

CONCRETE WORKS

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Construction Method Statement

1. Definition

This method statement consists of the following:

- ✚ Concrete installation and testing for all elements.
- ✚ As part one of the concrete works method statement covering the following items:
 - Concrete components;
 - Concrete mixing;
 - Concrete testing;
 - Formwork for foundation elements;
 - Formwork for Skelton elements;
 - Work sequence for all elements.

2. Procedure

2.1 Drawing Approval

1. All shop drawings for the elements to be executed shall be approved in advance to the proceeding of that element preparation and casting procedures;
2. Shop drawings shall be submitted on sufficient time to allow the Engineer to check/ comment/approve the drawings and to be ready before the start of the activity on site.

2.2 Excavation

- Excavation shall follow the approved method statement;
- Excavation shall follow the excavation sequence based on the site availability;
- Excavation slopes shall follow safe slopes;
- Foundation levels shall be checked as per the final approved shop drawings.

2.3 Materials

- i. AASHTO (T2, T19, T21, T22, T23, T26, T96, T104, T112, T119, T121, T126, T127, T141, T176, T260)
- ii. AASHTO (M6, M80, M85, M148, M194, M205)
- iii. ASTM C94, C227, C295, C1152)
- iv. BS 8102, 8000-4

2.3.1 Concrete individual Materials:

Laboratory Tests shall be carried on the concrete mix materials for classification as defined in the specification and to ensure that during the course of concrete mixing and preparation, materials shall comply with the requirements defined in the Technical Specifications and codes.

➤ Cement:

- a. Shall be Sulphate resistant cement type V for foundation (Otherwise Specified)
- b. Cement type for Skelton and other members will be as specs and drawings.
- c. Source of cement shall be consistent for each individual element;
- d. Source shall be approved by the Engineer as part of the concrete mix design procedure;
- e. Cement shall be stored in silos at the central batch plant.

➤ Aggregates:

- a) Corse and fine aggregates shall be obtained at locations as per the approved design mix documents;
- b) Aggregates shall be tested as per the project specifications and codes to satisfy the requirement individually and within the mix design.

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➤ Water:

- a) Water source shall be the one defined and approved in the design mix approved documents;
- b) Water cement ratio shall be the one as per the approved mix design document.

➤ Mixed Concrete:

- a) For foundation works, concrete type (A) shall be used with a maximum 1 inch aggregate size and 28Mpa strength after 28 days(Otherwise Specified).
- b) Cement content shall be not less than 375 kg/m^3 , using Sulphate resistant cement type V(Otherwise Specified)

2.4 Concrete mixing

Concrete mixing shall be done in one of the central batch plants approved by the Engineer; it shall be transported in Truck mixers fulfilling the specifications, codes and approved design mix requirements.

2.5 Pouring and Compaction

- a. Concrete pouring shall be placed evenly in layers.
- b. Layers shall be compacted using vibrators;
- c. Before pouring fresh concrete temperature shall be checked to be of a minimum value of 12° , and a maximum value of 32° ;
- d. Slump of fresh concrete shall be checked to meet the specifications and codes.
- e. Slump for foundation elements shall be between $100\text{mm} \pm 25\text{mm}$; $120\text{mm} \pm 25\text{mm}$ for Columns and $140\text{mm} \pm 25\text{mm}$ for Ceilings (Otherwise Mentioned)
- f. During casting cylinder/Cube concrete samples shall be taken for further compression tests after 7 days to reach the 75% (21MPa) strength requirements and for 28 days compression test to the required 100% (28MPa) strength (Otherwise Specified).

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2.6 Formwork and False work:

- a. Shop drawings shall be submitted showing the details of form and false works for the different foundation types and dimensions for the Engineers review/comments/approval;
- b. Removal of formwork shall be related to concrete strength and Engineers approval.

2.7 Insulation and Tanking:

Insulation and taking shall follow the approved material and method statement for this activity.

2.8 Concrete Curing:

Concrete curing shall follow the approved quality plan.

3. References

- Project quality plan
- Egyptian Code (Otherwise Specified).
- Technical Specifications

4. Responsibilities

- 1- Site superintendent (Responsible for all concrete works operations);
- 2- Site engineer (Responsible for concrete operations);
- 3- Surveyor (Responsible for all the land surveying works to provide the true lines, levels and grades shown on the approved foundation drawings);
- 4- Lab. Technician (Responsible for all the In-Situ and Laboratory testing for the fresh concrete during casting and cylinder testing);
- 5- Site Inspector (Responsible for inspecting the work according to the defined quality required);
- 6- Safety officer (responsible for safety, security and environmental aspects).

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5. Equipment

Number of equipment mentioned in this section is minimum, exact number shall be defined based on the exact quantities to be poured per day or per item.

Description	Number
Batch Plant	1
Truck Mixers	5-8 (or more)
Mobile Pump	1
Vibrators	2 (or more)
Slump Test	2
Concrete cylinders/Cubes	24 (or more)

6. Health, Safety, Security and Environmental control

- Approved safety plan procedures shall be strictly followed;
- All labor shall be using adequate safety tools as per the approved safety plan;
- Men working inside excavated areas shall be protected against earth slides by having suitable safe slopes;
- Warning tapes shall be used to prevent workmen walking too close to the edge of excavation;
- Fencing, guards, lights, warning signs, shall be used when and where necessary for the protection of the workers and for the safety and convenience of the public;
- All necessary emergency procedures shall be complied with;
- All equipment shall be provided with safety items.

End of: Method Statement for Concrete Works