



Turnkey Solution in Designing & Production of

# COMMUNICATION TOWERS



## POLYQUAL

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✉ TAILOR MADE TO YOUR NEEDS



## COMPANY PROFILE

PolyQual is one of the few companies in world offering Design & Construction of Towers under one roof. Established in 1966, with an objective to satisfy customers with our products & services, we are also now the Manufacturer & Exporter of High Rise Hot Dip Galvanized Steel Lattice Towers & Guyed Masts and have specialized in complete range of Light, Medium & Heavy duty self-supporting Angular, Tubular & Hybrid Towers for Rooftop & Ground Base application.

We have Designed, Fabricated & Installed Tower height from 6 Mtrs to 150 Mtrs height. Our products are used for various ends like Communication, Microwave Links, Wireless, Paging, Cellular Telephony, Lighting, Wind Energy. With our well experienced technical teams we are able to provide a Total Turnkey Solutions in the area of Telecom both in Domestic & Global Markets.

PolyQual's product range includes Self Supporting Tower, Guyed Masts, Monopole for Telecommunications, Microwave, Television, Radio, Defence, Windmill for Security & other Diverse Application.

Our Towers are being exported to various countries in Middle East, Africa, South Asian Countries, UK & USA.

From an initial project Consulting & System Design to Implementation, Installation and Testing through Maintenance & Support.

PolyQual provides performance proven expertise & technological foresight upon which long term customer partnership are built.



OKHLA FACTORY, NEW DELHI



OUR 2nd UNIT AT HATHIN INDUSTRIAL AREA, HARYANA



# TAILOR MADE TOWERS

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PolyQual USP is "Tailor Made Towers" of any type as per individual need & requirement. We have commissioned several tailor made towers for example :

- Towers with 2 legs on roof top & 2 legs on ground.
- Triangular Towers on Square Bases Ultra Slim Towers made out of Solid Rods.
- Platforms as big as 50 square Meters on Tower Top.
- Towers with very small base width ie - upto height / 12.

PolyQual manufactures Square / Triangular towers. These could be fabricated out of Angles / Pipes or could be Hybrid Construction . The construction of tower could be Welded or Bolted. Each type has its own merits & demerits depending on application. An Erection Manual, showing location of all Members & their Codes (permanent ink) are provided, when only tower materials are ordered.

## Products & Services Offered by PolyQual :

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### Line of Sight Surveys

To get communication between 2 points, it is necessary that the height of the tower be adequate at both ends.

### Height of tower required at each end is determined by considering -

- Earth Curvature.
- Height of Fresnel Zone for frequency of Communication.
- Heights of man made obstructions on way.
- Degree of reliability required with the proposed equipment.

Above determination involves map study, physical survey of obstructions & elaborate calculations.

PolyQual carries out LOS surveys between any defined points. Normally money spent in survey is more than compensated in savings in tower heights & reliable communications.

### Soil Investigations

It is necessary that the foundation design be done according to the soil conditions available at site. PolyQual determines the strength of the soil, height of the water table and other desired properties of the soil for safe & economic design of the foundation.

The process involves transport of drilling equipment to site, drilling boreholes at the site and laboratory analysis of disturbed & undisturbed samples collected from site and according to the result final soil test report is made.

### Galvanizing of Fabricated Materials

All material is hot dip galvanized as per applicable standards after the fabrication. All holes are coated through. All weld joints are coated. The thickness of coating is checked for each lot of galvanizing.

### Foundation Design

The foundation design is done on the basis of soil parameters and the forces generated by the tower on the foundation. Indian Code IS 456 is followed for concrete. Adequate factoring is done for loads during design.

### Construction of Foundations

Foundations are constructed as per design. The concrete mixture is maintained as per design. Proper curing is done to achieve desired strength of concrete.

### Erection And Painting of Towers

PolyQual undertakes erection and painting of towers as per erection manual.

All safety procedures are followed. Nut & Bolts are properly tightened. Painting is done as desired by the customer.



# TOWER DESIGNING

## Tower Design

PolyQual undertakes to design towers tailor made to the needs of the buyer, so that the design meets the parameters of :

- Space Available.
- Wind Speed Applicable.
- Antenna Loads to be applied.
- Facilities required on Tower.
- Twist and Sway required by the communication system or any other requirement.

Latest "State of The Art" software is used to carry out the design.



## Detailing of Design

After design, PolyQual offers the services of making a production drawing for each member, gusset, joint, of the tower.

The drawings are prepared in AutoCad. All applicable standards regarding pitch, edge distance etc are followed. All dimensions are given to the nearest millimeter.



## Design of Towers

We use "State of the Art" designing software for static & dynamic analysis of the tower models.

- Computerized Modeling - We do 3D modeling of our towers before actual production is taken up .

This modeling helps us to carry out the detailing of the tower with a very high degree of accuracy.



- We have a well equipped tool room to facilitate maintenance of our dies, tools etc.
- We employ modern techniques of fabrication. e.g. our Gusset Templates are computer generated to eliminate all drawing errors. Our In-House facilities results in following advantages to the customer.
- A new design of tower, having different geometry or different loads is developed in a very short time.
- The detailing of the towers has a very high level of precision, which results in fast & easy erection.
- Our production is never held up due nonavailability of any section. Our design team is always able to recommend us an alternative for the section not available.

PolyQual's biggest strength lies in its ability to manufacture a new design of any tower without going through the process of first making a prototype for that design. This means that a customer gets a very fast delivery for any new design of tower. Alterations or variations in any existing design are accomplished very fast. PolyQual's In-House designing facility for towers & tower foundations again stands to benefit the customers, it means that the supplies will never be delayed due to non availability of any section.

## POLYQUAL'S COMMITMENT TO QUALITY

Polyqual is a ISO 9000-2001 company and has a well documented quality manual. Our mission statement includes "... to build towers, which excel or match the best in world ..... at a right cost to the customer "



PolyQual controls the quality of their towers at each stage of manufacture :

a) *Raw Material Stages -*

Inspection is done on arrival of raw material for visual surface defects like slivers, blowholes , pit tings & hairlines cracks etc. Before commencing fabrication, various properties which are tested these include tensile strength, bending strength of steel. Chemical analysis is done to determine various micro components.



b) *During Processing Stages -*

All the dimensions of various components are first tested in virtual space by 3D modeling. Then each component is checked against the physical dimensions generated by computer model. Welded component are subjected to DP test for checking quality of welding. Random sampling of members is done to measure physical distances between holes and total length.



c) *On Finished Stage -*

PolyQual towers are hot dip galvanized after fabrication to make sure that there are no

rust starting points. In hot dip galvanizing, each section of the tower is totally immersed in molten zinc allowing every square mm of the tower, inside and out, to be completely covered. Hot dip galvanizing protects all points of welding and construction against rust and corrosion.

Thickness of coating is routinely checked by non destructive tests. Some samples are subjected to destructive tests also to ensure -

- a) Proper thickness of coating
- b) Proper adhesion of coating
- c) Proper quality of zinc used.
- d) Predispatch Stage

All members are checked for erection codes marked on them , Checking is done for punched marking as well as permanent ink marking .

All critical subassemblies are subject to proof of prototype assembly. No. of pieces / packing & member of packing are checked with the packing list to ensure the completeness of material being dispatched.

Note : All the above mentioned tests are done by govt, certified independent labs. All the certificate issued for material testing are properly filed & maintained.

**PolyQual's  
Quality Standards :**

IS 2062 or IS 630 or BS 4360  
for Quality of steel

IS 800 / IS 802 for Fabrication  
of Towers.

IS 875 for Wind Loading on  
Towers.

IS 1461 for Zinc Coating.

Permissible Stress as per IS 802

ISO 9001 : 2000 for Quality  
Management Systems.

IS : 2074

Nut Bolts used are grade 5.6 / 5

Dimensions as per IS 6639 - 72

Physical Properties as per IS 1367



**Tower Design Approval.**

Tower designs are generated by PolyQual engineers who have decades of experience in designing.

However third party approval by IIT / Govt. Department of the tower design, foundation design are also organized, if the customer so requires.

**Benefits Of Working With PolyQual**

- PolyQual's biggest strength lies in its ability to manufacture a new design of any tower without going through the process of first making a prototype for that design.
- This means that a customer gets a very fast delivery for any new design of tower.
- Alterations or variations in any existing design are accomplished by its In-House designing facility for towers & tower foundations.



# PolyQual 150 mtr. Tower

PolyQual has commissioned the tallest & the most prestigious tower in Jaffna, Sri Lanka, with a magnificent height of 150 Mtrs.

The tower commissioning just took 2 weeks & was installed by the simple user friendly help of our Erection Manual.

The installation of such towers not only offers tremendous connectivity on LOS basis but also saves cost for successive smaller installations accordingly.

We have supplied more than 700 towers to Bharti Cellular Limited with height ranging from 15 Mtrs - 70 Mtrs which includes the first ever tower purchased by AirTel which is installed at Okhla HO.

#### Radars Towers :

We have supplied around 45 Towers of 45 Mtrs - 70 Mtrs height to Metrological Department of Africa, this Tower is designed with **Internal Staircase** to ease climbing.

We have total production capacity of approx 1100 tons per Month.

We have erected Self Supporting Towers in Thousands all over the country and in foreign countries. All our customers are very much satisfied with our products. To read their comments on our products, please visit our website :

[www.polyqual.com](http://www.polyqual.com)

We have also exported approximately 1500 Towers of varying heights from 15 Mtrs - 150 Mtrs to countries in South East Asia, Middle East, U.K., Africa & USA.



# TEAM POLYQUAL

## Mr. DK Bansal - Managing Director

A Gold Medalist Post Graduate Engineer from IIT (Kharagpur) and has experience of industry for more than 40 years.

PolyQual, in stewardship of Mr. Bansal has won several awards which includes the following :

- Century International Quality Era Awards, Geneva
- Tamra Patra Award.
- Business Sphere Awards.
- IEDRA Awards.
- Export Excellence award from EEPC for last consecutive 4 years.
- All India Achievers Conference Awards.



**Mrs. Rekha Dev :**  
Mechanical Engineering - BITS Pilani having an experience of the industry for more than 25 years.

**Mr. SN Arora :**  
Masters in Engineering from BITS Pilani & MS from USA, having an experience of 35 years with leading companies.



**Mr. Susheel Chauhan :**  
Production Engineer, working with PolyQual for the past 20 years.

**Mr. MK Singh :**  
Masters in GeoTechnical Engineering, Phd with 9 years of experience, he executes the job of Soil Survey.

**Mr. SK Singh :**  
Masters in Structural Engineering with experience of 7 years in the industry.

### Civil Engineers :

We have about 10 Diploma Holders in Civil Engineering who take care of site supervision during foundation & erection of towers.

### Supervisors :

We have about 15 Production supervisors with Diploma in Welding, Cutting, Lathe Machine etc from ITI. Our supervisors look after the Mass Production.

### Technicians :

We have about 8 Technicians, Diploma Holders, who take care after the maintenance of Machines, jigs & Dies.

### Skilled Workers :

We have about team of 75 workers who works in 2 shifts in various activities like Cutting, Drilling, Punching, Marking, Grinding, Inspection & Dispatch of Material etc.



### Marketing Department :

A very focused, dynamic marketing team that understands the needs of each customer's installations & advices on the project. This not only promotes the clients' trust but also enables our continual partnering with each of them.

### Designing Department :

A full Fledged Computer based designing team engaged in tower designing & foundation of tower.

## PARTIAL LIST OF CLIENTS

We have a long list of satisfied customers in India & abroad.  
A partial list of our clients is given hereunder :

- Escotel Mobile Communications Ltd
- All India Radio & Doordarshan
- India's National Television Broadcaster
- Bharti Cellular Communications Ltd
- Spice Telecom
- REI Systems, USA
- Tata Teleservices
- Idea Cellulars Limited
- Hexacom India Ltd. (Oasis Cellulars)
- Bhutan Telecom
- Modi Telecom Ltd.
- Telecommunication Consultant India Ltd.
- Public Telecommunication Corporation Yemen
- Bharat Electronics Limited
- American Express
- DCM Daewoo Motors
- Motorola Communication Ltd.
- Delhi Jal Board
- ONGC
- Punwire Communication Limited
- Daksh eServices Pvt. Ltd.
- Software Technology Park of India
- Police Wireless
- Polaris..... and more.

### Registrations & Empanelments

Government Authorities give recognition to establishments after verifying that all its norms / procedures required are duly followed.

Important buyers empanel competent suppliers to save the vendor evaluation effort, each time a purchase is made. Above registration & empanelments are done on the basis of :

- Evaluation of manufacturing facilities by personal visits & assessment of machinery / production procedure followed.
- Evaluation of technical competence.
- Evaluation of financial competence by getting references from banks & past performances.
- Evaluation of methods employed to achieve consistent quality.
- By cross checking all relevant documents ensuring that the laws of the land are being followed.

We are registered empanelled with :

- DIRECTOR OF INDUSTRIES, DELHI ADMINISTRATION.
- NATIONAL SMALL INDUSTRIES CORPORATION, GOVT OF INDIA
- DIRECTORATE OF QUALITY ASSURANCE, MINISTRY OF DEFENCE, GOVT OF INDIA
- MINISTRY OF RAILWAYS, GOVT OF INDIA .... & more.

### CERTIFICATIONS :

