

# Using Drones for Tower Inspections: Benefits, Uses, and ROI

## Drones For Tower Inspections

**This article will explain why and how companies are using drones for tower inspections and other tower services. You'll learn about applicable regulations, the potential return on investment, industry requirements, business and community benefits, and more through credible sources and real-world examples, along with pictures and videos.**

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## Introduction

Many drone industry insiders have projected massive growth in drones for tower inspections around industries using vertical infrastructures. Using drones for tower inspection means appraisals can be done faster and more accurately than with traditional methods. And, use cases show that using drones for inspections can reduce inspection costs by more than [60 percent](#).

AT&T was one of the initial companies to use drones in tower operations successfully. After completing a set of flight trials, they found that drones are beneficial for replacing human tower climbers. While drones cannot and should not replace human workers at this time, using drones for tower inspections increases job safety for workers by enabling personnel to perform much of their work while remaining safely on the ground.

Art Pregler, director of the drone program at AT&T, confirmed that drones improve job safety and increase productivity.

“Every time we use a drone, it’s one less tower climb,” [says Pregler](#), continuing, “every tower climb that we can save provides a safer situation or less opportunity for potential injury.”

Companies must inspect towers regularly, and drones can perform routine tower inspections to ensure uninterrupted operations. But drones can be instrumental in performing more dangerous emergency inspections where service is interrupted or damage is suspected. Some ways pilots use drones for tower inspections include:

- Routine Maintenance
- Damage Assessment
- Repair preparations

Drones for tower inspections perform a minimum of the following activities:

- Provide geospatial maps of cellular towers so inspectors can view all angles of the structure and pinpoint potential problem areas or anomalies in infrastructure.

- Provide high-definition recorded or live video of tower inspection for viewing the tower in detail from the ground, anywhere in the world.
- Store tower data for comparison with past and future tower inspections so personnel can schedule maintenance and repairs more efficiently.

In addition to inspecting the tower structure itself, drones are handy for evaluating bird nest locations. Companies often encounter issues with repairs and inspections if protected bird species are actively nesting in a tower. Tower climbers often ascend the tower unaware of the active presence of a rare or protected bird species. Human climbers may have already unwittingly disrupted the nest or aggravated the birds by the time they reach their location, which can cause the parent birds to become aggressive, further endangering the human climbers.

Because drones can approach towers without interacting with the structure itself, using a drone for tower inspections means companies are better able to spot protected bird species and shield human workers from related dangers.

### **How Often Are Towers Inspected?**

The latest guidelines for the maintenance and inspections of towers that support antennas and small wind turbines are outlined in [TIA 222-H](#). According to current guidelines, tower operators should perform checks routinely. However, the term “routine” is not well-defined. These guidelines recommend that companies perform tower inspections after severe wind storms, heavy ice accumulation, and during or after other extreme weather conditions that may impact load-bearing capability.

The standard suggests that operators should consider more frequent inspections for tower structures near coastal environments and in corrosive atmospheres to protect structural integrity. Tower checks should also be conducted regularly in areas where frequent vandalism occurs. TIA 222-H describes the time frame for major inspections more specifically. Operators should perform thorough checks every three years for guyed towers and at five-year intervals for self-supporting structures.

### **Return on Investment in Using Drones for Tower Inspections**

Using drones for tower inspections can provide significant time and cost savings. Drones can perform checks much more quickly than a human, and they can often offer more accuracy. Better accuracy saves time and money by providing a greater percentage of error-free reports, meaning inspections require re-evaluation less often. Reducing the number of hours needed for tower inspections translates into significant expense reductions.

The actual cost of performing tower inspections varies depending on the kind of tower and the type of inspection conducted. For instance, inspecting a guyed tower may require measuring existing tensions for guy wires. In other cases, a guyed tower inspection may require leveling and tension adjustments, which require further human intervention.

For most cases, however, using drones for tower inspections can save companies a great deal of money, cutting inspection costs by half or even more. One oil and gas company reduced inspection costs by [66 percent](#) by using drones. And leading engineering firm [McKim & Creed](#) estimates a [60 percent](#) cost savings for companies who use aerial mapping over conventional inspection techniques.

## How Much Does a Tower Inspection Cost?

Pricing for inspection services varies based on multiple factors, including client specifications, the number of towers, their locations, and the number of hours, including travel time, that the project requires. Even when comparing jobs with similar factors, cost and compensation vary wildly across the industry.

Lee Priest, CEO of [ETAK Systems](#), estimates that the [average cost](#) of a human tower climb ranges from \$2,500 to \$5,000. A tower inspection performed by a drone costs one-third to one-half of that, depending on inspection requirements. But tower checks can cost (or pay) much less than that – as low as **\$100 per tower** on a per-site freelance contract.

## Regulations Related to Using Drones for Utilities

The Federal Aviation Administration (FAA) has set regulations governing what commercial pilots can and cannot do while flying a drone for professional use. For instance, FAA regulations require licensing, [registration](#), and insurance for commercial drone pilots but not for casual drone pilots. Here are some of the standard [FAA regulations](#) governing the use of drones for tower inspections.

- Every drone pilot flying drones for compensation, monetary or otherwise, must pass the FAA Part 107 test to receive [FAA certification](#).
- Flight regulations limit drones to [400 feet](#) maximum elevation. Commercial licensed pilots flying drones for utilities may fly drones up to 400 feet above structures like towers, power lines, storage units, and other utility-related systems. That means commercial pilots flying drones for tower inspections can fly as high as 400 feet above the tower's topmost part (as long as you're not entering restricted airspace).
- Drone pilots must avoid entering controlled or prohibited airspace at all times unless given special written permission. Pilots flying drones higher than 700 feet or 1200 feet may be required to obtain permission from Air Traffic Control before entering [Class E airspace](#). Apps like Airmap, SkyGrid, or [B4UFly](#) can help drone pilots see controlled airspace and avoid those areas.

## Consulting

If you are thinking about piloting drones for tower inspections, [.....] can help you decide where to start. Get a free comprehensive consultation from an experienced instructor so you can plan the best path for you. Call [.....] or [email \[.....\]](#) to schedule your free consultation today.

## Starting a Drone Business For Tower Inspections

Before you start a business flying drones for tower inspections, you will need good flying skills and some advanced equipment, along with the skill and knowledge to use various drone accessories and operate software programs. Once proficient, the average flight time should take 30 to 40 minutes with a drone capable of auto orbit and POI. Of course, drone pilots must be able to center the tower in the images at all times.

Here are some types of hardware and software you'll need in order to fly drones for tower inspections.

### What You Will Need to use Drones for Tower Inspections

- Expect to spend at least \$2000 for a high-quality, *professional drone model* with advanced flight stability, reliable transmission technology, a long battery life, and the ability to swap payloads.

- Your drone should be capable of flying higher than 400 feet. Many consumer drone companies set restrictions on their drones, so make sure you can adjust the settings when purchasing a drone.
- It would be best to have a **high-resolution camera** that can record videos with a minimum 4K resolution and 12MP still images attached to your drone.
- Getting too close to a tower is a bad idea for many reasons. A **zoom lens** will enable you to stay a safe distance away from the tower and still provide high-quality imaging.
- Damage isn't always visible in regular images or videos. A **thermal camera** that can detect heat variations is optional, but it can significantly increase your demand as a drone pilot for tower inspections.
- Fleet management software like [Kittyhawk](#) can help you keep track of tower flights so you can quickly find them for presentation or billing to clients.

Drones provide a fast, safe, and effective tool for inspecting towers and other equipment across many industries. The demand for drones for tower inspections has become significant, and many drone pilots aspire to build a career around it. But flying drones for tower inspections can be a very demanding profession. You'll need to invest in professional-grade equipment and some flight training to develop your skills and learn how to operate your equipment. But once you've logged some flight experience with a professional-grade drone, a career in tower inspection can be one of the most lucrative a drone pilot can have.

If you're interested in starting your own drone-based business, [.....] offers a [FREE COURSE](#) offering advice and insight into starting your own drone business. You'll get a step-by-step guide to launching your drone-based business, plus video interviews with a successful drone business owner and Q&A that provides answers to the most common questions about starting a drone business.