



APRIL / 2014

MOVABLE SCAFFOLDING SYSTEM

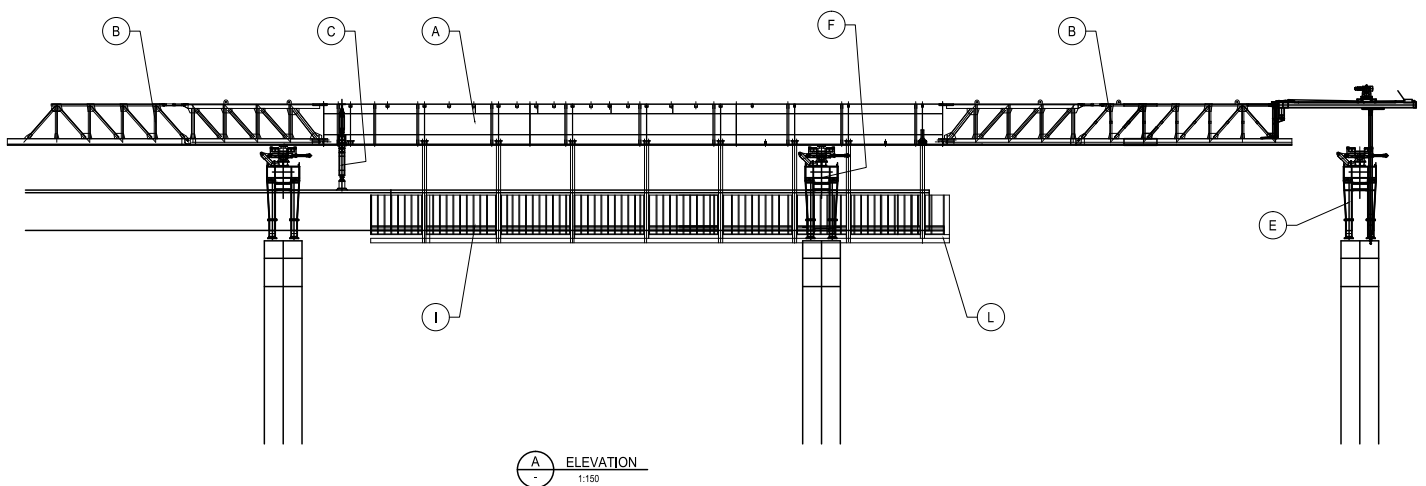
OVERHEAD SOLUTION



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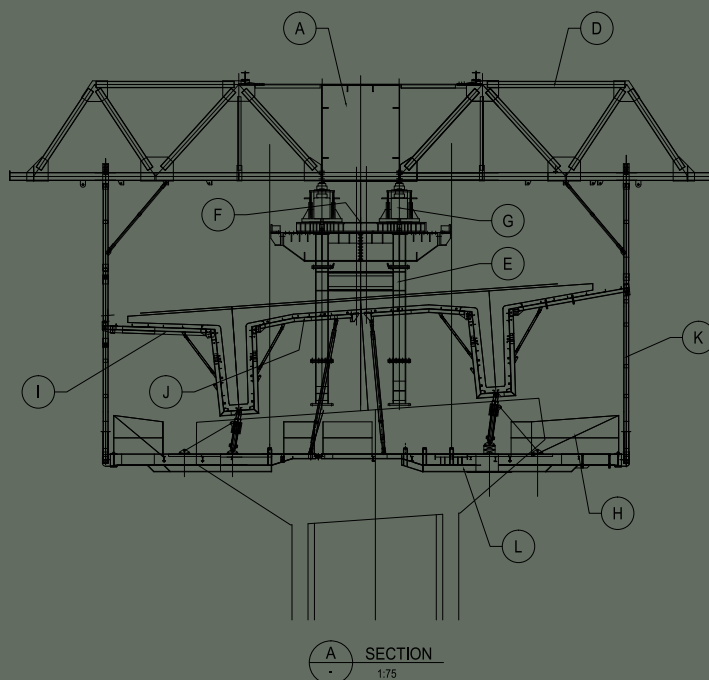
Like the Underslung MSS, the Overhead MSS is a modern equipment designed to allow cast in situ prestressed TT or box section full span concrete decks, in bridges or viaducts. The main difference between the two MSS underslung and overhead systems lies in the position of the main structure in relation to the concrete deck.

In the Overhead MSS the main structure is placed above the concrete deck and the formwork is suspended while at the Underslung MSS the main structure is placed under the concrete deck and the formwork is supported on it.



Suspended Formworks

The Overhead MSS is supported on top of columns and the formwork panels are suspended by threaded bars of high strength. After prestressing is installed the formwork panels are open using chain hoists, winches or hydraulic cylinders, leaving the panels suspended from the hangers.



Main components:

- A- Main girder
- B- Noses
- C- Rear support
- D- Transversal beams
- E- Main supports
- F- Launching wagons
- G- Main cylinders
- H- Working platforms and ladders
- I- External formwork
- J- Internal formwork
- K- Hangers
- L- Bottom platform



The special solutions

The Overhead can be designed to special utilization where the columns are too short, or where necessary to ensure free heights as in railways, roads or navigation channels crossings.

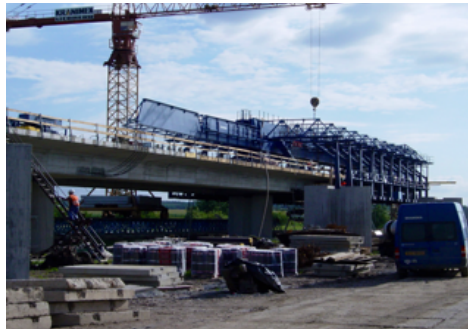
In these cases the formwork can be designed to open horizontally like in a drawer rather than rotate around the hangers.

Boxh Underslung and Overhead MSS solution can be made symmetrical, meaning that they can be used to cast the spans in boxh directions without having to reverse the MSS.





Special front support using concrete prefab legs.



Overview of the Overhead MSS



Formwork opening



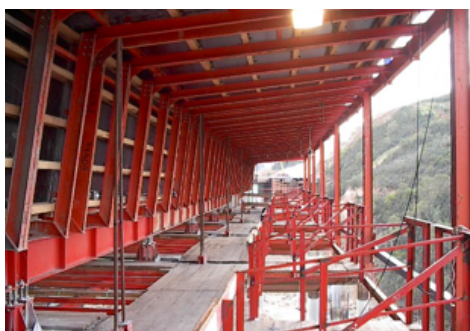
Supports installed on top of transverse steel beams anchored to the columns



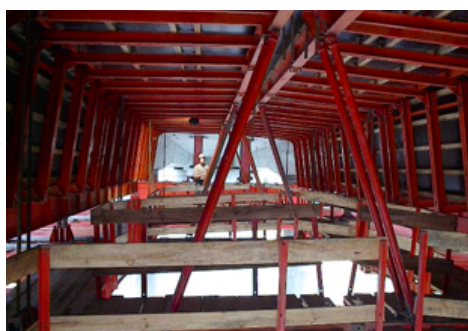
Formwork panels at open position during launching



Installing steel brackets at short columns to support transverse steel beams



View of the external formwork



View of the internal formwork



Upper part of the main support and launching wagon used at launching and side shift



Detail of the launching cylinder



Main support and access ladder



Rail and winch used to open and close formwork panels



Internal formwork



External formwork



View in the launching formwork direction



Transverse beams



Temporary support behind the abutment



Detail of the winch used to open and close the formwork panels

Pros and cons

In general terms we can refer the following pros and cons of the Overhead MSS when compared to the Underslung solutions;

Pros:

- Usually easier to assemble behind the abutment except in the cases where the ground elevation behind abutment allows the underslung MSS to be assembled unrestricted.
- Usually easier to move from one deck to the parallel one, unless the ground elevation behind the abutment makes it possible to launch the Underslung MSS till behind the abutment and then perform at this working area the operation in question.

Cons:

- Requires to leave more blockouts at the concrete decks which are used to suspend the formworks.
- The horizontal reaction forces transmitted to the columns are larger than at the Underslung MSS since this one is made by two halves and launching one half at a time alternately transmits a smaller reaction force.
- In particular at the box section decks the pre-assembled rebar cage is more difficult installed inside the external formwork than at the underslung MSS.
- When there are two parallel decks and we are building at the second one, it is not easy to take advantage of placing a mobile crane on the first deck, because the overhead main structure of the MSS hinders or prevents placement of the rebar cages inside the formwork.



Our services include:

- tender stage quotation preparation
- design, fabrication, delivery and technical assistance to the new equipment
- rebuilt design regarding existing equipments delivered by us, for use in different conditions of the original

Ask for our reference list!



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