

3	Civil Materials	<ol style="list-style-type: none"> 1. Cement: Cement for Concrete Tank shall be Ordinary Portland Cement (OPC, Grade-43) conforming to IS: 8112 or better. (ii) Cement for all other applications shall be Ordinary Portland Cement (OPC, Grade-53) conforming to IS: 8112 or Fly ash-based Portland Pozzolona cement conforming to IS: 1489 (Part-I) and / or any other type of cement meeting IS: 456 requirements. 2. Aggregates: (a) Coarse aggregate: Coarse aggregate for concrete shall be chemically inert, hard, strong durable against weathering, of limited porosity and free from deleterious materials. It shall be properly graded. It shall meet the requirements of IS: 383. (b) Sand: Sand shall be hard, durable, clean, and free from adherent coatings of organic matter and clay balls or pellets. Sand, when used as fine aggregate in concrete shall conform to IS: 383. For plaster, it shall conform to IS: 1542 and for masonry work to IS: 2116. 3. Reinforcement Steel. All reinforcement steel shall be TMT (Thermo Mechanically Treated) of grade Fe 415 conforming to IS: 1786 unless noted otherwise. However, TMT reinforcement bars of grade Fe 500 conforming to IS: 1786 satisfying ductility requirement of Fe 415 may also be used. Mild steel & medium tensile steel bars and hard drawn steel wire shall conform to grade - 1 of IS: 432 (Part - I). Welded wire fabric shall conform to IS: 1566 4. Structural Steel: Structural steel design shall be carried out as per IS 800 and IS 801. Structural steel shall comprise of mild steel, medium strength steel and high tensile steel conform IS 2062 / IS 1079 or equivalent, Pipe shall be as per medium/high grade of IS 1161, Chequered plates shall conform to IS 3502 and Hollow steel sections for structural use shall conform to IS 4923. All gratings shall be pressure locked/ electro forged. Structural steel (including embedded steel) shall be straight, sound, free from twists, cracks, flaw, laminations, and all other defects Structural steel of following brands to be used: Tata, Sail, RINL, JSW and ESSAR. 5. Bricks: Bricks shall be table moulded/ machine made of uniform size, shape and sharp edges and shall have minimum compressive strength of 75 kg/cm². Burnt clay fly ash bricks and fly ash lime bricks shall conform to IS:13757 and IS:12894 respectively. Minimum fly ash content in fly ash-based bricks shall be minimum 25%. Common burnt clay bricks shall conform to IS: 1077.
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