COMPANY PROFILE
"Wiecon is an internationally active consulting company with technology driven expertise."

The design of bridge structures represents a mixture of sensitively integrated designs, advanced technologies and past experiences. Wiecon has been involved in many projects covering all types of bridges and services and is proud to present our outstanding capabilities and achievements in bridge engineering.

We have been responsible for a complete range of services from preliminary studies, detailed design to the supervision of the final stages of erection. Our experience from projects includes precast segmental and full span, balanced cantilever, advance shoring, incrementally launched, cable stay, suspension and other special bridges; as well as the design of bridge equipment used during construction and the design of major temporary works. We also specialize in heavy lifting design, maintenance and rehabilitation works of major bridges.

Our team is characterised by their technical competence, their flexibility to complete any task at hand, and their local knowledge and abilities. Our innovative management culture is helping our staff to meet these challenges by combining long term experience with the latest state of the art technological developments."
Bridge Design Projects

Here are just a few of our current & most challenging projects

Arch Bridge, Kingdom of Saudi Arabia.

**Client:**
Arriyadh Development Authority (ADA), Kingdom of Saudi Arabia, Bernard Consulting Engineers.

**Project:**
King Abdul Aziz Flyover, Riyadh, Saudi Arabia. The total length of the approach bridges and main arch bridge is 375m. The main Arch bridge has a single span of 95m and consists of a steel orthotropic steel deck of 26.2m wide. The two prestressed concrete approach bridges each with a total length of 140m have a width of 26.2m.

**Services:**
Preliminary Design and Detailed Design. Specialist Bridge Consultant.

Arch Bridge, Republic of Kazakhstan.

**Client:**
Mega Yapi Construction and Trading Company, Turkish Republic.

**Project:**
The Ramstore Arch Bridge located in Astana, Kazakhstan consists of a four lane orthotropic steel deck with an approximate span of 120 metres. It is supported by cables from a single skewed arch with a height of 60 metres and a span of 180 metres. The steel box arch, with a weight of 600 tons is made up of 19 segments ranging from 10 to 14 metres in length and a short segment fixed to the foundation at each end.

**Services:**
Specialist Bridge Consultant, Construction Engineering.

Cable Stay Bridge, Turkish Republic.

**Client:**
Astaldi Gulermak Joint Venture / Hakan Kiran Architects, Turkish Republic.

**Project:**
The Golden Horn Metro Crossing Project consist of four railways bridges spanning across the Halic Inlet located in the centre of Istanbul in the Turkish Republic.

- **South Concrete Approach Viaduct:** 17+25+25+42+32+27.9 meter spans. (168.9m total).
- **Steel Swing Bridge:** 50+70 meter spans. (120m total).
- **Steel Cable Stay Bridge:** 90+180+90 meter spans (360m total).

**North Concrete Approach Viaduct:**
27+36+36+36+45+28.5+23.5 meter spans (268m total).

The metro station platform that is located on the main span of the cable stay bridge is linked to each side of the Halic by two steel footbridges that are connected to both sides of the swing bridge and cable stay bridge.

All bridges have a deck width of approximately 13m wide.

**Services:**

Incremental Launching Bridge, Turkish Republic.

**Client:**
Nurol Insaat ve Ticaret A.S. Turkish Republic.

**Project:**
The South Approach Viaduct (SAV) provides the access to the main suspension bridge, which crosses the Izmit Bay, between Dil Iskelesi and Hersek in the Turkish Republic. The South Approach Viaduct is 1376.4 meters long (1.38km) and it has a maximum span of 136 meters and the tallest pier is approximately 50m in height. The deck consists of a double steel box girder with a width of 35.93m. The deck includes 6 lanes of traffic (3 lanes in each direction), 2 sidewalks and 2 emergency lanes.

**Services:**
Here are just a few of our current & most challenging projects

**Balanced / Free Cantilever Bridge, Indonesia.**

*Client:* PT Delta Systech, DSI Republic of Indonesia.

*Project:* Lemah Ireng II Bridge, Republic of Indonesia.

The Lemah Ireng II bridge is a free cantilever bridge located in Java, Indonesia. It is part of the Trans Java Semarang ~ Solo toll road development. The bridge consists of 3 spans (83.75m+132m+83.75m) giving a total length of 300m. The deck is a single cell prestressed concrete girder with a width of 25.2m. The deck has a maximum depth of 7m at the piers and 3m at the abutments.

*Services:* Detailed Design & Construction Engineering.

**Precast Segmental Bridges, Republic of Kuwait.**

*Client:* MK4, MEPS, Republic of Kuwait.


**RA184: 5 Precast Concrete Segmental Viaducts:**
- IC1A, IC3A, IC3B: 32m+47+32m spans = 111m bridge lengths.
- IC1B: 32m+42+32m spans = 106m bridge length
- IC4N, IC4S: 32m+44m+32m spans = 108m bridge lengths.

**RA186: 3 Precast Concrete Segmental Viaducts:**
- IC1A: 28m+39m+39m+28m = 134m bridge length
- IC1B: 25m+35m+35m+25m = 120m bridge length
- IC11: Total bridge length is 761m consisting of 16 spans with a maximum span of 55m and a minimum span of 32.5m. The average deck width is 12m and the depth varies from 2m to 2.7m.

*Services:* Detailed Design, Shop Drawings & Construction Engineering.

**Cable Stay Bridge, Turkish Republic.**

*Client:* Mega Yapi Construction and Trading Company, Turkish Republic.

*Project:* The Agin Cable Stay Bridge links the roadway between the cities of Agin and Elazig in the Turkish Republic. It spans across the Keban Baraji Reservoir. The three span arrangement is 120m+280m+120m which gives a total bridge length of 520m. The main deck is composed of an orthotropic steel box section with a width of 2.8m and is about 31.5m above the water level at the center of the main span. The two steel pylons are 55m in height from the deck level.


**Extradosed Bridges, Republic of Indonesia.**

*Client:* PT Waskita Karya, Republic of Indonesia.

*Project:* Rokan 1 & Rokan 2 Extradosed Bridges, Rokan River, Republic of Indonesia.

**Rokan 1:** The bridge consists of 4 reinforced concrete pylons and a twin parallel cable plane supporting a concrete deck with a total length of 710m. The structure is founded on piled foundations in the river with a max pile length of 55m. The deck consists of a reinforced concrete section with a width of 24m.

*Services:* Feasibility Studies, Construction Engineering, Contractors Consultant.

**Balanced / Free Cantilever Bridge, Indonesia.**

*Client:* Mega Yapi Construction and Trading Company, Turkish Republic.

*Project:* The Agin Cable Stay Bridge links the roadway between the cities of Agin and Elazig in the Turkish Republic. It spans across the Keban Baraji Reservoir. The three span arrangement is 120m+280m+120m which gives a total bridge length of 520m. The main deck is composed of an orthotropic steel box section with a width of 13.0m and is about 31.5m above the water level at the center of the main span. The two steel pylons are 55m in height from the deck level.

Here are just a few of our current & most challenging projects:

**Corrugated Web / Free Cantilever Bridges, Taiwan.**

**Client:** Taiwan Area National Expressway Engineering Bureau & Far Eastern Construction, Taiwan.

**Project:** C709A Free Cantilever Corrugated Steel Web Road Bridge Units 8 & 31, Taichung County, Taiwan. **Unit No.8** Bridge is a Free-Cantilever Construction (FCC) bridge with corrugated steel webs. The span configuration is 93m+145m+145m+93m. The depth of the deck cross section varies from 4.0m at the abutment side to 8.5m at the pier location. There are three piers with heights of 8.34m, 12.03m and 10.125m respectively. The superstructure consists of pre-stressed concrete box girders with three cells located at spans P39 ~ P43. **Unit No.31** is also an FCC bridge with corrugated steel webs. The span configuration is 80m+120m+80m. The depth of the deck cross section varies from 3.5m at abutment side to 7.0m at the pier location. There are four piers with heights of 30m, 24.39m, 19.78m and 19.04m respectively. The superstructure consists of pre-stressed concrete box girders with single cells located in spans P107 ~ P110.

**Services:** Detailed Design, Shop Drawings, Construction Engineering, Site Supervision & Technical Services.

**Extradosed Bridge, Taiwan.**

**Client:** Chan Shenn Engineering Consultants, Taiwan.

**Project:** The New Chang-Hua High Speed Rail Station Road Extension. Extradosed Bridge, Changhua County, Taiwan. The Extradosed Bridge deck consists of 3 spans; 65m+120m+65m giving a total main bridge length of 250m. The deck width of 28m is a continuous concrete quadruple box girder constructed in segments using the balanced cantilever construction method. The two concrete pylons are inclined and are a height of 20m above the deck level. The pylons support the concrete deck segments with a total of 36 stay cables. The tallest pier is 10.53m in height.

**Services:** Preliminary Design & Detailed Design.

**Cable Stay Bridge, Taiwan.**

**Client:** Chun Yuan Construction, Taiwan.

**Project:** Shetze Cable Stay Bridge, Taipei County, Taiwan. The Shetze bridge is a cable stay bridge spanning the Keelung river in Taipei County, Taiwan. The deck consists of a two span continuous steel beam girder with a span configuration of 70m+180m giving a total bridge length of 250m. The deck width varies from 38m to 42m and consists of a double road lane, bicycle lane, motor bike lane and sidewalks. The inverted “Y” shaped pylon height is 105m from the deck level and is tilted at an angle of 78 degrees.

**Services:** Construction Engineering, Site Supervision & Technical Services.

**Cable Stay Bridge, Turkish Republic.**

**Client:** Gulsan Contractors, Turkish Republic.

**Project:** Nissibi Cable Stay Bridge, South East Antolia, Turkish Republic. The Nissibi cable stay bridge spans across the Euprates river in the south eastern region of Antolia. It serves as a highway link between the cities of Diyarbakir and Adiyaman thus improving the transportation services from the limited services of ferries. The total length of the bridge is 610m with the main span between the pylons being 400m in length. The two side spans are 105m in length respectively. The steel deck has a total width of 22.9m and the two pylons have a height of approximately 85m from the deck level.

**Services:** Detailed Design, Shop Drawings, Construction Engineering.
## Overview of Services That We Provide

### Bridge Construction / Design Methods
- Cable Stayed Bridge Design
- Precast Segmental Girder Design
- Suspension Bridge Design
- Incremental Launching Methods
- Full Span Launching Methods
- Movable Scaffolding Bridge Design
- High Speed Rail Bridges
- Balanced Cantilever Bridge Design
- Advance Shoring Construction Method

### Construction Engineering
- Programming & Scheduling
- Quantity Surveying
- Claims Management
- Construction Stage Calculations
- Major Temporary Works Design
- Planning of Erection Methods
- Shop Drawings

### Equipment Design
- Movable Scaffold System Equipment
- Precast Segmental Erection Girders
- Precast Segmental Moulds
- Self Climbing Formwork
- Balanced Cantilever Equipment
- Heavy Lifting Equipment
- Quality Assurance & Commissioning

### Checking Engineering
- Validate Design Concept & Criteria
- Compliance with Project Requirements, Relevant Standards, Specifications, & Statutory Requirements
- Applicable & Accuracy of Computer Program Models
- Calculation Checks for Superstructure & Substructure
- Practicality & Constructability Checks
- Value Engineering Checks

### Major Temporary Works Design
- Temporary Works Steelwork Design
- Preliminary Design
- Detail Design
- Quality Assurance and Commissioning

### Management
- Construction Management
- Site Supervision
- Installation & Commissioning
- Project Management
- Cost & Schedule Control
- Development Planning & Studies
- Environmental Management
- Quality Management

### Bridge Maintenance, Monitoring & Simulation
- Health, Safety & Structural Monitoring
- Damage & Health Assessment
- Risk Inspection & Assessment
- Repair Proposals & Studies
- Strengthening of Bridges
- Proposals & Design Supervision
- Structural Component Simulation
- Cost Optimization
- Rolling Stock Analysis
- Simulation of Special Structures
- Simulation of Forces of Nature

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**Bridge Design**
- Feasibility Studies & Expert Advice
- Suitability of Construction Techniques
- Preliminary Design of Bridges & Viaducts
- Detailed Design of Bridges & Viaducts
- Value Engineering
- Drainage Design
- Outfitting Design & Coordination
- Interface Design & Coordination
- Supervision Services

**Equipment Design**
- Movable Scaffold System Equipment
- Precast Segmental Erection Girders
- Precast Segmental Moulds
- Self Climbing Formwork
- Balanced Cantilever Equipment
- Heavy Lifting Equipment
- Quality Assurance & Commissioning

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**Checking Engineering**
- Validate Design Concept & Criteria
- Compliance with Project Requirements, Relevant Standards, Specifications, & Statutory Requirements
- Applicable & Accuracy of Computer Program Models
- Calculation Checks for Superstructure & Substructure
- Practicality & Constructability Checks
- Value Engineering Checks

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**Major Temporary Works Design**
- Temporary Works Steelwork Design
- Preliminary Design
- Detail Design
- Quality Assurance and Commissioning

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**Management**
- Construction Management
- Site Supervision
- Installation & Commissioning
- Project Management
- Cost & Schedule Control
- Development Planning & Studies
- Environmental Management
- Quality Management

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**Bridge Maintenance, Monitoring & Simulation**
- Health, Safety & Structural Monitoring
- Damage & Health Assessment
- Risk Inspection & Assessment
- Repair Proposals & Studies
- Strengthening of Bridges
- Proposals & Design Supervision
- Structural Component Simulation
- Cost Optimization
- Rolling Stock Analysis
- Simulation of Special Structures
- Simulation of Forces of Nature
Additional Services & Services to Specific Clients

**Additional Services**
- Arch Bridge Design
- Under & Overpass Bridge Design
- Movable Bridge Design
- Extradosed Bridge Design
- Independent Checking Engineering Services
- Site Management
- Soil & Structure Interaction

**Services We Provide to Owners**

**Bridge Designs**
- Feasibility Studies & Expert Advice
- Suitability of Construction Technique
- Suitability of Bridge Structures
- Preliminary Design of Bridges and Viaducts
- Detail Design of Bridges and Viaducts
- Value Engineering
- Outfitting Design & Coordination
- Interface Design & Coordination

**Construction (Project) Management**
- Construction Management & Site Supervision
- Installation & Commissioning
- Project Cost Estimation
- Cost & Schedule Control
- Development Planning & Services
- Environmental Management & Engineering
- Quality Management

**Other Services**
- Independent Checking Engineering
- Bridge Health Safety & Structural monitoring
- Damage & Health Assessment
- Repair Proposal & Studies
- Strengthening of Bridges

**Services We Provide As Consultants**

**Bridge Designs**
- Feasibility Studies & Expert Advice
- Suitability of Construction Technique
- Suitability of Bridge Structure
- Preliminary Design of Bridges and Viaducts
- Detail Design of Bridges and Viaducts
- Value Engineering
- Outfitting Design & Coordination
- Interface Design & Coordination

**Simulation**
- Structural Component Simulation to Optimize Costs
- Rolling Stock Analysis for High Speed Rail Structures
- State of the Art Simulation of Special Structures
- Simulation of Forces of Nature

**Other Services**
- Drainage Design
- Wind Engineering
- Soil & Structures Interaction
- Scour Protection
- Traffic Forecast & Studies
- Earthquake Engineering
- Bridge Dynamics
- Structural Health Monitoring
- Condition Assessment
- Project Management

**Services We Provide to Contractors**

**Construction Engineering**
- Programming & Scheduling
- Quantity Survey & Claims Management
- Construction Stage Calculations
- Major Temporary Works Design
- Planning of Erection Method
- Fabrication Drawings
- Shop Drawings

**Equipment Design**
- Movable Scaffolding System Equipment
- Precast Segmental Erection Girders
- Precast Segment Yard Planning & Layout
- Precast Segment Mould
- Self Climbing Formwork
- Balanced Cantilever Equipment
- Heavy Lifting Equipment

**Other Services**
- Project Proposals
- Value Engineering
- Quality Assurance & Commissioning
- Equipment Fabrication Supervision
- Site Supervision Services