

SHELL STRUCTURES AND OFF-SHORE PLATFORMS

SHELL STRUCTURES

Shells are 3d structures constructed on storage tanks or roof for large column area such as indoor stadiums, exhibition halls, theatres, complex churches etc

Classification

Singly curved

Double curved

Cylindrical shells

Singly curved

It can be used for rectangular shape buildings, shells represent the roof of the building

Dome storage tank for water and petroleum is example for single curved

Doubly curved

For doubly curved structures the super structure should be in hexagonal or circular shape

Cylindrical shape

These are just modification of pitched roof and frequently employed in modern age construction

It has two types

North light shell roof

Barell vault shell roof

Both are different to provide lighting effect in factories

In barell vault ventilation is provided in middle

Off shore platforms

Off shore platforms are self contained platforms with adequate facilities for drilling, derrick, drilling mud electric power, pumping equipment for the offshore construction these are artificial facilities above the elevation of off shore platforms

Off shore platforms can be classified as

Fixed Off shore platforms

Bottom supported structures

Compliant platforms and floating platforms

Construction principles of offshore platforms

Selection of operational criteria

Selection of environment

Environmental factors like

Storming wind velocity

Storming wave height

Tidal conditions

Before analysis and design of foundation it is necessary to determine the soil characters of the sea shore. Capacities of the available crains will influence the operational activities of platform constructions.

The fixed platforms can be classified into

Jacket or template structures

Gravity structures

ERECTING LIGHT WEIGHT COMPONENTS ON TALL STRUCTURES

Besides high raise buildings the usage of steel element is also popular with construction of hospital and commercial complexes

Instead of concrete beams and columns more than 6100 tonnes of steel have been used to build the main frames

Light weight blocks are used for patricians to reduce the dead load building

The usage of permanent concrete form works and structural steel elements will be the main constituter for erecting light weight components on tall structures results rapid speed of constructions.

Hence the erection of steel beams and columns as well as the installation of concrete form work consumes only less time

Self drilling tapping screws are the most prevalent fasteners. Steel to steel connections can be carried out to connect struts or joist and track together

Entire can be erected manually with out the use of heavy equipment

All these structures require few battery powered screw gunes and some ropes and pulleys

No scaffoldings is require for assembly and disc assembly of the structures because the structure itself provides the scaffoldings as it goes up or comes down

Almost any number of column sections can be added to make it any height we desire

During the construction of tall structures the following equipments are used for the aerial transporting and handling

Aerial cable way

Helicopter

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