

Tower Quotation Data Sheet

At Radian, we strive to meet our customers' needs and expectations during the quotation process as quickly as possible. Sometimes, though, our customers may not understand the options available to them and/or they provide additional information after the fact that impacts design and engineering, as well as the types of accessories and add-ons necessary for the project.

In these instances, we're required to modify our original quotations. Such modifications are to be expected from time to time, but quote revisions often can be avoided altogether by analyzing your needs at the outset. Here's where Radian's Quotation Questionnaire becomes quite valuable. By articulating, in writing, your specific needs at the beginning of the quotation process, you will be rewarded with a detailed cost analysis from us that is complete and accurate.

We recognize that filling out forms isn't everyone's favorite activity, so we're offering a mini-tutorial, of sorts, that explains the line items of our Quotation Questionnaire form. Please refer to the attached sample form, which features line items numbered in accordance with the discussion below. Think of this form as an exam for which we've provided the answer sheet. Our objective is to take the stress and confusion out of obtaining a quote — and achieve our goal of getting it right (the quote, that is) the first time.

Ready for the review? OK, sharpen that Number 2 pencil and follow along, point by point, as we explain the questions asked on our Questionnaire. By the time you're finished, you should have in mind nearly all of your potential answers. But don't worry if any question stumps you; a Radian representative is just a phone call or email away to answer your questions and serve as your consultant to find the best and most cost-effective solution for your project. See the contact information below.

1 Quote is for: Do you want Radian to manufacture your tower or pole only? Or would you like us to install it as well? We assume the site has been prepared and has ingress and egress for delivery. Tell us if this is not the case.

1A. Design assumes...: We also assume that soil and rigidity of your site meet EIA standards, and that, in the case of a guyed tower, the site is large enough to accommodate an 80% guy radius (the distance of each outer guy wire foundation (anchor) from the tower center equals 80 percent of the tower height).

2 Foundation Installation: Who will pour the foundation, your contractor or us? If Radian will build the foundation of a tower, please provide a sketch or azimuth of one leg showing its directional orientation. If no sketch is provided, we will assume the north leg is 0 degrees. *Note:* Azimuth is important when a structure supports directional dishes.

3 Structure Type: This is a pretty basic question. Do you need a guyed tower, a self-supporting tower, a bracketed tower (one that's attached to a building) or a roof-mounted tower?

4 Structure Type: (cont.) Or, do you need a tapered or flanged mono pole? If you're unsure about the type of tower that will meet your needs, or if a pole can meet them better, just give us a call.

5 Structure Height: The height is the customer's decision; however, the design and engineering specifications for the structure may be influenced by municipal or county building codes. If local codes do not apply, we design in accordance with EIA standards and state codes.

6 Base of Structure: Will the tower or pole have its foundation on the ground? Or will it be roof-mounted? In the latter circumstance, tell us the height from ground to the roof-mount location. We need to know this to factor in wind variations at different heights.

7 Design Load: The load or stress on a structure is influenced by its height, the equipment mounted to it and the weather conditions of the structure's site/location. By design load here, we refer to environmental factors of wind and ice. Do you have specific requirements for design load? Identify your requirements by selecting *Basic, Uniform, 3-Second Gust, Ice* or *Other*.

- *Basic (Fastest Mile)* refers to wind speed averaged over the shortest time for a mile of wind to pass an anemometer (example: if the shortest time for a mile of wind to pass an anemometer is 60 seconds, the fastest-mile speed would be 1 mile per 60 seconds or 60 mph). This wind speed is escalated as you go up the tower.
- *Uniform* refers to load factoring of wind as constant (the same) from bottom to top.
- *3-Second Gust* refers to load factoring based on average highest wind speeds measured in three-second gusts (typically higher than fastest-mile wind speeds).
- *Ice* refers to the weather conditions for ice at your site. Is ice a factor we should know about?
- *Other* refers to a site location outside the United States.

8 Operational Load: We will abide by EIA standards for stability (50mph basic) unless you tell us otherwise. *Note:* Extra stability may be important to ensure reception and transmission for line-of-sight dishes.

9 Step Bolts or Climbing Ladder: Depending on the type of structure desired and its height, step bolts or an inside/outside ladder may or may not be appropriate. Consult your Radian representative before specifying a choice.

10 Safety Device: Our RAM product line is an all-in one safety device that includes a harness and all hardware to attach to the tower. We recommend it! However, if you choose another safety device from another supplier, please describe it. We need this information to allow for any design variations to accommodate an alternative device.

11 Aircraft Warning Lights: The FAA will specify required lighting for your structure. We offer many lighting choices and where the FAA grants discretion on types of lighting, we will be happy to consult with you about options.

12 Paint: The FAA requires 200-foot or taller structures with red lights only to be painted orange and white. Let us know if you want your structure painted in the factory or if you want us to supply paint for site painting. We can also paint your structure with special colors, based on your preference.

13 Vertical Waveguide Support: Some customers desire these supports; others do not. Ladders are appropriate for self-supporting towers. Brace brackets are commonly used on guyed towers.

14 Location of Vertical Waveguide Support: Where do you want your cable to run? The outside face location is often less expensive than back-to-back or down the center. We'll be happy to consult with you on the best location.

15 Horizontal Waveguide Bridge: We'll build a bridge on site to carry the waveguide from the structure to the equipment enclosure building. Draw a sketch of your site and the location of the building, representing as best you can the change in grade. Depending on grade variances, we build bridges ranging between



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4 and 12 feet above the ground. Also, tell us the distance from the structure to the building so we'll know how many feet of cable are required to make the electrical connection at the equipment enclosure.

16 Lightning Rod Required: Tell us whether you want a lightning rod supplied by Radian; also indicate the size of the downlead wire, if needed.

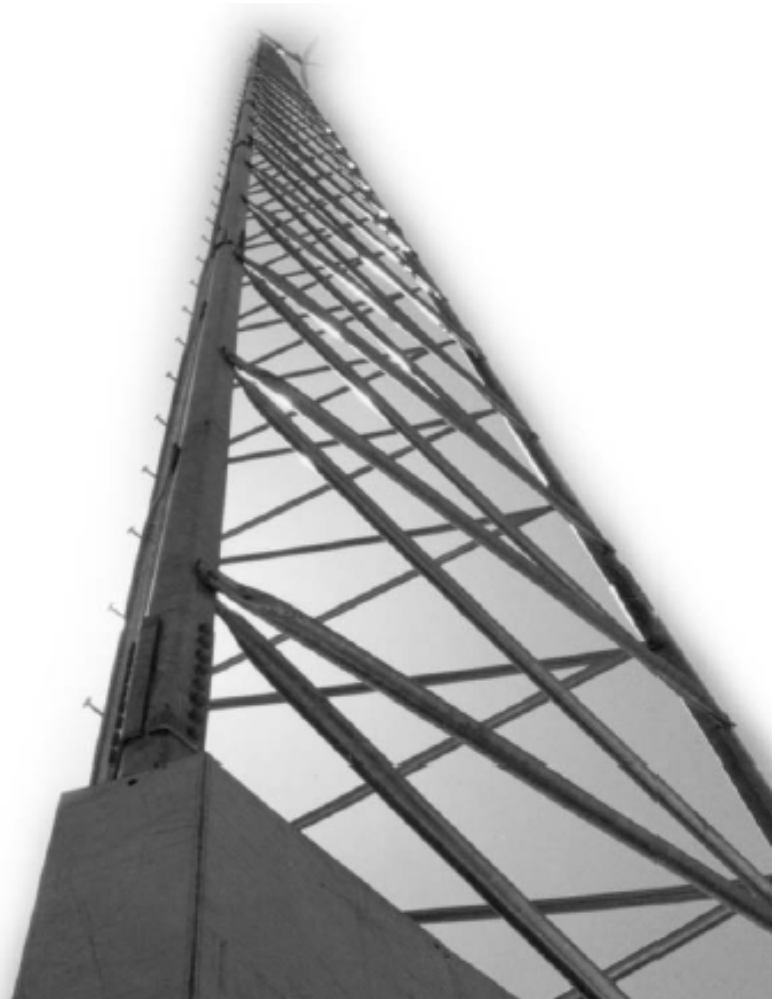
17 EIA Grounding: We will ground your tower in accordance with EIA standards. Any additional grounding needs must be specifically stated.

18 Antenna Information: This data is very important. We need to know the quantity, type, location and proposed mounting of all antennas to appropriately design your structure for load and capacity. Provide the model numbers of all antennas (or their specific dimensions) and their manufacturers. If microwave dishes are used, specify their frequency. Let us know if you want Radian to supply mounts for these antennas — we can, at competitive prices! Please complete this vital information before submitting your quotation request.

19 The following is required for special foundation designs: This is site-specific data. Unless you provide a soil analysis, we will assume "normal" soil and design accordingly.

20 Additional information... : Here is your opportunity to share other important information about site "quirks," special needs, etc., that aren't addressed earlier. The more you tell us about your project, the better the outcome of the quotation process.

21 Purpose of Structure: This is useful information for Radian about the needs of our customers and assists us in our sales and marketing efforts. Such data is compiled and used internally at our company and is not shared with third parties. We respect and honor the confidentiality of our customers' inquiries and requests for quotations. Thank you for completing this exercise. We hope you feel more comfortable with the questions we've asked (and why we've asked them). Getting a quote from Radian is really a straightforward process; the more you tell us about your needs, the more you get in the form of a comprehensive cost analysis of your project. We're here to review your needs, line by line, if necessary, so give us a call. We promise to give you our best quote in return.





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Please complete or check all appropriate spaces.

Customer: _____	Phone: _____	Fax: _____
Address: _____	City: _____	State: _____ Zip: _____
Structure Site: _____	City: _____	County: _____ State: _____
Customer Contact: _____	Phone: _____	Mobile: _____ Email: _____

1 Quote is for: Material Only Material/Installation by Radian (Radian assumes normal site & access.)

1A Design assumes normal soil and rigidity per EIA; level ground and 80% guy radius for guyed towers.

2 Foundation Installation: By Others By Radian Provide sketch or azimuth of one leg (if tower): _____

3 Structure Type: Tower, specify: Guyed Self-supporting Bracketed Roof-mounted

4 Pole, specify: Tapered Flanged Roof-mounted

5 Structure Height: _____ (Feet/Meters) Building Code: _____

6 Base of Structure: Ground Roof at _____ feet above grade.

7 Design Load: Basic Uniform 3-Second Gust Ice Other, describe: _____

8 EIA Operational Requirements? Yes No

If no, specify operational load: Wind: _____ Ice: _____

9 Step Bolts: Yes No and/or **Climbing Ladder(s)**; specify type(s):

- Inside Face Standard
- Outside Corner Heavy
- Leg Other, specify: _____

10 Safety Device: ROHN-Loc Other; explain: _____

11 FAA Aircraft Warning Lights: Yes No By others; explain: _____

If yes, specify type(s)*:

- Strobe – White Medium Intensity Strobe with Conduit
- Strobe – White High Intensity Dual (Red Lights and Strobe Lights)
- Red Lights (with B1R at Top 151' – 492')** Ice Shields
- Double Obstruction at Top
- Alarm – includes indoor control

*Unless otherwise specified, medium intensity and dual (red/white) strobes come with exposed cable.

**Kits with B1R are supplied with transformer and 120V bulbs.

12 Paint: FAA Factory Applied Sufficient Paint for Field Application

13 Vertical Waveguide Support: None Ladder Brace Brackets Other; specify: _____

14 Location of vertical waveguide support (if you have a preference):

Note: Unless otherwise indicated above, waveguide ladder on self-supporting MW sections will be mounted on the face of the tower near the tower leg. If center-face mounted, additional brackets will be required.

15 Horizontal Waveguide Bridge: Provide sketch or explanation; specify horizontal distance from structure to building:

16 Lightning Rod Required: No Yes; how many? _____ If yes, extended type? Yes No

