

AS A FIRST EGYPTION SPACE FRAME PROUDUCER

MAZ-INDUSTRIES PRESENTS

Space frame advantages:

Space frame construction systems are characterized by their ability to have large spans without middle supports and by their ability to carry concentrated or non-symmetric loads, it also possible to run through them services (lighting air-conditioning etc.)

Also the components of each system to be fully produced in our factory.
This guarantees quality assurance and accuracy.

Space frame specifications:

This specifications consists of main items

1-General:

(1-A)Technical information:

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

(1-B)Scope of work:

This section of specifications includes:

All workmanship

Space frame elements fabrication according to design

Surface finishes

Packing

Transportation

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 forces load (tension or compression) any other loads which may create 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:

Principal loads such as:

Dead load of space frame.

Dead loads of purlains.

Dead load of cladding (if any).

Wind load.

Temperature effects.

Earthquake loads.

Functional loads such as:

Live loads .

Service loads such as lighting, air-condition and 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 and they are made of welded steel pipe with chosen grade from steel grade table below

Steel quality	Yield stress	Tensile stress	Elongation after fracture
S235JR(St37-2)	235 N/mm ²	340-470 N/mm ²	24%
S275JR(St44-2)	275 N/mm ²	410-580 N/mm ²	20%
S355J2G3(St52-3)	355 N/mm ²	510-680 N/mm ²	20%

And bars should be welded to cones (which made forged or machined) from bars steel grade using semi-automatic gas shielded arc welding process.

(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 hole per node.

(2-C)Bolts:

High strength bolts with grade 6.8, 8.8and 10.9 with diameter 12,16and20mm 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 chorde node.

3- Protection against corrosion:

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

4- Delivery, storage and handling of erection:

Wrapping: all the bars should be individually wrapped at the factory.

Packing: all the components should be packaged in metal crates.

Material should be stored off the ground.

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 be the scratched members & nuts will be take place.