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

### Movable Scaffolding System, Taiwan.

**Client:** Futzu Construction, Taiwan.

**Project:** The new MRT System link between Taipei City and Taoyuan International Airport. Movable Scaffolding System (MSS). The CE01D concrete viaduct includes a typical two span continuous unit followed by a tight curve alignment. The majority of the bridge units are two 60m spans and are constructed using this movable scaffolding system or advance shoring method. The distinct feature of this project is to cast the bridge with a minimum tight radius curvature of 500m.

**Services:** Equipment Detail Design, Equipment Shop Drawings & Major Temporary Works.

### Heavy Lifting Design, Turkish Republic.

**Client:** Astaldi Gulermak Joint Venture, Turkish Republic.

**Project:** Golden Horn Metro Crossing Project, Istanbul, Turkish Republic. Swing Bridge Lifting Equipment Design. The swing bridge forms part of the Golden Horn Metro Crossing across the Halic, Istanbul. The bridge was constructed in segments using the unbalanced cantilever method with an induced counterweight applied during the final stages. The swing bridge has a span arrangement of 50m+70m giving a total length of 120m. The maximum weight of a segment lifted is approximately 220 tones including the two footbridges that are attached to each side of the deck.

**Services:** Lifting Equipment Detail Design, Construction Engineering & Maintenance Gantry Detail Design.

### Under Slung Form Traveler, 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 20.5m.

**Rokan 2:** The bridge consists of 4 reinforced concrete pylons and a twin parallel cable plane supporting a concrete deck with a total length of 810m. 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 15m.

**Services:** Form Traveller Detail Design & Shop Drawings.

### Incremental Launching, Turkish Republic.

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

**Project:** The South Approach Viaduct (SAV) provides the access to the main suspension bridge, which crosses the Izmit Bay between Dil Inekesi 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:** Incremental Launching Method. Detail Design of Launching Equipment & Major Temporary Works.
Construction Equipment & Heavy Lifting Design Projects

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

Movable Scaffolding System, Taiwan

Client: Kung Shin Construction, Taiwan.

Project: The new MRT System link between Taipei City and Taoyuan International Airport. Movable Scaffolding System (MSS). The CE02 concrete viaduct consists of a minimum span of 20m and a maximum span of 35m. The viaduct is constructed using this movable scaffolding system or advance shoring method.


Under Slung Form Traveler, Kingdom of Cambodia

Client: DSI, Taiwan & Sumitomo Mitsui Construction.

Project: The Neak Loeung Cable Stay Bridge, Kingdom of Cambodia. The cable stay bridge is part of the NR1 road that forms part of the Asian Highway Route that connects Ho-Chi Minh City and Bangkok through Phnom Penh. The bridge spans across the Mekong River in the Indochina region of Cambodia and links Neak Loeung and the Vietnam border. The bridge has a span configuration of 154.7m+165m+157.7m giving a total length of 474.4m. The concrete deck that is constructed using the under slung formwork system has a width of 16.9m and sits approximately 40m above the water level. The bridge consists of two concrete “H” shaped pylons each having a total height of approximately 85m above the deck level.

Services: Form Traveler Detailed Design & Construction Engineering.

Precast Segmental System, Taiwan

Client: Huang Chung Construction, Taiwan.

Project: The C911 Precast Segmental Project is an extension of the existing main north and south freeway number 1. The Extension of the freeway is located between Chungli and Yungmei, Taoyuan County, Taiwan. The main erection gantry is 160m long and erected deck segments with varying span lengths. The maximum span length is 75m and the minimum span length is 40m. The standard deck segment dimensions consists of a deck width of 11.8m and a casting standard length of 3.3m.


Heavy Lifting Design, Taiwan

Client: Kung Shin Construction, Taiwan.

Project: Linkou Power Plant Renewal Project, Taiwan Power Company, Linkou, New Taipei County, Taiwan. The project consist of 10 new coal storage silos that are to be constructed as part of Taipower’s continuing upgrades to its power plants. Each silo has an inside diameter of 46m. The external concrete wall of the silos vary from 1.6m thick at the base to 0.6m at the top. The roof consists of an inclined steel truss system lifted into position as one unit. The total height of each silo is 72m from ground level to top of roof level.

Services: Steel Roof Lifting Equipment Design & Climbing Formwork System Design.
## Here are just a few of our current & most challenging projects

### Free Cantilever System, Republic of Pakistan.

**Client:** Ghulam Rasool & Company Pty LTD, Republic of Pakistan.

**Project:** Naluchi Earthquake Memorial Extradosed Bridge. The Naluchi Bridge is an Extradosed Bridge with a span configuration of $123m \times 123m$ giving a total bridge length of 246m. The depth of the deck cross section varies from 3.5 m to 7.0m across both spans. The bridge consists of two pylons that are each 24 meters in height. The deck is supported by double plane cable stays and is constructed using the free cantilever method from the pylon outwards. The width of the deck is 15.6m.

**Services:** Free Cantilever Deck Formwork System Design & Shop Drawings, Construction Engineering, Site Supervision.

### Precast Segmental System, Republic of Kuwait.

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

**Project:** Maintenance of the Interchanges for the 6th & 7th Highway in the South Jahra & West Jleeb Ashuyoukh Areas. 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:** Segment Lifter Design & Deck Segment Formwork System Design.

### Special Erection System, Taiwan.

**Client:** Evergreen Steel Construction, Taiwan.

**Project:** The C903 Steel Deck Segmental Project is an extension of the existing main north and south freeway number 1. The Extension of the freeway is located between Wugu and Yungmei, Taoyuan County, Taiwan. The main erection gantry is 117m long and erected steel deck segments with span lengths of 55m. The standard deck steel segment dimensions consists of a deck width of 18m and a prefabricated length of 14m. The deck segments have a depth of 4m.

**Services:** Steel Deck Segmental Erection Girder Design.

### Precast Segmental System, Republic of Indonesia.

**Client:** Wika Construction, Indonesia.

**Project:** Pembangunan Jalan Tol Bogor Ring Road Seksi II A Extension Project, West Java, Indonesia.

Bogor Ring Road is a precast segmental project with more than 1000 segments. The main launching girder has a total length of 113m & the typical span length is 50m. The double box concrete deck has a width of 22m and the single box concrete deck has a width of 11m.

**Services:** Precast Segmental Erection Girder Design & 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

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

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

#### 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

#### 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

- Arch Bridge Design
- Under & Overpass Bridge Design
- Movable Bridge Design
- Extradosed Bridge Design
- Independent Checking Engineering Services
- Site Management
- Soil & Structure Interaction
- 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
  - Risk Inspection & Assessment
  - Repair Proposal & Studies
  - Strengthening of Bridges

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
- 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

Services We Provide As Consultants

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
- 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

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 Fabrication Supervision

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

Additional Services & Services to Specific Clients
Consulting Civil & Structural Engineers

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