

SPACE FRAME SPECIFICATIONS:-

This specifications consists of four main items

1-General:

(1-A) Technical information:

The prefabricated space frame are composed of bars and nodes to be fully produced in our factory then to be erected at site.

(1-B) Scope of work :

The work under this section of specifications includes all workmanship, materials for the design, packing, transportation , and erection of the space frame according to the architectural drawings.

(1-C) Design :

The analysis of space frame elements are made on SAP2000 advanced for structural Analysis and design in which the loads are exercised to the nodes only so that they Do not transfer bending moments and the bars are calculated to respond to only axial Loads forces (tension or compression) any other loads which may creat a moment or Perpendicular forces to the bars are not allowed and if there is any it should be Requested by the client at the design phase.

(1-C-1) the design analysis includes the following loads:

A – Principal loads:

- 1-Dead loads of space frame.
- 2-Dead loads of purlins.
- 3-Dead loads of cladding (if any).
- 4-Wind load .
- 5-Temperature effects.
- 6-earthquake loads.

B – Functional loads:

- 1-Live loads.
- 2-Service loads such as:
 - I-lighting.
 - II-air-condition.
 - III-suspended ceiling.

N.B. the design analysis are made according to the rules of Egyptian code(ECP) or American code (ASTM).

2-Space frame components:

(2-A) Bars: are made of circular pipes which the diameter and thickness are given by the design.

Cones and nuts: are made of steel with grade (st.37)

(2-B) Nodes:

They are spherical in shape and to be manufactured using hot forging method or mechanical one And holes shall be drilled and the holes must never exceed 18 holes per node.

(2-C) Bolts :

Height strength bolts with grade 6.8, 8.8 and 10.9 with diameters 12,16 and 20mm shall be used according to the design.

(2-D) Purlins:

They are made of steel grade 37 and with rectangular hollow sections or built up sections or C,U and Z cold formed sections and this purlins should be fixed to upper chord nodes.

3-Protection against corrosion:

This process can be made by having electrostatic coating with polyester powder coating with average thickness 60 80 microns and if required tubes and purlins could be galvanized and then coated

4-Delivery, storage and handling of erection:

A-wrapping: all the bars should be individually wrapped at the factory.

B-packing: all the components should be packaged in metal crates.

C-materials should be stored off the ground.

D-erection:

I-temporary support should be places to ensure the space frame stability during erection.

II-site welds of the supports should be made by experienced welders.

III-after installation a touch up paint to the scratched members & nuts will be take place.