2.1 INTRODUCTION

Structural guidelines listed below shall be applied to all building structures and are intended to provide minimum structural design requirements for building sub and super structures. Please refer to the applicable codes for detailed technical guidance and requirements.

The guidelines are aimed to give the design engineers a general idea of the basic requirements in designing the structures to comply with the CED-Trakhees regulations and the relevant building codes. It is anticipated that the use of these guidelines will result in a uniform design and construction of buildings throughout projects in CED-Trakhees jurisdiction.

Any requests for variations to the guidelines presented must be fully documented and presented to the CED-Trakhees for review and acceptance prior to any application.

2.2 DESIGN OUTCOME

The design shall meet all relevant standards for safety, durability, fire resistance and serviceability. The designer shall investigate alternative systems and shall achieve optimized economical and constructible solution.

2.3 SUSTAINABILITY AND ENVIRONMENTALLY RESPONSIBLE DESIGN

Design should satisfy sustainability and environmental guidelines adopted for the project. The following should be taken into account in structural design approach:

1) Consultant shall propose a design maximizing the use of environmentally friendly and energy efficient technologies in material and construction techniques.

2) Designer should consider climate change implications within the design life of the structure and accommodate them by adopting adequate design parameters and detailing.

3) Where possible, consultant shall maximize the used of recyclable and recycled construction materials.

4) Consultant should specify locally manufactured materials as a first preference where possible.

5) Proposed design should involve a minimum level of disruption to the natural environment.

6) Consultant should maximize the use of clean and non-destructive construction technologies including off-site pre-fabrication.

2.4 APPLICABLE CODES

The following codes with listed parameters shall be permitted for the purpose of structural design. Technical codes not listed in this document shall be submitted for review and approval prior to adopting in the design. Consultant should ensure that selected design standards are the latest editions and fully compatible with CED's design regulations & guidelines.

2.4.1 DEAD AND LIVE LOADS

1. BS 6399: Part 1 'Loading For Buildings: Code of Practice for Dead and Imposed Loads'.
2. BS 6399: Part 3 'Loading For Buildings: 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, CED - TRAKHEES and other relevant statutory authorities.

2.4.2 SEISMIC LOADS

1. UBC 1997, Volume 2, 'Structural Engineering Design Provisions', Division IV 'Earthquake Design
2. Zone 2A shall be adopted for all structures.
3. For special structures, 'Recommendations for the Seismic Design of High-rise Buildings', CTBUH 2008, shall be adopted.

2.4.3 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/s.
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.
3. Reliable wind tunnel study reflecting climatic site conditions shall be permitted as an alternative method of estimating wind loads. Wind velocity shall reflect historic wind record for the respected site. The wind loads resulting from wind tunnel test shall satisfy the requirements of ASCE 7.