

2.5.2.6 UNIT SYSTEM

All structural calculations, computer output, technical reports, specialist consultant recommendations and drawings shall be presented in SI unit system. All dimensions on structural drawings shall be presented in millimetres.

2.6 STRUCTURAL CALCULATIONS

All calculations shall be submitted in soft copy in pdf format arranged in sequence according to the index sheet. The Structural Calculations shall generally include but not limited to the following:

- 1. Index sheet with contents and page numbers.
- 2. An introduction containing the project ID and briefly outlining the submission purpose together with the list of drawings, calculations, reports, etc.
- 3. Design philosophy; reference Codes, complete design criteria and assumptions for loads, height of building, number of floors, etc.
- 4. Column load calculations by area method & reaction method.
- 5. Stability analysis for wind and seismic loads including checking for allowable drifts. For wind induced accelerations, a check for human comfort criteria is to be enclosed.
- 6. Loads on columns, shear walls including wind and seismic moments are to be marked in the copy of foundation layout for critical load cases.
- 7. Serviceability checks for deflection, crack width to be included where applicable.
- 8. Reinforcement calculations for beams, slabs, columns and shear walls. In case if design is done using software, sample pages are to be enclosed.
- 9. Soft copy of all the calculations copied in a CD as well as software models shall be submitted. All software models shall be run and free of errors. At the time of joint review, the consultants shall bring a laptop PC installed with the design software to check the building model. In case modelling has been done using ETABS, SAFE, SAP, ROBOT, etc., consultant shall submit only extract pages in PDF format of selected important input and output data that may facilitate the review process.
- 10. In case of specialised works such as post tensioned slabs, tent structures, large span timber structures, prefabricated steel structures, the structural designs and drawings for these works shall carried out by specialised consultants having an approved valid trade licence from Dubai

Municipality. A copy of their Trade Licence needs to be enclosed. These drawings after checked by consultant shall be stamped and signed by them and submitted to CED along with a guarantee letter stating that they have verified the designs of the specialist contractor and they take full responsibility for the same.

- 11. Soil investigation report certifying all soil parameters conducted by an approved soil specialist agency as per CED’s geotechnical guidelines.
- 12. To resist the Seismic loads, joint ductility, confinement of concrete and joint framing connection details shall be as per the requirements of relevant approved codes. The reversal of stresses in structural members shall also be taken into account and proper detailing to be made along with supporting calculations.

2.7 STRUCTURAL DRAWINGS

The Structural Drawings shall generally include but not limited to the following information:

- 1. General Notes drawings containing the following details:
 - a. Standard abbreviation and symbols.
 - b. Reference to Soil Investigation Report indicating the safe bearing capacity, depth of foundation, soil improvement, number of floors for which foundation has been designed. The number of floors shall comply with approved architect concept drawings.
 - c. General information and details shall include:
 - 1) Details of water proofing systems.
 - 2) Earthworks and dewatering instructions.
 - 3) Strength, density of block works, blocks works construction details and construction sequences.
 - 4) Typical details of RC connections.
 - 5) Typical reinforcement curtailment/arrangement of columns, slabs, beams, floating slabs, manholes and water tanks typical details.
 - 6) Standard lintel details.
 - 7) Construction and movement joints details.
 - 8) Mechanical pipes penetration details, extra reinforcement around openings, trenches, cable trays and trans-