

6.0 BUILDING DESIGN STRUCTURAL REQUIREMENTS

- 6.1 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.

6.2 APPLICABLE CODES

The following with listed parameters shall be permitted for the purpose of structural design. Consultant should ensure that selected design standards are the latest edition and fully compatible with Dubai South design regulation & guidelines;

6.2.1 DEAD AND LIVE LOADS

1. **BS 6399:** Part 1 “Code of practice for dead and imposed loads”.
2. **BS 6399:** Part 3 “Code of practice for imposed roof loads”.
3. **ASCE 7:** “Minimum Design Loads For Buildings and other structures , Chapter 3 ‘Dead loads’ and Chapter 4 ‘ Live Loads ‘
4. Adopted Dead and Live Loads Shall Satisfy Recommendations of the Dubai Municipality, Dubai South and other relevant statutory Authorities.

6.2.2 SEISMIC LOADS

1. UBC 1997, Volume 2, ‘Structural Engineering Design Provisions’, Division IV ‘Earthquake Design
2. Zone shall be adopted to all structures as per circular 191 from Dubai municipality

6.2.3 Wind Load

1. ASCE 7: ‘Minimum Design Loads for Buildings and Other Structures’ - Chapter 6. Design shall be based on basic wind velocity of 45 m/sec
2. For all structures where wind loads are applied as per codes, other directions than the two orthogonal ones to be

investigated for ultimate and serviceability limit states. The same shall be carefully studied for irregular buildings.

6.2.4 Design Codes

1. BS 8110: ‘Structural Use of Concrete’
2. ACI 318: ‘Building Code Requirements for Structural Concrete’
3. ACI Manual of Concrete Practice – the latest edition.
4. AISC 360
5. UBC 1997, Volume 2, ‘Structural Engineering Design Provisions’
6. BS 8004: ‘Foundations’
7. BS 5950: ‘Structural Use of Steelwork in Buildings’
8. BS 8007: ‘Design of concrete structures for retaining aqueous liquids’
9. BS 5628: ‘Code of Practice for Use of Masonry’
10. IBC ‘International Building Code’, excluding seismic design provisions.

6.3

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.

6.4

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.