

Pre-conditions

Preparation

Self-inspection

Execution



This **work instruction** is designed for use in detailed planning and preparation of work on construction projects. With thorough planning high levels of personal safety and optimal work apportionment can be achieved at the same time as the work can be organized efficiently and cost effectively.

Safety — Risk assessment

Work activity: Assembly of permanent steel formwork to floor slabs

Work activity & Problem	P	C	Risk= P*C	Action
Crane Working with the elements/crushing injuries	30	5	150	Education in crane directing/strapping
Fall from ladder fall injuries	10	15	150	Wider use of scaffolding
Metal sheets taken by the wind	10	15	150	Plates should be secured directly after laying
Cluttered workplace = Twist/fall- damage	10	15	150	Regular cleaning
Crane Working with the elements/crushing injuries	30	5	150	Education in crane directing/strapping

Probability = P
Consequence = C
Risk = P * C

Assessment of probability

P = 0,1	Very unlikely	(<1 times/10 years)
P = 1	Unlikely	(1 times/10 years)
P = 3	Low probability	(1 times/3 years)
P = 10	Relative probability	(1 times/year)
P = 30	Probable	(1 times/month)

Assessment of consequences

C=0,5	Trifle	
C=1	Tiny	(1 - 2 days sick leave)
C=5	Small	(3 - 7 days sick leave)
C=15	Tactile	(8 - 29 - " -)
C=70	Severe	(30-299 - " -)
C=500	Very severe	(>300 - " -)

Text from the Working Environment Authority's brochure Safer Construction Work

Personal Protective Equipment § 71

Safety helmet and protective footwear should be used unless this is clearly unnecessary. Other personal protective equipment such as eye protection, hearing protection and gloves should be worn when required.

First Aid § 31



















First Aid should be available. Staff who are trained to provide First Aid should always be available. Facilities and First Aid equipment should be marked with signs. There shall also be signs presenting phone numbers, address and, if necessary, route description of the local emergency services.

Regulations related to First Aid are presented in AFS 1999:7 "First Aid and Emergency Support".

Watch out for falling objects § 67

Areas where there is a risk of falling objects should be cordoned off and marked in any way. If such areas must be entered as the canopy covered walkways or similar organized .

Signals crane directing - see next pages.

 <p>Hoist Load</p>	 <p>Lower Load</p>	 <p>Hoist Load Slowly</p>	 <p>Lower Load Slowly</p>	 <p>Stop</p>
 <p>Swing Boom in direction indicated</p>		 <p>Lower Boom</p>		 <p>Emergency Stop</p>
 <p>Extend Boom</p>	 <p>Retract Boom</p>	 <p>Raise Boom</p>	 <p>Lower Boom</p>	 <p>Signal not understood</p>
 <p>Open</p>	 <p>Close</p>	 <p>Main Hoist</p>	 <p>Auxiliary Hoist</p>	 <p>Finished</p>

Equipment and facilities:

- Cranes with lifting equipment
- Nibbler for cutting the plates
- Circular saw/angle grinder with a cutting depth of 65 mm for hole making
- Drilling machine and drills
- Riveting machine
- Hand tools, Hammers
- 2 ladders about 3.5 m long

- Guardrails
- Stanchion and railing guides

Materials:

- Plannja interaction sheet in packs of up to 2000 kg. The plates should be removed with soft, wide straps (otherwise light damage). Each plate weighs about 8 kg/m.
- Formwork sheets with drawstrings
- L- profiles
- End formwork profiles

- Supporting props and reinforcement
- Sealing Tape
- Insulation fiber and fire seals
- Rivets
- Nail gun, nails and screws

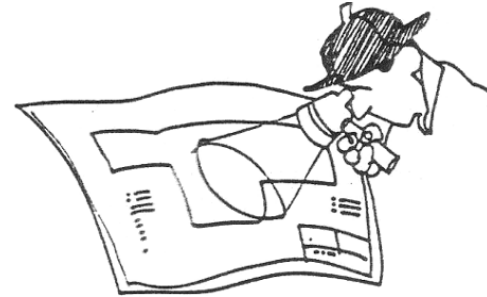


Self-inspection 1(2) Template & instructions

No	Check	Method or equipment	Frequency	Result	Date Signature	Deviation/Remedy Approval/Non-A
1	Formwork fitted in straight line	Ocular	Before attachment			
2	No oil, marking paint, etc. that may affect concrete	Ocular	Before casting			
3	Heights	Ruler/electric laser				
4						
5						
6						
7						
8						
9						
10						
11						

Quality criteria for the project and the product

- Study Drawings, Specifications and Inspection planning
- Think through the alternative **methods of production** and handling of materials, tools etc. that can meet the requirements



Pay particular attention to

- check the formwork to ensure that no distortion occurs
- formwork oil, etc. must not discolor the concrete surface
- permanent formwork does not allow for the final checking of the cast concrete



Substructure

Props and joists mounted and adjusted in height as shown below.

Beam formwork for pre-stressed steel reinforcement is installed.



Setting out

Reinforcement adjusted in height by screwing on the supporting props. To the right use of laser and “bandy club”.



Erection of steel formwork

First fit the formwork's edge sides then **samverkansplåtarna**.
Narrow flange upwards.

Splicing should be done at the plate depot with the plates overlapped to prevent concrete spillage. Splicing without overlapping requires sealing tapes.

Additional reinforcement is put into position. Required on edges, at large holes and where high loads are prevalent, etc.

The plates are attached to the frame and jointed together. At the points of plate splicing the overlaps are secured with rivets or self-drilling screws. For dense formwork this is performed about c/c 500 mm.



Reinforcement

Pre-stressed reinforcement is installed in some beams after which the reinforcement cages are lifted into place.

The concrete floor slab is reinforced.



Concrete Casting

The casting is done - here with the brygga.

Pre-stressed reinforcement

Pre-stressed structures are primarily used in in situ concreting where the reinforcement is tensioned after casting and when the concrete has attained sufficient strength, but before the construction is taken into service.

