants and WRX Engineers Pte Ltd are civil & structural consultancy firm specialize in project management, civil and structural works.		
Website	www.wrx.com.sg	**Email**	wrxeng@wrx.com.sg

Portishead Skew Bridge

Bristol, UK

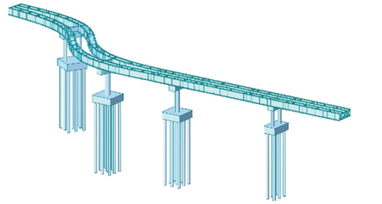
Engineering Consultant	WSP I Parsons Brinckerhoff
Construction Period	2015 - 2016
Type of Project	Steel Composite Girder Bridge
Size of Structure	815m Total Length

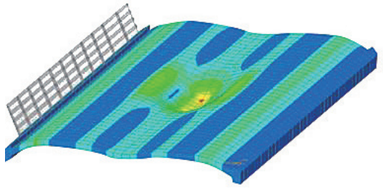
Main features used in this application

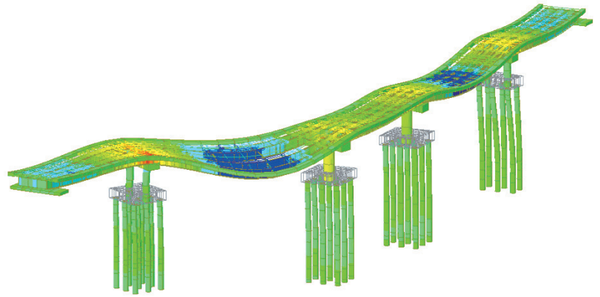
- Construction stages analysis with composite action
- Moving load analysis

Description on this project

The bridge consists of five-span continuous steel and reinforced concrete composite girders, with a reinforced concrete substructure and piled foundations. It will carry the AVTM Metro bus route over the Portishead Branch railway, Ashton Vale road and Ashton Vale culvert in Bristol city.







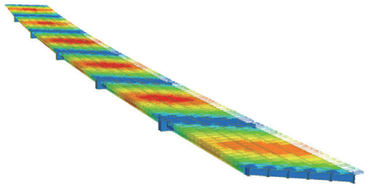
WSP I Parsons Brinckerhoff

Address	Kings Orchard 1 Queen Street Bristol Avon BS2 0HQ, UK
Introduction	Parsons Brinckerhoff is one of the world's leading engineering professional consulting firms. Their expertise ranges from environmental remediation to urban planning, from engineering iconic buildings to designing sustainable transport networks, and from developing the energy sources of the future.
Website	www.wsp-pb.com

Nowolazurowa Flyover

Warsaw, Poland

Owner	Road Investments Management Authority in Warsaw
General Contractor	SKANSKA
Engineering Consultant	SKANSKA
Construction Period	2014 – 2015
Type of Project	Steel Composite Girder Bridge
Size of Structure	34m Main Span, 420m Total Length

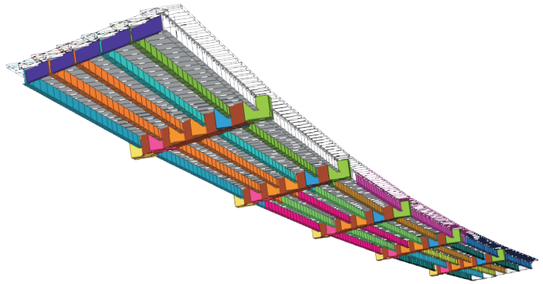


Main features used in this application

- DFX import
- Construction stage analysis with composite section
- Section property calculator for general shape composite section generation
- Moving load analysis

Description on this project

The cross section consists of six rolled section 1.09m high, which are made of S460 steel. The beams are connected with 22cm (C30/37) concrete slabs. The viaduct consists of 13 spans, 28m and 34m long. There is an expansion join on every pier, so finally it has 3 separate superstructures: 4 spans, 6 spans and 4 spans.



SKANSKA

Address	Ul. Pruszkowska 17, 02-119 Warszawa, Poland
Introduction	SKANSKA is the largest construction company in Poland. Also, they build facilities for the largest companies in the automotive, pharmaceutical, furniture, commercial and public investors and the army. At the same time with the same commitment, they have smaller investments, building municipal and county roads, schools and kindergartens.
Website	www.skanska.pl

Shibanpo Yangtze River Bridge

Chongqing, China

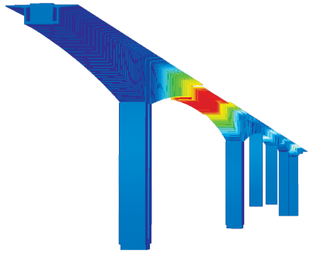
General Contractor	Chongqing City Construction Group
Engineering Consultant	T.Y. LIN INTERNATIONAL GROUP
Construction Period	2003 – 2006
Type of Project	Steel Composite Girder Bridge
Size of Structure	330m Main Span, 1.1km Total Length

Main features used in this application

- Construction stage analysis considering shrinkage and creep
- Moving load analysis

Description on this project

One of the longest box girder bridge in the world, the double-line Shibanpo Yangtze River Bridge connects Chongqing's Yuzhong and Nan'an Districts and dramatically improves traffic flow across the Yangtze River. The new bridge runs parallel to the old bridge and is positioned 25m away from the older structure. The total length of the new 7-span box girder bridge is 1,103m with a 330m long and 19m wide main span. To satisfy strict River navigation requirements and match the aesthetic view of the existing bridge, the 103m long portion at midspan of the main span of the bridge is used with steel box girder structure, which in that way effectively reduces the bending moment and shear force of the overall main girder.



T.Y. LIN INTERNATIONAL GROUP

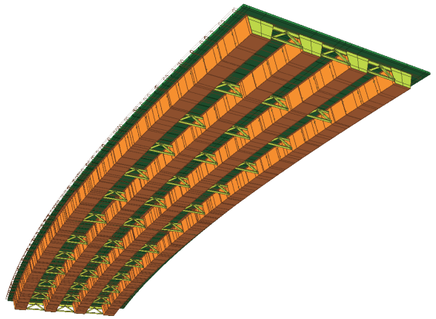
Address	6 Furong Lu, Renhe, Yubei District Chongqing 401121, China		
Introduction	T. Y. Lin International is a global, multi-disciplinary infrastructure services firm, Headquartered in San Francisco. The firm provides a range of planning, design, construction and project management services to the aviation, bridge, facilities, mobility, planning, and management, ports and marine, rail and transit, and surface transportation industries. They operate from more than 50 regional centers across four continents.		
Website	www.tylin.com	**Email**	rengl@tylin.com.cn

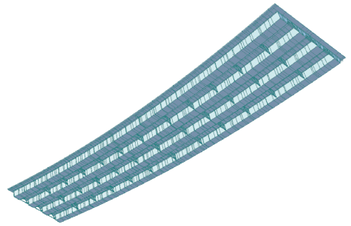
No. 05561 Bridge

midas Civil

Connecticut, USA

Engineering Consultant	Connecticut Department of Transportation
Construction Period	2015 - 2016
Type of Project	Steel Composite Girder Bridge
Size of Structure	85m Total Length



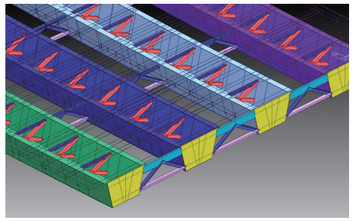


Main features used in this application

- Construction stage analysis with composite action
- Moving load analysis with concurrent member forces
- Composite girder bridge design as per AASHTO LRFD

Description on this project

Bridge No. 05561 is built in 1987 and carries Route 3 over Route 2 and Ramp 080 Eastbound in Glastonbury, Connecticut. The two-span bridge consists of 4 continuous steel multi-box girders composite with a reinforced concrete deck. The overall length of the structure is 85m with a curb-to-curb width of 18m. Bridge No. 05561 is one of nine bridges assigned to a pavement preservation project for which load ratings have to be performed to determine whether the bridges could handle the additional loads of the miller and paver. Because of the complexity of this particular structure, midas Civil was used to generate a 3D model and evaluate the structure's capacity.



Connecticut Department of Transportation

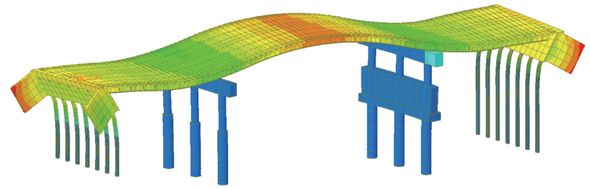
Address	2800 Berlin Turnpike P.O. Box 317546 Newington, Connecticut 06131-7546, USA
Introduction	The mission of the Connecticut Department of Transportation is to provide a safe and efficient inter-modal transportation network that improves the quality of life and promotes economic vitality for the State and the region. The Department is responsible for 3,716 miles of State Routes, State Roads, and the National Highway System.
Website	www.ct.gov **Email** webmaster.conndot@ct.gov

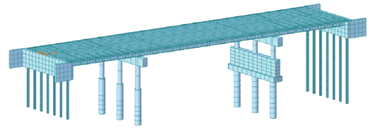
Fruit Street Bridge

midas Civil

Massachusetts, USA

Owner	MassDOT
Engineering Consultant	HDR
Construction Period	Reconstructed in 1976
Type of Project	Integral Bridge
Size of Structure	Main Span 27m, Total Length 56m



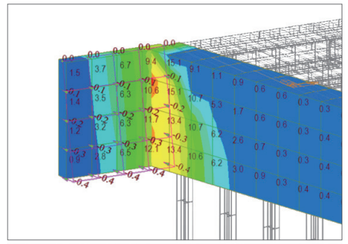


Main features used in this application

- Steel composite girder bridge wizard
- Soil structure interaction for abutment and pile spring

Description on this project

The project is about replacement of the concrete T and I girder bridge to steel plate I girder integral abutment bridge with the proposal of 3-span continuous superstructure comprised of 7 steel rolled beam supported on integral abutments and piers. And both of the end spans between integral abutments and piers are 14m long each also the bridge is skewed at 10°-30'-00".



HDR

Address	1001 SW 5th Avenue Suite 1800 Portland, OR 97204-1134, USA
Introduction	HDR, Inc. is an architectural, engineering, and consulting firm based in Omaha, Nebraska, USA. HDR has worked on projects in all 50 U.S. states and in 60 countries. The firm employs nearly 10,000 professionals representing hundreds of disciplines in the architecture, energy, federal, water resources, environmental, mining and transportation.
Website	www.hdrinc.com **Email** reasonableaccommodations@hdrinc.com

Freeway D47, Section 8

midas Civil

Opava, Czech Republic

Engineering Consultant	Strasky, Husty and Partners
Construction Period	Completed in 2007
Type of Project	Steel Composite Girder Bridge
Size of Structure	102m Main Span, 402m Total Length

Main features used in this application

- Construction stage analysis with composite action
- Wet concrete load & mobile formwork simulation
- Steel box girder design as per Eurocode

Description on this project

The twin bridge, with a total length of 402m and spans from 49.7 to 102.6m, has a deck formed by box girders assembled from steel sections and a composite deck slab. The girder is supported by a single support in the bridge axis, and it is fixed in torsion at the abutments. The steel structure was erected in a progressive cantilever from one abutment to another.

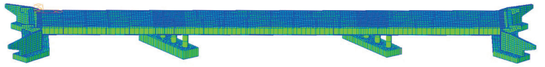
Strasky, Husty and Partners

Address	Sumavska 524/31, 602 00 Brno, Czech Republic		
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.		
Website	www.shp.eu	**Email**	shp@shp.eu

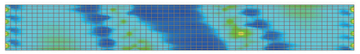
River Devon Viaduct

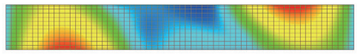
midas Civil

Edinburgh, Scotland



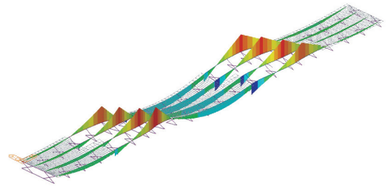
Contractor	Urban and Civic
Engineering Consultant	WSP I Parsons Brinckerhoff
Construction Period	Completed in 2017
Type of Project	Steel Composite Integral Bridge
Size of Structure	100m Main Span





Main features used in this application

- Construction stage analysis
- Moving load analysis
- Buckling analysis with finite elements
- Steel composite design as per Eurocode2

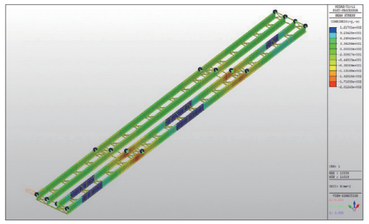


Description on this project

The proposed structure is a three-span bridge carrying the Newark Southern Link Road across the River Devon, at a skew of 35°. The overall length of the bridge (combined effective span of 100m) exceeds 60m so the bridge will be of conventional (non-integral) construction.

WSP I Parsons Brinckerhoff

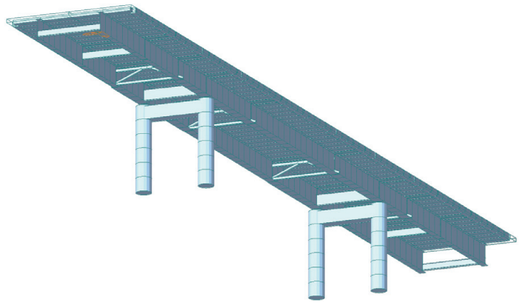
Address	Kings Orchard 1 Queen Street Bristol Avon BS2 0HQ, UK
Introduction	Parsons Brinckerhoff is one of the world's leading engineering professional consulting firms. Their expertise ranges from environmental remediation to urban planning, from engineering iconic buildings to designing sustainable transport networks, and from developing the energy sources of the future.
Website	www.wsp-pb.com



Bridge Over SJ near Stuvsta Station

midas Civil

Stockholm, Sweden



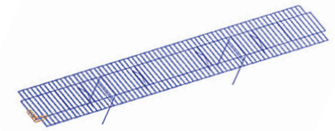
Owner	Huddinga Municipality
Engineering Consultant	PROJEKTENGAGEMANG
Type of Project	Steel Composite Girder Bridge
Size of Structure	71m Total Length

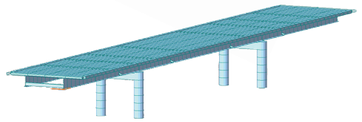
Main features used in this application

- Evaluation of existing steel composite bridge
- Vehicle load optimization

Description on this project

The bridge is a three-span steel composite bridge which connects the road over Stuvsta Station.



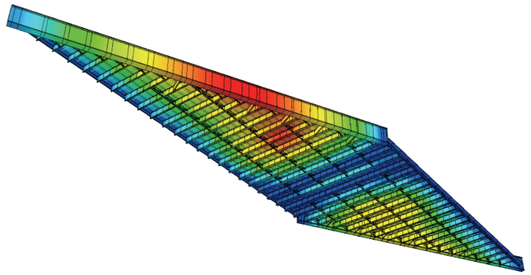


PROJEKTENGAGEMANG	
Address	Arstaangsvagen 11, 100 74 Stockholm, 47146, Sweden
Introduction	The frim now has over 600 employees in over 30 locations. They create extra value through the provision of qualified consultancy services and solutions within architecture, construction, infrastructure, industry and project management.
Website	www.projektengagemang.se

I-95 Bridge

midas Civil

Connecticut, USA



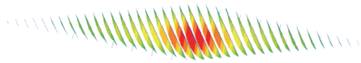
Owner	Connecticut Department of Transportation
Engineering Consultant	GM2 ASSOCIATES
Construction Period	Completed in 2013
Type of Project	Steel Plate Girder Bridge
Size of Structure	32m Main Span, 325m Total Length

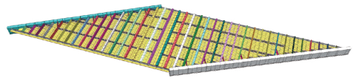
Main features used in this application

- Construction stage analysis with composite action
- Moving load analysis with concurrent member forces
- Section stiffness scale factor
- Node local axis for skewed bridge

Description on this project

This work includes reconstruction of an I-95 Bridge and construction of the new ramp S-1 bridge over Fulton Terrace. Welded steel plate girders are utilized to optimize girder spacing to coincide with the travel lanes. A three-stage construction of the I-95 Bridge is provided to maintain traffic in I-95 during the construction.



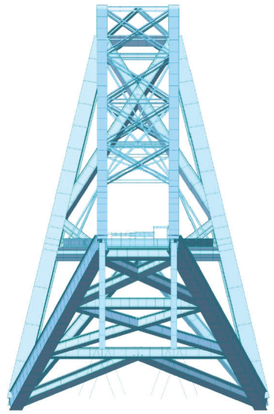


GM2 ASSOCIATES	
Address	115 Glastonbury Blvd., Glastonbury, Connecticut 06033, USA
Introduction	GM2 Associates was founded in 1988 and GM2's engineers are licensed to practice all across most of the east of USA. They maintain significant in-house capabilities, ranging from complex seismic analysis to survey, construction inspection, bridge, hydraulics and drainage, bridge safety inspection, roadway, traffic, buildings and site engineering.
Website	www.gm2inc.com

Connel Bridge

Argyll and Bute, Scotland

Owner	Transport Scotland
General Contractor	Arrol's Bridge and Roof Company
Engineering Consultant	Jacobs UK
Type of Project	Steel Truss Bridge
Size of Structure	224m Total Length

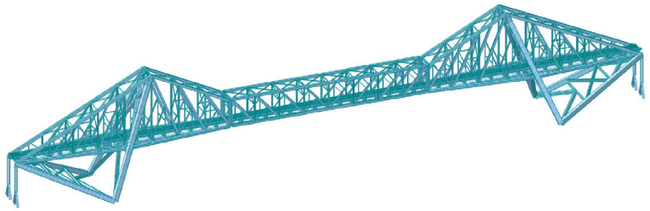


Main features used in this application

- Linear static and moving load analysis
- Buckling analysis

Description on this project

This bridge is originally constructed in 1903 for rail traffic. It carries the A828 road over Loch Etive. 224m long riveted steel truss structure consists of two 77m cantilever sections supporting a 70m suspended through truss span. Composite steel and concrete deck for road traffic is installed in two phases, in 1957 and 1967.



Jacobs UK

Address	95 Bothwell Street, Glasgow, Scotland G2 7HX, UK		
Introduction	Jacobs has offices in 230+ locations around the world serve a broad range of companies including industrial, commercial, and government clients. Also, They provide professional and construction services, including all aspects of architecture, engineering and construction, operations and maintenance, as well as scientific and specialty consulting.		
Website	www.jacobs.com	**Email**	Javier.Lancho@jacobs.com

Crescent Bridge

Taipei, Taiwan

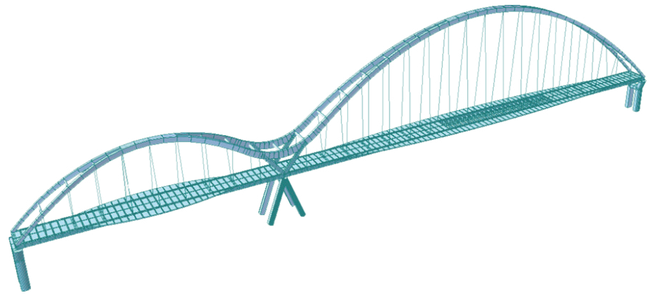
Owner	New Taipei City Government
Engineering Consultant	T.Y.LIN INTERNATIONAL TAIWAN
Construction Period	2011 – 2015
Type of Project	Arch Bridge
Size of Structure	700m Total Length

Main features used in this application

- Linear static and dynamic response analysis

Description on this project

The Crescent bridges is recreational and sightseeing bridge intended to blend with the night time as light sculptures and become landmarks in the neighborhood. This bridge is a part of the "Tamsui Manhattan project" of New Taipei City. They serve a path for both pedestrian and bicycle riders crossing the Danhan creek and Keelung River. The height of the Crescent Bridge double asymmetric steel arches (200m + 100m = 300m) are 50m and 25m respectively.



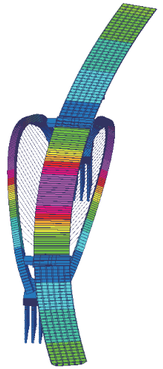
T.Y.LIN INTERNATIONAL TAIWAN

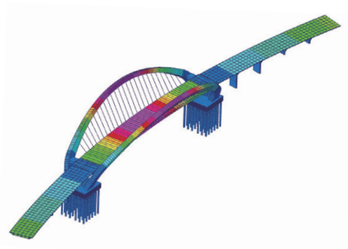
Address	No.136 Jen-ai Road, Sec.3, Room 1203, 12th Floor, Lotus Bldg, Taipei 10628, Taiwan		
Introduction	T. Y. Lin International is a global, multi-disciplinary infrastructure services firm. The firm provides a range of planning, design, construction and project management services to the aviation, bridge, facilities, planning, and management, ports and marine, rail and transit, and surface transportation industries. They operates more than 50 regional centers.		
Website	www.tylin.com	**Email**	tylintw@tylin.com.tw

Nanning Bridge

Nanning, China

General Contractor	Nanning City Development and Investment Company
Engineering Consultant	OPAC Consulting Engineers
Construction Period	Completed in 2009
Type of Project	Steel Arch Bridge
Size of Structure	300m Main Span, 1.1km Total Length



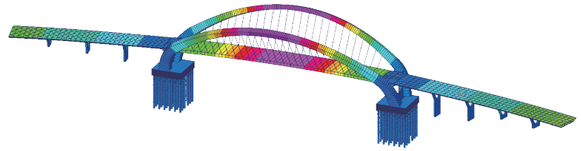


Main features used in this application

- Construction stage analysis for temporary pier
- Cable elements with geometric stiffness and cable lift monitoring
- Moving load analysis

Description on this project

The unique design of the Nanning Bridge considers aesthetics, performance, constructability, and economy. The bridge form provides a funicular through-arch to support a curved span. The arch ribs and deck girder balance each other's weight to provide a structure both of rational and efficient. The design is validated by extensive engineering studies addressing overall static and dynamic system performance, construction stage, and the strength and serviceability requirements of the structural components. The resulting structure can be described as a daring but rational concept, supported by prudent engineering and construction execution. The bridge was opened to traffic on September, 2009.



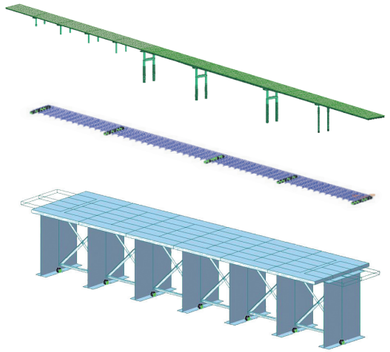
OPAC Consulting Engineers

Address	315 Bay Street 2nd Floor San Francisco, California 94133, USA		
Introduction	OPAC has made significant contributions in bridge engineering. They have provided design services on suspension, cable-stayed and arch bridges and segmental girders, complex interchanges, and other structures. Also, They have evaluated bridges for constructability, seismic performance, and wind and collapse assessment.		
Website	www.opacengineers.com	**Email**	vchang@opacengineers.com

Missouri River Bridge

Missouri, USA

Owner	Missouri Department of Transportation (MoDOT)
General Contractor	American Bridge Corporation
Engineering Consultant	GARVER
Construction Period	2014 – 2016
Type of Project	Steel Composite Girder Bridge
Size of Structure	128m Main Span, 659m Total Length

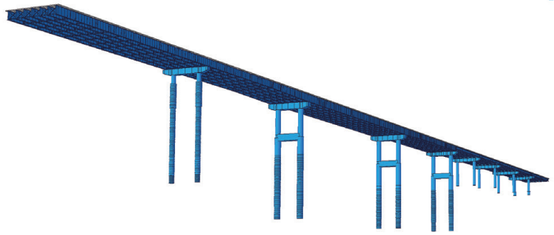


Main features used in this application

- Construction stage analysis with steel composite section
- Soil structure interaction analysis
- Moving load analysis
- Steel composite girder design as per AASHTO LRFD

Description on this project

In July 2014, American Bridge was selected as general contractor for the new US-69 Missouri River Bridge that is replacing a pair of existing through truss spans originally built in 1933 (southbound) and 1957 (northbound). Spanning its namesake River outside of Kansas City, Missouri, the new bridge was selected by the Missouri Department of Transportation (MoDOT) for a design-build procurement process. The project requirements included: a new bridge crossing with four 3.7m lanes, a shared use path, meeting minimum clearances for railroad and navigation traffic and other permitting requirements, improvements to two intersections, and maintaining traffic during the bridge replacement.



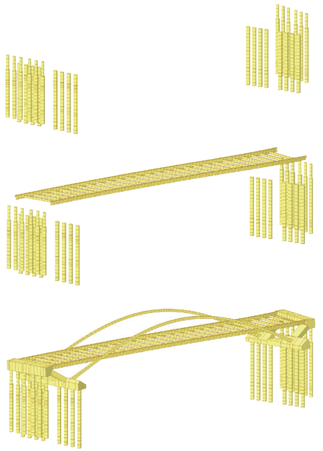
GARVER

Address	12200 NW Ambassador Drive Suite 625, Kansas City, Missouri 64163, USA
Introduction	With engineering services dating back to 1919, Garver provides services for transportation, aviation, water, energy, industrial, development, federal, survey, and construction management projects. They have 18 offices in 9 states and the headquarter is in Little Rock, Arkansas.
Website	www.garverusa.com

Bridge Across R1

Banska Bystrica, Slovakia

Engineering Consultant	Strasky, Husty and Partners
Construction Period	Completed in 2010
Type of Project	Arch Bridge
Size of Structure	70m Main Span, 86m Total Length

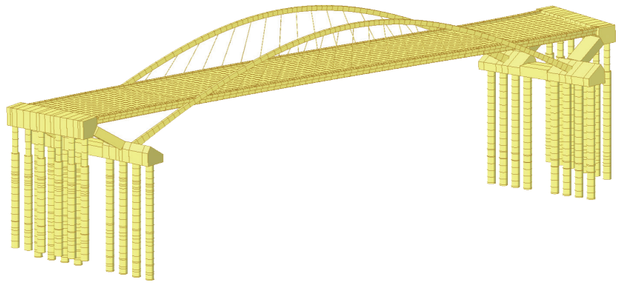


Main features used in this application

- Construction stage analysis with steel truss elements
- Moving load analysis

Description on this project

The bridge of the total length of 86m is formed by a self-anchored arch structure of span length of 70.57m. The steel arch has a concrete box-section. The deck is formed by edge girders, floor beams and concrete deck slabs.



Strasky, Husty and Partners

Address	Sumavska 524/31, 602 00 Brno, Czech Republic		
Introduction	It assists clients in the design and construction of a wide range of bridge and motorway structures, from pedestrian bridges to multi-lane long-span structures, and unique or special designs for landmark structures. Their experience includes cable-suspension and cable-stayed bridges, precast and cast-in-place segmental concrete and arch bridges.		
Website	www.shp.eu	**Email**	shp@shp.eu

National Palace Museum View Bridge

Taipei, Taiwan

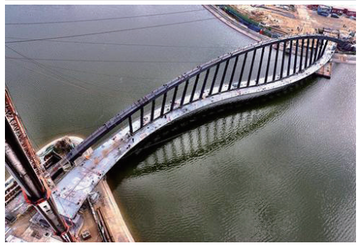
Owner	National Palace Museum
General Contractor	Lee Ming Construction / Progressive Environment Inc. Co.
Engineering Consultant	T.Y.LIN INTERNATIONAL TAIWAN
Construction Period	Completed in 2015
Type of Project	Box Girder Arch Bridge
Size of Structure	141m Total Length

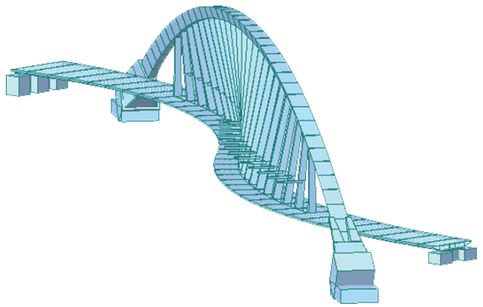
Main features used in this application

- Linear static and dynamic response analysis

Description on this project

The bridge is a part of the architectural program of the southern branch of the National Palace Museum. In line with the design concept and shape of the museum buildings, the idea behind the scenic bridge is also based on Caoshu, a cursive Chinese script. The bridge has an unpretentious and lightweight profile by eschewing the use of central piers, it does not affect the existing waterproofing membranes of the lake. Spanning about 140m, this box girder arch bridge with a single steel arch takes the form of a curve rising just above the water, with the apex of the arch only 16m from the bridge paving.





T.Y.LIN INTERNATIONAL TAIWAN

Address	No.135 Jen-ai Road, Sec.3, Room 1203, 12th Floor, Lotus Bldg, Taipei 10628, Taiwan		
Introduction	T. Y. Lin International is a global, multi-disciplinary infrastructure services firm. The firm provides a range of planning, design, construction and project management services to the aviation, bridge, facilities, planning, and management, ports and marine, rail and transit, and surface transportation industries. They operates more than 50 regional centers.		
Website	www.tylin.com	**Email**	tylintw@tylin.com.tw

BangHwa Bridge

Seoul, Korea

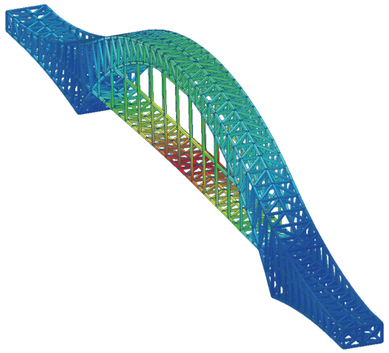
Owner	New Airport Highway Company
General Contractor	PoongLime Industrial
Engineering Consultant	SAMAN
Construction Period	1995 - 2000
Type of Project	Arch Bridge
Size of Structure	540m Main Span, 2.5km Total Length

Main features used in this application

- Construction stage analysis with steel truss elements
- Vehicle load optimization

Description on this project

BangHwa Bridge crosses the Han River in South Korea and connects the Gangseo-gu in Seoul and Goyang in Gyeonggi Province. The bridge is a part of the Incheon International Airport Expressway. At over 2.5km in length, it is the longest bridge to cross the Han River. Though mostly a girder bridge, the middle 540m section is an arch truss, resembling the shape of an airplane taking off.



SAMAN	
Address	Prime Center, 546-4, Guui-dong, Gwangjin-gu, Seoul 05116, Korea
Introduction	Saman founded in 1967 is a multidisciplinary engineering firm in Korea. They provide services in the fields of Water Resources, Railroad and Subway, Harbor, Highway and Airport, Urban Planning, Environment and Transportation. Saman is also active in designing and supervising many infrastructure projects, publicly as well as privately funded.
Website	www.samaneng.com

San Ignacio Bridge

Bilbao, Spain

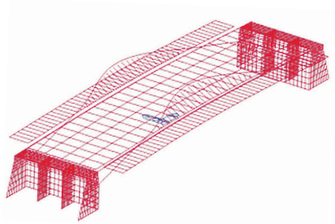
Owner	Ayuntamiento de Bilbao (Council Town)
Engineering Consultant	Ingzero
Construction Period	Under Construction
Type of Project	Arch Bridge
Size of Structure	75m Total Length

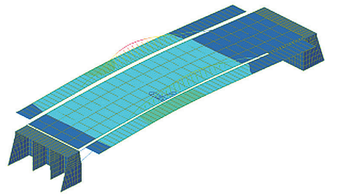
Main features used in this application

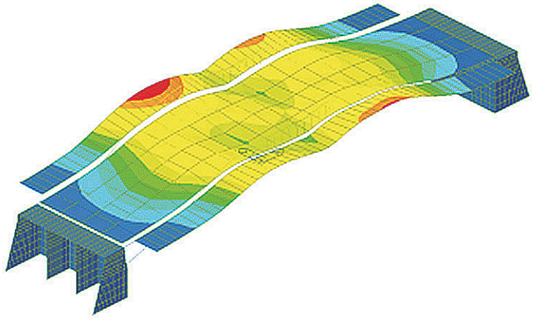
- Linear static and non linear analysis
- Moving load analysis

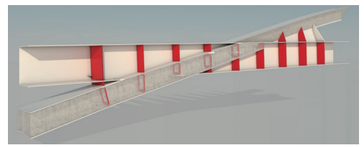
Description on this project

The bridge is a symmetric composite double arch. It is a 75m middle deck arch, with a 28m wide deck. The arches spring from the lower part of the channel. They are fixed at the abutments. They cross over the deck in the central 51m and elevate just 3m above it. The arches split it between the pedestrian and the vehicles zone. Between the arches, in the central part there are placed the four road lanes and the bicycle track; and at both sides the foot paths. All the service lines go under the deck.









Ingzero			
Address	Reina Victoria 35, piso 5º, 39005 Santander, Spain		
Introduction	Ingzero Consultants is an engineering firm made up of technical specialist with over 15 years experience. Their main activity is the analysis and design of singular structures in all the fields of civil engineering, as well as in industrial design elements integrated into global projects.		
Website	www.ingzero.com	**Email**	info@ingzero.com

Nanjing Dashengguan ChangJiang Bridge

Nanning, China

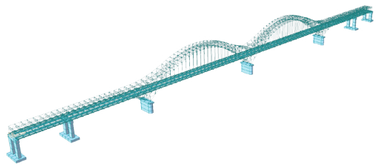
Owner	Ministry of Railways of the People's Republic of China
Engineering Consultant	China Railway Major Bridge Reconnaissance & Design Institute
Construction Period	2006 - 2010
Type of Project	Cantilever Arch Railway Bridge
Size of Structure	336m Main Span, 1.6km Total Length

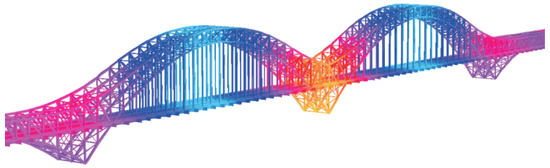
Main features used in this application

- Construction stage analysis with beam and plate composite action
- Moving load analysis with concurrent member forces
- Bearing settlement analysis

Description on this project

The Bridge is constructed to complement the Beijing-Shanghai High-Speed Line. The bridge is located within the Jiangsu Province, in the upper reach of the Yangtze River, about 20km from the Third Nanjing Yangtze River Bridge. The construction begins in 2006 and is finished in 2010, with the bridge becoming operational in January 2011. The Bridge bears the weight of six track live load and 920kN/m of dead load, which is one of the largest railway loading in the world. The bridge has an overall length of 1,615m, and it is designed for speeds of up to 350km/h.





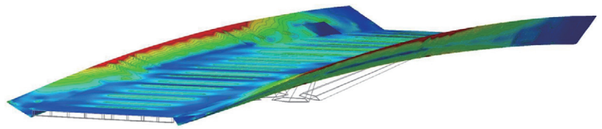
China Railway Major Bridge Reconnaissance & Design Institute

Address	No.8 Boxue Road, Wuhan Economic&Technological Development Zone, P.R. China		
Introduction	The firm was founded in 1950 as a state-owned company with more than 500 employees. It provides various engineering services including bridge surveys, investigation, engineering design, design proof checks, consultancy, structural inspections, retrofit and monitoring, construction supervision, project management and D&B project implementation.		
Website	www.brdi.com.cn	**Email**	brdi@brdi.com.cn

Inner Harbour Bridge

midas Civil

Copenhagen, Denmark



Owner	Realdania
General Contractor	Mobilis-Hollandia (Joint Venture)
Architect	Wilkinson Eyre
Engineering Consultant	BuroHappold Engineering
Construction Period	Under Construction
Type of Project	Steel Bridge
Size of Structure	168m Total Length

Main features used in this application

- Nonlinear analysis
- MCT command shell
- General section designer

Description on this project

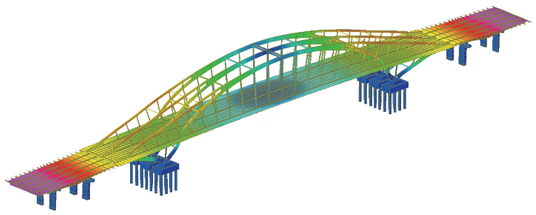
Spanning across a busy harbour close to Copenhagen city center, the new bridge at Vester Voldgade street will combine sleek design with unique technical solutions. The design aims to enhance urban life and vibrancy on the waterfront, create connections and ensure a safety and accessibility for the pedestrians and cyclists, in order to strengthen cycling culture in the city. BuroHappold Engineering won the international design commission for this vital new structure at Copenhagen Harbour, working in collaboration with Wilkinson Eyre Architects.

BuroHappold Engineering	
Address	17 Newman St, Fitzrovia, London W1T 1PD, UK
Introduction	BuroHappold Engineering is an international, integrated engineering consultancy operating in 23 locations worldwide, with over 50 partners and 1,800 employees. For 40 years they've been building their reputation for delivering creative, value led building and city solutions for an ever changing world.
Website	www.burohappold.com

Foshan Dongping Bridge

midas Civil

Foshan, China



Owner	Foshan Gongyong Career Management Bureau
Engineering Consultant	Sichuan highway design and research institute
Construction Period	Completed in 2006
Type of Project	Steel Arch Bridge
Size of Structure	300m Main Span, 1.4km Total Length

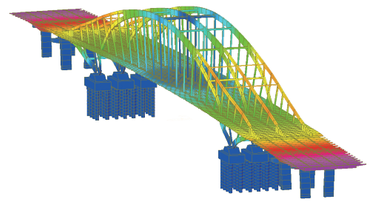
Main features used in this application

- Construction stage analysis
- Moving load analysis
- Response spectrum analysis

Description on this project

Foshan Dongping Bridge length of 1,427m, the largest three-span rib arch structure, was completed in September 2006. Its seven technologies was awarded in "China Enterprise New Record Prize", "China Zhan Tianyou Civil Engineering Award" and "2009 National Quality Engineering, silver medal".

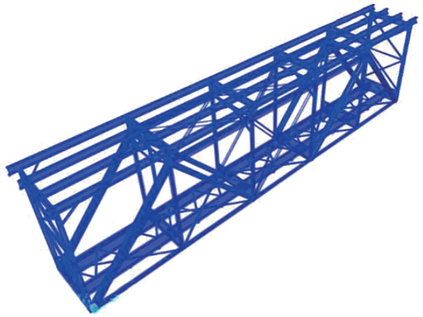
Sichuan highway design and research institute	
Address	1#, Wuhou Hen Jie St. Chengdu, China
Introduction	Sichuan highway design and research institute (SCHDRI) was found at 1953, which is a comprehensive top class institute focusing on highway design and research with consult certificate of survey, design, inspection, consulting, construction administration and environmental assessment etc. There are 1500 employees work for the institute, including a national level designer, 6 provincial level designers and 22 experts.
Website	www.schdri.com.cn



Bahia Honda Bridge

midas Civil

Florida, USA



Client	Florida Department of Environmental Protection
Engineering Consultant	GPI
Construction Period	Reconstructed in 1976
Type of Project	Truss Girder Bridge
Size of Structure	57m Main Span, 1.5km Total Length

Main features used in this application

- Rail-structure interaction analysis
- Stability analysis

Description on this project

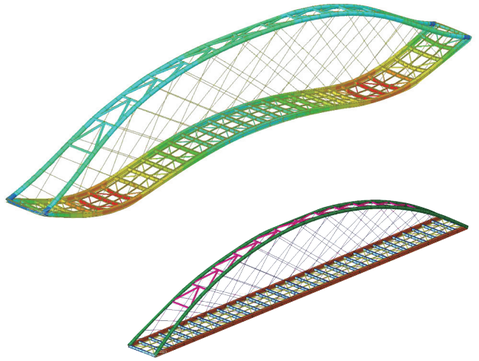
The truss span inspection of the bridge before doing the restoration of itself, was done by FIT Engineering on June 2016. For the piers and abutment part, UESI performed the professional inspection on November 2016. The bridge was mainly reviewed of the reduced section properties and unsafety for pedestrian loads.

GPI	
Address	RED BANK OFFICE 54 Shrewsbury Avenue, Suite A Red Bank, NJ 07701, USA
Introduction	GPI has been consistently ranked in Engineering News Record's Top Design Firms. With a staff of over 1,200 professionals including engineers, planners, scientists, technicians, draftspersons, and inspectors, GPI provides expert services in a wide range of disciplines.
Website	www.gpinet.com

Pedestrian Bridge

midas Civil

Crema, Italy



Owner	Crema (CR) Administration
General Contractor	Ghidotti Enrico & C. S.n.c. Cologno al Serio (BG)
Engineering Consultant	Eng. Franco Melocchi
Construction Period	2016 - 2017
Type of Project	Steel Arch Bridge
Size of Structure	50m Total Length

Main features used in this application

- Linear static analysis with finite elements
- Buckling analysis with finite elements
- Steel design as per Eurocode3

Description on this project

This is a pedestrian steel network tied arch bridges with inclined hangers that cross each other at least twice. This particular arrangement of the hangers leads to slender bridge members mainly subjected to axial forces. The hanger anchorages are located every 3.125m, right where the transverse girders meet the lateral tie beam.

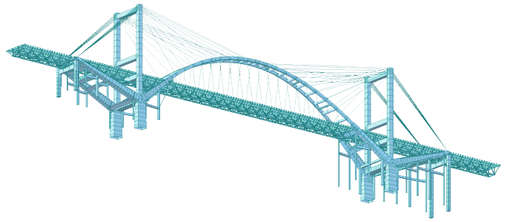
Eng. Franco Melocchi	
Address	Via B. Colleoni, 15, Bergamo, Italy
Introduction	Structural calculation of civil and industrial buildings, Structural tests, Construction supervision, Coordination of shipyard security, Estimated metric calculations, accounting, Estimate and real estate valuations, CAD drawing and 3d modeling.
Website	franco.melocchi@gmail.com

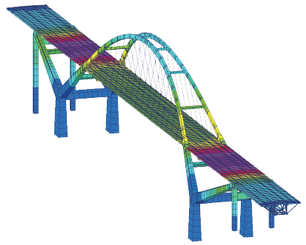
Caiyuanba Bridge

midas Civil

Chongqing, China

Owner	Chongqing City Investment Company
General Contractor	China Chungtie Major Bridge Engineering Group
Engineering Consultant	T.Y. LIN INTERNATIONAL GROUP / Chongqing Communication Research Institute
Construction Period	Completed in 2007
Type of Project	Steel Half-through Arch Bridge
Size of Structure	420m Main Span, 800m Total Length





Main features used in this application

- Construction stage analysis
- Moving load analysis
- Response spectrum analysis

Description on this project

Crossing over the Yangtze River, the Caiyuanba Bridge connects two of Chongqing's business districts as one of the transportation backbones for this rapidly expanding and congested city. The double level bridge, with a main span of 420m, carries six lanes of highway and two pedestrian walkways on its upper deck, and two dedicated tracks of monorails on its lower deck for Chongqing Light Rail Line 3.

T.Y. LIN INTERNATIONAL GROUP

Address	6 Furong Lu, Renhe, Yubei District Chongqing 401121, China		
Introduction	T. Y. Lin International is a global, multi-disciplinary infrastructure services firm, Headquartered in San Francisco. The firm provides a range of planning, design, construction and project management services to the aviation, bridge, facilities, mobility, planning, and management, ports and marine, rail and transit, and surface transportation industries.		
Website	www.tylin.com	**Email**	rengl@tylin.com.cn

Hangzhou Xinjing Expressway Qiandao Lake Extension Jinzhu Bridge

midas Civil

Hangzhou, China

Engineering Consultant	ZheJiang Provincial Institute of Communications Planning, Design & Research
Construction Period	2002 – 2004
Type of the Structure	Deck Arch Bridge
Size of Structure	252m Main Span, 1.3km Total Length

Main features used in this application

- Construction phase analysis with creep and shrinkage
- Moving load analysis
- Settlement analysis
- Cable force optimization

Description on this project

As a node project on the Qiandao Lake branch of Hangxinjing Expressway, according to the natural conditions and characteristics of the bridge site and the geographical location of the famous scenic spot, the bridge adopts the main span of 252m concrete-filled steel truss up-arch bridge, 1/6.5, based on the use of separate expansion of the foundation.

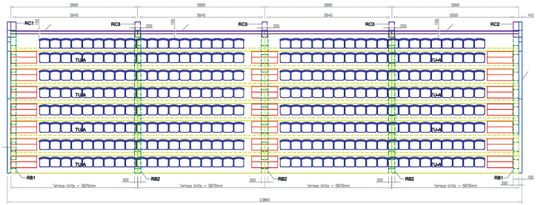
ZheJiang Provincial Institute of Communications Planning, Design & Research

Address	89 Huanchengxi Road, Hangzhou, 310006, China		
Introduction	Founded in 1951, ZJIC and under the Zhejiang Province Traffic Investment Group in January 2017. They provide service in various fields such as highway, waterway, municipal, rail transportation, construction, planning, consulting, surveying, design, scientific research, design and construction general contracting and engineering.		
Website	www.zjic.com		

Ireland Young Hurling & Football Spectator Stand

midas Civil

Ovens, Ireland



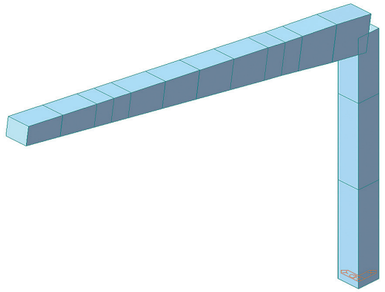
Owner	Éire Óg GAA Club
General Contractor	O'Flynn Group
Engineering Consultant	Banagher Precast Concrete
Construction Period	Completed in 2017
Type of Project	Spectator Stands
Size of Structure	7m Main Span, 6.4m Height

Main features used in this application

- Linear static analysis
- Calculation for the maximum bending moments and shear forces as well as the expected deflections for PSC members

Description on this project

This project involves the design of a four-bay covered spectator stand that will be subjected to dead loading, crowd loading, dynamic loading, wind loading and snow loading. The stand consists of reinforced precast concrete raker beams, seating terrace units, columns and roof beams. midas Civil is used to design and check the roof beam unit which is a cantilever over the stand. Since the depth of this unit is tapered, midas Civil is required to check that the deflections meet serviceability requirements.



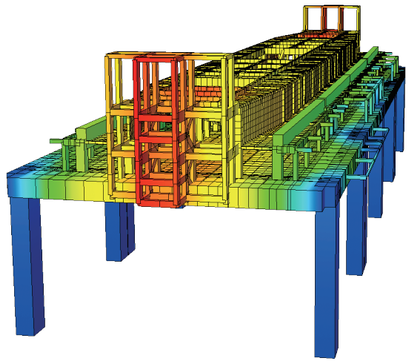
Banagher Precast Concrete

Address	Banagher Precast Concrete Ltd., Queen Street, Banagher, Co. Offaly, Ireland
Introduction	Banagher Precast Concrete is one of the leading precast suppliers to the Irish and UK markets. They offer a wide range of quality precast concrete products from their standard range to bespoke units to suit individual client requirements.
Website	www.bancrete.com
Email	info@bancrete.com

Monorail Station

midas Civil

Mumbai, India



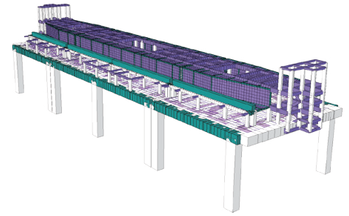
Owner	Mumbai Metropolitan Region Development Authority
General Contractor	L&T / HCC / ITD Cementation
Engineering Consultant	Louis Berger
Construction Period	Under Construction
Type of Project	Monorail Station
Size of Structure	20km Total Length

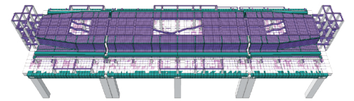
Main features used in this application

- Construction stage analysis with post-tensioning
- Longitudinal & transverse prestressing

Description on this project

Line 1 connects Jacob Circle in South Mumbai with Chembur in East Mumbai. The 20.21km line is fully elevated. Line 1 is owned and operated by the MMRDA. The monorail supplements service of the Mumbai Suburban Railway in some densely populated areas. The first phase consists of 7 stations from Chembur to Wadala Depot and was opened to the public on 2 February 2014.





Louis Berger

Address	Naman Centre, Plot No. C-31, G Block, Bandra-Kurla Complex, Bandra East, Mumbai, India
Introduction	Louis Berger is a full-service engineering, architecture, planning, environmental, program and construction management and economic development firm based in Morristown, New Jersey. Founded in 1953 in Harrisburg, Pennsylvania by Dr. Louis Berger, the firm now employs nearly 6,000 employees in more than 50 countries worldwide.
Website	www.louisberger.com

MIDAS