



# Method statements for reinforcement concrete.

Project: V-012-fram structure.

Description	Oriented by Construction manager	Reviewed by Sr Project Manager	Reviewed by QA/QC manager	Reviewed by HSE manager	Approved by Project Director
Name					
Signature					
Date	10 Dec-2023	10 Dec-2023			

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HSE officer will prepare it.

**1. Scope of work**

The method statements describe the activities and process of reinforced concrete work for the Foundation, nick columns, tie beams, columns, and slabs including RCC work as per the project requirements.

The purpose of this method statement is to conduct a systematic reinforced concrete work for good produce and cover a safe execution procedure in accordance with the approval of xxxxx and the lifting procedure.

It is the responsibility of -----co. to provide a safe and healthy place of employment, in an area where scaffolding is to be erected, dismantled, altered moved, or accused for any purpose. The Following procedure shall be utilized.

**1.1. Activity:**

RCC work will comprise the following activities;

- Form work.
- Reinforced steel work.
- Embedded items.
- Concrete placements.
- Preparation for concreting.
- Joints.



**1.2. Purpose:**

The purpose of the documents is to ensure that the standards and specifications of the frame structure RCC work and that of the ----- co. are effectively implemented during the process of the RCC work. This method statement provides the necessary support to the team with relevant information regarding the specific project requirements and a guideline for the procedure to work safely.

**1.3. Communication:**

The content of these method statements shall be explained and demonstrated to all involved personnel based on specific task allocation. Site engineer/ supervisor and sub-contractor signature shall be taken on the approved method statements as a matter of record. Daily (at the start of each shift) the works supervisor and HSEO will complete a pre-work briefing with all labor to demonstrate a site walk to ensure and verify that all the controls are in place.



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1.4. Control measure.

- **Permission /consents:** Ensure all permission and consents have been obtained.
- **Logistics:** A work logistics drawing will be developed and attached to the RAM clearly identifying the various HSE items such as waste areas, spill kits, danger zones, etc.
- **RAMS/Pre-work briefing:** ensure that the RAM and pre-work briefing are available with the work supervisor.
- Ensure approval of these methods statements has been obtained.
- Ensure product health and safety/ technical information are available.
- Obtained product safety /Technical information and checked risk assessments.
- Work supervisors. Will ensure that the area is a restricted zone and that no unauthorized access to the area.
- The work supervisor/ HSEO and lift supervisor will check that all PPE is worn correctly.
- Prepare any necessary toolbox talks.
- Establish a designated work area with suitable work barriers, signage, and vehicle and pedestrian access segregation.
- Ensure all plants and equipment are third-party certified.
- Ensure all operatives have appropriate required certificates/licenses.
- Ensure the work area is clearly identified and checked.
- **Site briefing** Will be undertaken to induct all operatives in the details of this method including in this briefing.
- **All site plants** will have to flash yellow beacons operating at all times when on site.
- **Manual handling** will follow the hierarchy of control and the use of mechanical means shall be a priority as far as reasonably practicable. individual lifting shall not exceed 20kg per person.
- **Working at Height:**
- **External** for work on the roof will be via an access ladder.
- **Internal Works:** All internal work at height will be completed by means of the podium or access tower scaffold which will be installed by a competent person and scaffold-tagged.
- **Welfare:** Welfare arrangements will be available from the site office as the works are adjacent. No sleeping is allowed.
- All staff members are issued with personal water bottles and igloos with cool water will be maintained on-site.
- **First aid:** Suitable first aiders/nurses are available in the site office and as part of the work team.
- **Fire:** A fire point will be established at the work front with suitable fire extinguishers (water dry powder and as the site risks identified).
- **Environmental:** a spill kit will be maintained in the work area for emergencies.
- **Mobile crane:** ensure the lifting team is available prior to any lifting activities.
  1. The lifting supervisor will be on-site at all times during the lift and will be clearly identified by wearing a white hat.
  2. The lifting supervisor will establish and maintain a suitable lift safety zone with appropriate barriers and signage (insert picture of what good looks like).

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- Rigger/slingers when working at height (back of the vehicle. High loads will wear a safety harness and will be clipped on to yoyo attached to the secondary hook on the crane.

## 2. Project Access and Egress:

The main access road is from king Salman Road. The secondary access and egress route is from the airport road to the locations.

The main exit from the project site shall remain the same gate as the main security checkpoint with security management and HSE operatives.

**ADD LOCATION OF THE PROJECT HERE.**

## 3. Construction Methodology:



- Ensure that all related documents such as shop drawings, materials approval, method statements, test certifications, etc, must be available upon request.
- Ensure that the supply of ready-mix concrete and the grade of the concrete are approved by the clients and consultants.
- Ensure that the ready-mixed concrete plant is approved by clients and consultants before proceeding with concrete mixing and batching.

### 3.1. Key Material:

- The composition of concrete shall comply with that specified in the approved mix design according to ACI 211.1 and ACI 301.
- Batching, Mixing, and delivering of concrete shall be performed In accordance with the trial mix approved by the clients and consultants.
- The site engineer/supervisor is responsible for maintaining communication between the point of placement, the concrete batch plant, and the approved concrete testing laboratory.
- Reinforced concrete shall have a minimum 28 days Cylinder strength of 35MPa.
- Sulfate-resistant type V concrete shall be used contact with the ground.
- Ordinary Portland cements type (I) Shall be used in all super structure works.
- Aggregate grading shall be course aggregate size shall be 20 mm and fine aggregate shall be passing a 5 mm sieve.
- Water shall be potable water Complying with ASTM C1602 and C1602M as per project specification.
- Concrete admixture for use in concrete shall be approved by the consultant and clients as per the requirements of the project specification.
- Ready mix concrete shall comply with the requirements of ASTM C94/C94M or BS EN 206-1.
- A slump test shall be performed for every mix.  
**Slump values** slump value for all concrete shall be 75mm to 125mm.

### 3.2. Form Work:

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Formwork shall be designed and constructed in accordance with applicable codes within the specified tolerances to the shape, lines, and dimensions required by the approved IFC Drawing.

- For exposed corners to produce smooth, square, solid unbroken lines provide chamfers for the surface where indicated on the approved IFC drawing.
- Formwork for the foundation, pedestal, columns, and slabs, shall be struck without damaging disturbing, or overloading the structure. The minimum periods for striking formwork shall be as agreed with the consultant based on the comprehensive strength results on the test cylinder and project specification.
- Install formwork to its dimensions correctly and ensure that alignment and level of formwork are within the tolerances.
- Chamfer strips wood, metal, PVC, or rubber strips 20, by 20 mm, unless otherwise indicated.
- The formwork will be side-supported by steel bars to maintain the proper alignment of the forms.
- A level guide shall be installed for the level maintenance of concrete.
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### 3.3. Reinforcing steelwork;

- Setting out shall be marked by the surveyor prior to proceeding.
- Prefabricated steel shall be placed in position as per the approved IFC Drawing of the related structure member i.e. raft, columns, beam, slab, and other structure members.
- Approved 1.6 mm dia galvanized / black annealed mild steel wire shall be used to tie the reinforcing bar. The ends of the wire shall be bent back away.
- Spacer blocks of approved type will be used to maintain the cover.
- Concrete cover to reinforcement shall be as indicated on the drawing, concrete cover shall not be less than values indicated in ACI 301 table 3.3.2.3.
- Support the reinforcing bars by approved spacers appropriately to prevent displacements during concreting operations. The thickness of a cover block shall be as per the approved shop drawing or specifications.
- Overlap location and additional bar shall be maintained as per approved IFC drawing.
- For columns, the steel cages shall be pre-fabricated. Columns shall be erected in an area when a working platform is not available.
- For horizontal elements, after the completion of the slab decking, the bottom-most layer will be placed between layers. All bars in the upper layer must be placed directly above those in the bottom layers.
- All embedded inserts related to MEP shall be placed as per the approved IFC drawing.
- Steel around MEP openings and sleeves shall be provided as per the IFC drawing.
- Necessary dowel bars shall be provided wherever necessary as per the approved IFC drawing.
- Proper anchorage of bars for footing, beam, and slab shall be provided as per approved IFC drawing and specifications.
- All reinforcement must be cleared to ensure that it is free from all oil, dust, and deleterious materials.

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- After the completion of the installation of steel reinforcements and MEP inserts, IR shall be raised for consultants' and clients' inspection and approval prior to concrete.

### 3.4. Embedded items

- Anchor bolts, pipe sleeves, conduits for electrical works, curb and trench angles, and other inserts as shown on the design drawing shall be placed secure and protected.
- Install I, anchor bolts, accurately located, to elevation required.
- Install regrets to receive top-edge of foundation sheet waterproofing and to receive through-wall flashing in the outer face of the concrete frame at exterior walls, where flashing is shown at lintel shelf angles and other conditions.
- Install dovetail anchor slots in the concrete structure as indicated.



### 3.5 Joints.

- Construction joints shall be located as shown in the IFC drawing, if not shown in the design drawing, construction joints shall be prepared in accordance with the design document requirements. The construction joint schedule shall be approved prior to starting work.
- No horizontal construction joints will be permitted in beams. Uprturned beams, walls, and slabs unless specifically shown in the approved drawing or approved in writing by the consultant and clients prior to proceeding with the works.
- The surface of the joints shall be thoroughly roughened, cleaned of all loose and foreign matter and laitance, washed & saturated with water.
- Before concreting joints will be treated with cement grot or sand and cement grout mixed in the same proportion as that in concrete or an approved bonding agent shall be applied as per manufacturer recommendation.
- The placing of concrete shall be carried out continuously from joints to joints the face edges of all joints which are exposed to view shall be carefully finished true to line and elevation.
- Isolation joints in slab on grade at all joints of contact between slab on grade and interior columns, pedestals, and grade beam and elsewhere are indicated.
- Control joints shall be ¼ slab thickness unless indicated on the drawing.

### 3.6. Preparation for concreting

- The area to be placed with concrete shall be maintained in a clean condition, free from trash, debris, sand, and other foreign matters.
- In hot weather conditions, the area to be placed with concrete shall be suitably covered and protected. Water shall be sprayed on forms, reinforcement, and base prior to pouring the concrete.
- Prior to placing following items shall be checked by the respective site supervisor.
- Survey check review: deviation of line, grade, plumb, and location of embedment.
- Final clean up.
- Joint preparation.
- Ensure that the area has been inspected by consultants and clients.

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**3.7. Concrete Placement:**

- Upon the arrival of the transit mix truck at the site the delivery note will be checked for the actual details like time of batching quality, mix type, approved mix design, variation in weighing of materials, water cements ratio & slump checked regularly to the satisfaction of the engineer.
- Concrete temperature shall be measured using a thermometer and the maximum allowable temperature of concrete shall be 32 degrees centigrade.
- A slump test shall be carried out for each concrete load at the point of discharge.
- A set of concrete cylinder specimens shall be carried out as per project specifications for compressive strength for laboratory tests.
- No concrete shall be placed during sand storms or rain.
- No water shall be added to the mixer truck after batching.
- The site engineer shall take immediate steps to notify the engineer when a cold joint is imminent and shall ensure that the required method of correcting it is adopted as detailed on the drawing.
- Concrete pump, bucket, and chute will be used as placing equipment as appropriate.
- Concrete shall be consolidated by mechanical vibrators, the vibrator shall be adequate in number of units and power of each unit to properly consolidate all concrete.
- In consolidating each layer of concrete the vibrator shall be operated in a near-vertical position, and the vibrating head shall be allowed to penetrate under the action of its own weight. The vibrator shall be allowed to remain inside the concrete for sufficient time to obtain proper consolidation of concrete.
- Vibration shall be used vertically from 15 to 20 seconds at a spacing of 300mm to 400mm on both sides.
- Concrete shall be placed as soon as practicable after mixing and while sufficiently plastic for full compaction.
- Concrete during hot weather shall be avoided as much as possible to prevent the occurrence of severe thermal effects.
- Two coats of bitumens shall be applied to all surfaces of concrete in contact with soil like strip footing, staircase footing, and column footings.

**3.8. Curing:**

- During and after placement, concrete and the exposed surface of fresh concrete shall be protected from wind, high temperature, and rain. Curing shall start as soon as free water has disappeared from the concrete surface after placing and finishing.
- Concrete shall be cured for a minimum of 7 days or an approved curing compound shall be applied as per manufacturer recommendation.
- Potable water will be used for curing.



**3.9. Cleaning and handover.**

**3.10. When all the activities are completed the area will be cleaned thoroughly.**

**3.11. House Keeping:**

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- The safety engineer shall ensure to maintain safety in all aspects.
- Safety assistants are allocated to all the site locations to maintain housekeeping.
- During and after completing the activity all the areas shall be cleaned and checked by the supervisor to ensure the housekeeping.

#### 4. Project organization:

##### 4.1. Manpower.

SR.NO	DESCRIPTION
1.	Project manager
2.	Construction manager.
3.	Site Engineer.
4.	Works supervisor
5.	Safety officer
6.	Operators
7.	Skilled labors (steel fixer, carpenter and scaffolding.
Note;	Above above-listed manpower shall be assigned as per the requirements of each work during the mobilization. stage.

##### 4.2. Responsibilities.

##### 4.2.1. Project Manager:

- Shall control and ensure that the work is carried out to the required contract specifications and requirements.
- He will ensure that this method statement is being implemented correctly on-site.
- Ensure that sufficient resources are located to enable full compliance with this document.
- He will monitor the day-to-day site activities.
- Ensure that required permits are available prior to starting the work.
- Coordinate the work with the construction team.
- Ensure that the quality of the construction work meets the requirements of the clients.

##### 4.2.2. Construction Manager.



- Establishing as far as is reasonably practicable, what hazards are related to any works undertaken at the workplace and ensuring that risk assessments are conducted recorded, and implemented.
- Ensure that safety task analysis risk reduction talks (STARRT) are conducted and recorded prior to the commencement of the task/activity.
- Eliminating or mitigating any hazards or potential hazards to the health and safety of employees.
- Provide and maintain a work environment that is safe and without risk to health and safety.

4.2.3. jii

4.2.4. Jj

4.2.5. Kk

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- 4.2.6. K
- 4.2.7. Jj
- 4.2.8. K

## 5. Lighting:

## 6. Plant & equipment:

### 6.1. Equipment.

All equipment, plants, machinery, and lifting gears shall be fully serviceable, tested, checked, and certified by a third party. All personnel shall be trained, qualified, and competent to carry out their allotted tasks. All cranes and any appropriate lifting gears shall be assembled/rigged in accordance with manufacturers' recommendations and procedures.



All crane lift operations shall be provided with a crane lift plan prepared by the competent person before commencing of lift and shall be communicated to all parties involved in the lift operations. The generator for the electricity shall be provided with a drip tray to control any spillage. Upon arrival TDC safety officer shall conduct an inspection for each equipment and documents all the inspection for record. Each piece of equipment shall be arranged with a complete file for all certifications. After approval, the equipment shall be allowed to the site for work. The following remaining outline remains to focus.

- The capacity/ size of the tools and equipment will be judged in accordance with site conditions, requirements, and availability at the time of execution.
- Fuel shall be provided by a mobile fuel tanker on a daily basis for the equipment on site.
- TDC shall rely on a mini-tanker for on-site refueling.
- The refueling and maintenance shall be carried out in the designated location.

### 6.2. Tools and types of equipment for works.

SN	DESCRIPTION
1	Transit mixer
2	Slump cone, air meter.
3	Tamping Rod
4	Thermometer ( For concrete temperature check)
5	Concrete Cylinder moulds.
6	Hammer
7	Line Dory/String.
8	Concrete Pump
8	Water tank
9	Measuring Jar
10	Air compressor
11	Mechanical vibrator
12	Masonry tools (trowels & Hand tools)
13	Wheel Barrows
14	Water level

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## 7. Personal training certificate

### 7.1. Site Induction:

TD personnel will receive a site-specific safety induction prior to starting work on any project or activity. Training as outlined in this procedure and task-specific training is required for all employees who may be affected by any operations identified and within their scope of work. All new starters working on this project will receive the company HSE induction after commencing employment.

A number of the environmental safety and health departments will carry out this induction.

### 7.2. Pre-Task briefing:

A pre-task briefing process to communicate Hazards, risks, and impacts associated with the specific work activity before any employee starts work. A pre-task briefing shall be conducted Independent of toolbox meetings and before the commencement of any new works.

STARRT card shall be applied prior to starting work.

### 7.3. Tool Box talk:

The TD will arrange weekly toolbox safety meetings, where task specific are identified, and mitigation measures are discussed in detail. The effectiveness of the tool Box talks provided to employees and shall record such meetings with details of topics discussed in the numbers of attendees.

- This shall apply to all TD workers and sub-contractors working for TD.
- The site HSE advisor/ officer will develop and conduct toolbox talks.
- Subjects may be obtained from the environmental, safety, and Health departments.
- Talks will cover various and timely topics relevant to activity and hazards on the project.

## 8. Hazardous Material and Substance:



TD intends to ensure impacts from the construction of the projects are sufficiently mitigated to prevent or reduce any significant adverse impacts on the environment or local residents. TD will operate in compliance with all relevant local and international environmental legislation and will strive to use pollution prevention and environmental best practices along with periods. TD belief remains that management skills, commitment, and teamwork are required to achieve a zero-incident workplace.

8.1. The Environmental issue in the Kingdom of Saudia Arabia is regulated by the PME under the Ministry of Defence and Aviation. The general (GER), issued by the PME first in 2001, has significantly strengthened the PME role in environmental protection in recent years (2012/2013, which has been adopted within the Kingdome.

In 2012, PME adopted the GER with new standards for air, water, groundwater, noise, chemical management, and waste management (material decision No 8/1/7908 dated 18/04/1433 Hejri March 11/2012. Some of those are as below.

- Mobile source emission.
- Noise standards.

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- Point source Emission.
- Prevention of major accidents.
- Storage and material replacement facilities- design and operation.
- Drinking water quality.
- Ambient Air quality.

TDC shall ensure that their equipment and activities are in full legal compliance with the limits set out in the standards. Further, reference to the TDC HSE plan.

## 8.2. Storage and Handling:

The safe storage of hazardous chemicals is an essential part of an environmental, health, and safety program. Chemical storage facilities must meet certain minimum standards to satisfy diverse regulations: Stores must observe several requirements that incorporate safe storage:

- Keeping an up-to-date chemical inventory.
- Proper chemical labeling.
- Segregating incompatible chemicals.
- Sheltered storage to avoid direct sunlight.
- The area should be free of any ignition sources.
- Provide a suitable fire extinguisher.
- Should provide appropriate warning signs.
- No smoking or naked flames near the fuel.
- Don't Inhale vapor.

## 9. HSE Risk and Control measure:

The risk assessment report is attached, however the following remains in focus all the time during work.



The risk assessment shall be revised under the following conditions.

- If a change in activities.
- If the change in requirements or machines.
- If a change in conditions.
- If a change in the skilled workforce.

Risk assessment:

<ul style="list-style-type: none"> <li>• This approved RAMS and associated documents, will be located with the work supervisor for reference as required.</li> <li>• The work supervisor and HSEO will complete daily pre-start Briefings based on the approved RAMS.</li> <li>• If the risk has changed and does not reflect the approved RAM.</li> <li>• The Work supervisor is to discuss with HSE to review the update and gain advanced approval before resubmission.</li> </ul>		
1. Safe system	As the proposed method acceptable	Yes /No
2. Safety and Security	Are barriers/signs needed for the work area Does utilities/ fire system need isolating.	Yes /NO Yes / No
3. Safety. equipment.	What PPE safety equipment is required (circle relevant box) Safety footwear.      Safety helmet      Hi-Visibility vests. Eye protection.      Hearing protection      Dust mask	
4. Plant and Equipment.	List all items of plants and equipment being used.	

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	<p>Confirm that the work supervisor and HSEO will check daily as a part of the pre-works briefing.</p> <ul style="list-style-type: none"> <li>Plant and tools suitability.</li> <li>All plants have got third-party inspection (e.g by TUV)</li> <li>Confirm all competencies are suitable for the plants &amp; tools</li> </ul>	
5. Excavation	Have all PWT/Clearance been obtained? How have all services been marked? ae all shoring material on site before starting work.	Yes/No/NA
6. Work at height	<p>Which is the most appropriate for access (circle as required) podium access tower MEWP, scaffolding, or Rope harness access?</p> <p>Note: Ladders are for access only. Step ladder only where one of the above can't be used and supported by specific risk assessments if MEWP confirms operation are trained.</p> <p>If scaffolding/access tower – confirm that will be erected by a competent person and scoff-tag take system used.</p> <p>If the rope is a safety harness confirm you have an approved safe system of work.</p>	
7. Manual handling	Can have/awkward items be moved in stacked security. If lifting apparatus required	YES/NO/NA YES/NO/NA
8. House keeping	Are materials in safe areas and stacked securely? Are materials segregated from other people-members of the public?	YES/NO/NA YES/NO/NA
9. Environment.	Are there facilities for the disposal of materials? Is there any risk to local ecology/archeology? Has consideration been given to the prevention of nuisance dust/noise to neighbors?	YES/NO/NA YES/NO/NA Yes/No/NA
10. Welfare/first aid	Are suitable first aid and welfare facilities available at the work-area?	YES/NO/NA

**Appendix Risk Assessments;**

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