

# Drones in Construction

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I have been in the construction industry for about 5 years now. I spent most of my summers between the school years working for a few different companies and quite a few different job sites. One thing I have noticed was that every time I arrived on a new job site it seemed like the technology used on the job site was upgraded or the newest available on the market. One of the most recent added technologies was drone usage in the construction industry. Drones can be used in many ways on a job site such as surveying, equipment tracking, progress reports, security surveillance, personnel safety, structure inspection, and photography. All of these individual items that I listed are important to any job regardless of the size.

Debatably, one of the most important steps to any construction project is surveying the land of which the project is going to take place, before the actual constructing begins. Companies use surveyors to start almost every job especially large-scale projects. Drone operators fly the drone over an area of land while the drone itself takes hundreds of pictures as it moves (Surveying). These pictures are then added into some sort of computer software that will stitch and layer the images taken by the drone creating an accurate 3D representation of the given area (Survey). Those images and 3D models can then be used to set plot boundaries and suitability of the land before any foundations are created allowing companies to make important pre-project decisions and ensure the safety and legality of the project (Survey).

Almost every job site, especially larger projects, has one or more items of equipment. Equipment can be almost essential to every job and is used frequently throughout the progress of the job. Sizes of equipment vary from job to job depending on the size and scale of the project and what is needed for the job to be completed correctly and on time. A problem that is faced all too often, more often on large projects, is where the equipment is located or if a select piece of equipment is still on the job. With a drone, a company can fly over the project and locate the

select piece of equipment if it is still on the project (BigRantz). Another problem that frequently happens is equipment malfunctions or breaks down a far distance away. Using the drone, a mechanic can potentially assess the situation before going out to the piece of equipment (BigRantz). Having access to these features and uses of a drone can speed up the process of the project and save money for the company.

As a project progresses throughout its timeline it is important to keep track of the progress of the job as it goes along. In many of the jobs, I have been a part of, the manager of the project tries to split the large project up into smaller tasks so it was much more simple to keep track of the personnel, equipment, and progress of the project. On a larger project, either vertically or horizontally, a drone can be used to easily keep track of the project daily. Monitoring progress not only helps detect when to project is falling behind but can also help to prevent any sort of delays in the future (Monitoring). Project managers can collect data on the progression of the project daily and provide solutions more rapidly and save large amounts of time and money (Monitoring).

As stated before, most projects have multiple pieces of equipment on-site to assist in completing everyday jobs and speed up the completion of the project. The equipment being used can cost companies thousands of dollars to either buy or rent for the duration of the project. A large problem with equipment on any job site but especially jobs in largely populated areas is theft. According to an official study, over 300 million dollars worth of equipment is stolen every year off numerous job sites around the country and less than 25 percent of that equipment is recovered after the fact (BigRantz). Drones can be used on job sites to prevent theft and other problems from happening from any job site. The drone can be programmed with other security systems to be sent out and record any suspicious activity that happens during or after work hours

(Security). It is often argued that the individual who is attempting the act of theft could somehow knock the drone down thus losing the data it has collected but programming it to some computer technologies can save any video or other forms of evidence even if the drone is not recovered (Security). Given this information, the use of drones for security purposes can save a company a significant amount of both time and money.

As a job progresses inspections are done often to ensure the job is being constructed properly and follows the job specifications and plans. In the past, inspections were done by having an inspector come out to the job and walk through with the project manager. This way took up large amounts of time for the project and potentially cost projects a good chunk of money at times. With recent advances in technology over the past years, inspections can now be accurately completed with the use of drones. Using a drone can eliminate the use of heavy machinery, bulky and unsafe scaffolding, and ladders during an inspection (BigRentz). A drone can take high-definition pictures that show every detail of a project for the most accurate inspection (BigRentz). Drones can also use sensors to detect heat leaks, cold spots, and any electrical issues throughout the project assuring the quality of the project (BigRentz).

Almost every company in the construction industry will tell their employees and any business partner is job site safety is the main concern on any project no matter the size. The company wants all workers to return home safely and all equipment and materials to remain in one piece. Some projects are rather dangerous and the use of drones can prevent any unwanted or unsafe activities from ever happening. A drone can be used every day to check site conditions and provide information on what areas of the job should be avoided (Safety). This will not only save time and money but prevent equipment from getting stuck and have the risk of using other equipment to remove it which can be a very dangerous venture. A company can also use drones

to actively monitor the job site while it is being worked on and identify any dangerous situations a worker could be getting into (Security). This again could save time and money but also keep the workers out of harm's way and ensure everyone returns home safe every day.

In conclusion, the use of drones is the future for the construction industry. They can be used for almost all aspects of a project and the accuracy of a drone is the same if not better than human use. Surveying a project before it begins is now faster and more accurate than it was when drones were not being used. Keeping track of equipment being used on the job site is more accurate and better observed. Monitoring the progress of the project as it progresses is much easier and less time-consuming when using a drone. Jobsites are more secure and prevent thefts or recovering any stolen items from a project. Inspections are completed more efficiently and conveniently with the technology and ability the drones offer. And last but possibly, more importantly, the workers on the job site are safe and able to avoid dangerous areas on a job. The use of drones in construction is creating a safer, more reliable, and much more efficient job site around the nation and can only improve over time.

## Works Cited

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