

TECHNICAL SPECIFICATIONS

PREAMBLE TO SPECIFICATIONS

In this contract, reference is made to the Indian Standards or CPWD specification as approved by Project Manager and these references shall be deemed to include the latest editions or issue of standards, specifications or By-Law including all revisions upto the date of invitation of Tenders.

The contractor shall ensure that all materials and workmanship in so far as they apply to this contract shall comply in every specifications or any other equivalent or specification approved by the Project Manager/EIC.

The Contractor shall keep at site copies of all relevant standards and codes of practice referred in these specifications throughout the period of contract. These shall be the latest editions and shall include all revisions/addendums thereof.

Reference in the specifications to approved manufacturers shall be construed as establishing a standard of quality and not as limiting competition.

The Contractor shall include in his prices for supplying the item or materials from the approved manufacturers listed or equal and approved.

All items or materials shall be delivered to the site in the manufacturers original unopened containers with the manufacturers brand and name clearly marked on.

All items or materials shall be assembled, mixed, fixed, applied or otherwise incorporated in the works in accordance with the printed instructions of the manufacturer of the item or materials.

Date of construction to be written on all respective items for monitoring curing.

1.0 GENERAL

1.1 Scope

This specification applies to the Works to be executed by the Contractor. It is to be read in conjunction with and subject to the general conditions of contract and in conjunction with the drawings, the schedule of rates and such other documents as may from time to time be agreed upon as comprising part of this contract. Where these specifications are not clear, relevant B.I.S. codes and shall be followed.

In case of item, whose technical specification is not mentioned here, CPWD specification for such item shall be followed. However if none of these are applicable, specification directed by the project manager shall be followed.

1.2 Cleaning up and handing over

Upon completion of the work all the areas should be cleaned. All floors, doors, windows, surface, etc. shall be cleaned down in a manner which will render the work acceptable to the Project Manager

2.0 Cement Concrete / Masonry/ Mortar Plaster works

All concrete included in the works shall comply with the General requirements of this section of the specification except where those requirements are modified by the provisions of later Clauses relating to specialized uses for concrete in which case the requirements of those Clauses shall take precedence.

A competent person shall be employed full time whose first duty will be to supervise all stages in the preparation and placing of the concrete

On award of the work contractor shall submit their quality assurance plans, methodology & sequence of construction for all activities.

2.1 Materials

a) Cement

The cement used shall be ordinary portland cement conforming to IS 269 (Latest revision) of grade 43 for all works and/or directed by the Project Manager (use of Grade 53 cement is strictly prohibited). All cement shall be fresh delivered in sound and properly secured bags or other packages ready for immediate use and shall be used direct from the bag. Cement containing lumps which cannot be broken by a light touch of fingers shall not be used in the works. Admixtures shall not be used without written consent of the Project Manager.

The contractor shall maintain a record of receipts and consumption of cement indicating the source, the age and the date of receipt of cement. The contractor shall at all times protect the cement from damp or any other deleterious influences.

b) Aggregates

Materials used as aggregates shall be chemically inert, strong, hard, durable, of limited porosity and free from adhering, coating, clay lumps, coal residues and organic or other impurities that may cause corrosion of reinforcement or may impair the strength or durability of the concrete.

Fine aggregates shall be natural sand or sand derived by crushing material like gravel or stone and shall be free from coagulated lumps.

Coarse Aggregates shall be crushed stone. The pieces shall be angular, rounded in shape and shall have granular or crystalline or smooth (but not glossy) non-powdery surface. Fragile, flaky and laminated pieces, and mica shall not be present. Size of coarse aggregate shall be maintained within tolerance limit of 2.5%. Maximum size of coarse aggregate shall be of 20 mm unless otherwise noted.

c) Water

Treated Water free from harmful material and complying with the requirements of Clause 5.4 of IS:456 for mixing concrete/mortar shall be made available at site at one point free of cost. Contractor to make arrangement for taking it to work locations.

2.2 Curing

The contractor shall ensure that all times there is an adequate supply of fresh water available for curing the concrete. As soon as possible after it has been placed, concrete/ Masonary / Plaster works shall be kept visibly wet continuously for 4-5days after placement

2.3 Laying of Mortar

The mortar shall not be spread so much ahead of the actual laying of the units that it tends to stiffen and lose its plasticity there by resulting in poor bond Consistency as per requirement of site must be maintained at the point of laying over bed.

Mortar joint shall be struck off flush with wall surface and when the mortar starts stiffening, it shall be compressed tightly to have a key for plastering.

2.4 Chases

Guide lines for chases in masonry walls as per Indian Standard BIS : 1905 need to be followed. The cutting of chases, recesses etc. should be done with out damage to the surrounding masonry. It is desirable to use such tools for cutting which depend upon rotary motion not on heavy impact for cutting action.

3.0 WATER PROOFING

It is the intent of this specification to secure a completely water tight basement, toilets and terraces etc. guaranteed for at least 5 (Five) years from the date of final completion. The guarantee shall be executed & extended by the Contractor. The contractor shall provide all materials, labour, plant, equipment, incidentals and everything necessary for securing a fully waterproof job as called for above.

Water proofing work shall be commenced only after the surface is prepared, smooth rendered, cleaned free of dirt, dust and foreign matters, inspected and approved. Compressed air shall be used for effective cleaning of all surfaces. The vents and other projections through the roof shall be made absolutely secure before flashing.

4.0 Plaster Work

All plaster work shall be of the best workmanship and in strict accordance with the dimensions of the drawings. All plastering shall be finished to true levels including plumbs, without imperfections, and square with adjoining work.

Wherever directed all joints between RCC frames and masonry walls, shall be expressed by a groove in the plaster. This groove will exactly coincide with the joint beneath. Where grooves are not called for, the joint between concrete and masonry in filling, chasing for conduits, pipes, boxes etc. shall be covered by 24 gauge expanded galvanized metal strips, 300 mm wide installed before plastering.

The contractor shall supply all necessary labour, material, tools and scaffolding necessary for the completion of the work detailed. He shall be responsible to take proper precautions to all works from damage. Any work rejected through non-compliance with the specifications or damaged work shall be removed and replaced at the expense of the contractor.

The materials used for plastering shall be proportioned by volume

The joints in the brick work, concrete blocks, shall be raked to a depth of 15 mm. Concrete surfaces to receive plaster shall be suitably roughened. All walls shall be washed with water and kept damp for 10 hours before plastering.

The plaster unless specified otherwise shall be average of 15 mm thick on walls and minimum 6 mm thick for the ceiling. The mix for plaster unless otherwise specified, shall be one part cement and four parts sand, to walls and one part cement, 3 parts sand to ceiling. The interior plaster shall be applied in one coat only. The surface shall be trowelled smooth to an approved surface. All plaster work shall be kept continuously wet for seven days.

The external plaster shall be minimum 20 mm. Preparations of walls to receive plaster work shall be the same as in internal plaster. Both layers of all external plaster shall be waterproofed with approved water proofing powder added to cement in proportion of 1.5 Kg. to 50 Kg. of cement as per the manufacturers' instruction, for both the coats.

LIST OF CODES

The materials and workmanship shall be in accordance with the requirement of the appropriate IS code wherever applicable together with any building regulations or bye-laws governing the works. The following list is included for guidance only and the omission from the list does not relieve the contractor from compliance therewith:

IS 1200	:	Mode of measurement.
IS 269	:	Ordinary portland cement.
IS 2386	:	Method of test for aggregate for concrete.
IS 456	:	Code of practice for plain and reinforced concrete.

LIST OF APPROVED MAKES OF MATERIALS

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| 1. | Cement (OPC 43 grade) | Ambuja, ACC, ultratech,JK or approved equivalent |
| 2. | Concrete admixture | Fosroc/ Cico. / Pidilite or approved equivalent |
| 3. | Polysulphide sealant | Pidilite, Chemetall-Rai or approved equivalent |
| 4. | White Cement | Birla, J.K or approved equivalent |
| 5. | Water proofing compound | CICO or approved equivalent |