

5. BUILDING DESIGN STRUCTURAL REQUIREMENTS

5.1 The building shall be so constructed that the combined dead, imposed and wind loads are safely transmitted to the ground without deformation and deflection of any part of the building, and without such ground movement impairing the stability of any part of another building. Building stability shall not be impaired by subsoil movement due to swelling or shrinking.

5.2 Structures shall be designed in accordance with the current Uniform Building Code (UBC) and British standards codes of practice, and shall comply with the durability requirements mentioned in this section. The following list includes some of the British standards that are applicable to building design and construction:

BS 6399: Part 1: Code of practice for dead and imposed loads.

BS 6399: Part 3: Code of practice for imposed roof loads.

CP3: Chapter V: Part 2: Wind loads.

BS 5628: Code of practice for use of masonry.

BS 449: Specification for the use of structural steel in buildings.

BS 3692: Specification for ISO metric precision hexagon bolts, screws and nuts- Metric units.

BS 4232: Specification for surface finish of blast cleaned steel for painting.

BS 4604: Specification for the use of high strength friction grip bolts in structural steelwork - Metric series.

BS 5950: Structural use of steelwork in buildings.

BS 8004: Code of practice for foundations.

BS 8007: Code of practice for the structural use of concrete for retaining aqueous liquids.

BS 8110: Structural use of concrete.

Basic design wind speed should not be less than 45 m / s.

5.3 Seismic design shall be to Uniform Building Code zone 2A.

5.4 Minimum requirements for structural steelwork:

a. Minimum thickness of material for main structural members shall be 6 mm unless the member is a hot rolled section complying with BS4 and BS 4848, or similar approved standards.

b- Painting shall be epoxy based paint with a minimum life to first maintenance of 20 years.

5.5 Minimum requirements for concrete work:

a. Minimum cement content shall be 370 kg / m³.

b. Maximum water / cement ratio shall be 0.45.

c. Minimum 28 days characteristic cube strength shall be 30 N / mm².

d. Maximum chloride content (as NaCl) in any mix shall not exceed 0.3 % by weight of cement for reinforced concrete 0.12 % by weight of cement for mass concrete and 0.06 % by weight for prestressed concrete.

5.6 The following are particular minimum requirements for concrete in contact with soil:

a. Minimum 28 days characteristic cube strength shall be 40 N / mm².

b. All reinforced concrete members shall be protected with a 1.5 mm thick proprietary self adhesive bituminous membrane and protected with 4 mm thick hardboard prior to backfilling.

c. Clear concrete cover to reinforcement shall be not less than 75 mm for footings and 50 mm for columns, beams, slabs and walls.

5.7 The design and construction of pipelines, storage tanks, boilers, cranes, lifting equipment and pressure vessels shall be checked and certified by an independent third party inspection agency approved by the Authority.