

## Tower Design and Construction

The heart of any radio communications system is the site of where the main repeater or base station will transmit its signals from. The higher the antenna is above the ground, the further the signal propagates which is why many radio sites are located on top of elevations such as mountains and tall buildings.

In situations where this is not practicable, the answer is to erect a tower and mount the antenna system to it.

Such a project may sound simple, however the execution for a successful outcome requires a combination of specialized technical skills, construction skills, project management and experience. Things to be considered include:

### RF Design

- What is the coverage profile required?
- What type of antenna radiation patterns and gain characteristics are required?
- What are the issues regarding antenna gain, front to back ratio and phasing?
- What operating frequency bands are needed?
- Is there multicoupling required and in what format?
- What spacing is required in the vertical and horizontal planes to prevent interference and de-sense?
- Are there path profile issues or Fresnel Zone obstructions?

### Physical

- What are the wind loading limitations of the antennas to be used?
- What type of lightning protection will be used?
- How will tower earthing be deployed?
- Will the tower type be lattice, free standing, winch-up, monopole or guyed?

- Is there a requirement for tower climbing or riggers?
- What type of footings and civil works will be needed?
- Are there issues regarding building and council permits?
- What are the issues related to site safety and environmental management during construction?



AA Radio is experienced in designing and delivering these projects and can provide either specialist skills or complete turnkey construction.

Talk to us about how we can help make your tower project a success with:

- \* Radio System Design
- \* RF design of antenna system
- \* Multicoupling design
- \* Lightning protection system design
- \* Rigging labour and services
- \* Technical labour and services
- \* Project management
- \* Complete turnkey design, supply & construction