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A BIRD'S-EYE VIEW: INSURING DRONES IN THE CONSTRUCTION INDUSTRY

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ON YOUR TEAM.

The construction industry is constantly seeking ways to deliver high-quality product on time and under budget while remaining competitive in the market. Technology is one way to contribute to that goal. Among the technological advances available in the construction industry is the use of unmanned aircraft systems (UAS) or drones.

Drones have many applications. Commercial drones have been used for agricultural applications, disaster response/relief, movie production, aerial news coverage, wildlife monitoring, border surveillance and many other uses. The use of drones in the construction industry has increased significantly in the past few years. Drones can revolutionize the lifecycle of a project.

This article discusses the following: (1) what drones are; (2) the benefits of incorporating drone technology; (3) risks associated with drone technology; (4) the legal landscape of drones; and (5) insurance.

WHAT ARE DRONES?

Drones are unmanned aircraft systems (UAS), also referred to as unmanned aerial vehicles (UAV). Drones are typically very small and lightweight, and although many drones weigh only a few pounds, they are still classified as aircraft. Drones are technically considered 'unmanned," but they do have operators who control the drone from the ground.

The cost of commercial drones may range from a few thousand dollars to more than $30,000. There are additional costs for the 'payload' or technology equipment installed on the drone (such as cameras, software, GPS and sensors) and for the corresponding ground technology equipment and software for the operator.

Commercial drones are either fixed-wing or have rotating blades. Fixed-wing drones may only be able to fly forward. Conversely, drones with rotating blades are easier to control and their design allows them to hover and be more useful for closer aerial views. The flight time of drones ranges from 15 to 30 minutes on average, depending on the design of the drone, battery power, weather conditions and range of flight.

A non-racing drone can reach speeds of between 30 and 60 mph. Higher speeds are possible, depending on the design and power of the drone. Racing drones may have speeds of more than 125 mph. In 2017, the Drone Racing League claimed a spot in the Guinness World Records with a battery-powered quadcopter that reached a top speed of 163.5 mph.[1] Military drones may reach speeds of 300 mph.

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BENEFITS OF INCORPORATING DRONE TECHNOLOGY IN CONSTRUCTION

Aerial intelligence can provide significant benefits to the construction industry. The following is a general discussion of the benefits of implementing drone technology for construction projects, but the list is far from exhaustive, and the benefits will differ depending on the project and the technology equipment used.

1. **Frequent progress reports on a project.** Drone analysis can be performed daily for up-to-date information on a project.
2. **Pre-project mapping of the terrain, vegetation and water.** The data collected from this process can be compared to mapping data compiled after the site is cleared. Project engineers can compare pre-project mapping to the final grade elevation to determine if adjustments are needed to balance the site.
3. **Inspections.** Frequent inspections of the exterior construction can reduce mistakes. Additionally, drones can make a project safer by keeping inspectors away from dangerous or difficult-to-reach areas. For example, drones can perform roof inspections quickly, efficiently and accurately.
4. **Accident and casualty investigations.** Drones can be very useful for performing accident and casualty investigations at a construction site. For example, drones may be used to assess wind damage after a storm.
5. **Monitoring trade contractors.** Drone technology can provide updates concerning on-going work at a site, allowing the general contractor to monitor the progress and safety of trade contractors.
6. **Foundation and utilities.** A site can be monitored closely to view the layout and accuracy of the work. For example, drones may be used to detect misaligned heating pipework or leaks and cracks.
7. **Sensors.** Drones using sensors can be particularly useful. For example, thermal sensors can detect improper sealing of roofs and windows.
8. **Inventory measurement.** Drones can measure quarry and stockpile inventory. For example, materials and aggregate in asphalt can be measured accurately and frequently. For more details about how drones can make asphalt companies more profitable, check out this article.

Once drone technology is implemented, benefits can include increased efficiency, cost savings, and improved project management.

RISKS ASSOCIATED WITH DRONE TECHNOLOGY

Risks associated with drone technology require the same risk-management analysis performed for any other risk the contractor has. First and foremost, risk management requires the identification of risk. Once risk is identified, the contractor can determine the best way to manage that risk. The following discussion identifies some of the key risks associated with drone technology.

1. **Physical damage to the drone.** Damage or destruction of the drone is considered hull damage. Damage to the drone hull and its payload (e.g. camera, software) can occur in expected ways, such as a collision with another object, high winds or crashing during a landing. However, damage can also occur in unusual ways, such as being attacked by a hawk or shot out of the sky by a bystander.

2. **Liability caused by the drone.** Although drones are small, they can create serious liability situations. A drone that crashes into a crowd of people can cause injuries, especially if the drone is a rotor-wing. Drones can travel at significant speeds, and the blades on a rotor-wing drone circulate at a speed of more than 100 mph.

   In July 2014, a drone narrowly missed colliding with an Airbus A320 that was taking off from London's Heathrow airport.[2] Similar to bird strikes, drone collisions can be catastrophic for airplanes.

   Drones can also be used for promotional events. In 2014, a popular restaurant operated two small drones inside one of its locations in Brooklyn. The drones would fly over customers with mistletoe, encouraging customers to kiss. The operator lost control of one of the drones, and the small rotor-wing drone struck a patron in the face, clipping off the end of her nose and cutting her chin.[3]

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3. **Hired Operators.** A contractor may decide to outsource his or her need for drone technology instead of purchasing and operating the drone in-house. The contract between the parties will be critical to managing the risk of this scenario. Therefore, contractual risk and operator's errors & omissions risk are important to understand and manage.
4. **Privacy.** When a drone is flying over a project site, it is still possible to encounter potential privacy concerns. For example, if a condominium high rise is being constructed adjacent to an existing condominium high rise, the residents of the existing condominium will have legitimate concerns about their privacy if there is a drone in use.
5. **Anti-Drone Technology.** Sensitive facilities, such as airports and nuclear reactors, may use drone defense technology to identify the drone and jam the drone's GPS and communication. Likewise, if an owner is building a sensitive facility, employing anti-drone technology for potential incoming unknown drones should be considered.
6. **Data.** Like any other technology, drones are vulnerable to data theft, even while the drone is in flight. The data can become compromised or stolen which can give the hacker (which may be a competitor) access to valuable proprietary information.

   The type of data that must be protected includes:

   - Data associated with the drone's flight path and launch
   - Data collected, as well as subsequent information produced from this data
   - Management data, such as the owner and operator of the drone and maintenance records

   More sophisticated commercial drones may have black boxes.

   Drone operators favor tablet and smartphone devices to operate the drones, which are highly susceptible to hacking. For example, a hacker may utilize a Snoopy Drone to steal information from smart phones.[4]

   Cybersecurity measures used by a company to protect their in-house systems and data should be used for drone technology, as well.

   For more information on drone data security, check out this article from Inside Unmanned Systems.

LEGAL LANDSCAPE OF DRONES

In 2012, Congress passed the FAA Modernization and Reform Act (FMRA), which required the Federal Aviation Administration (FAA) to integrate drones into the National Airspace System (NAS). In 2015, 20 states enacted laws on drone use, and dozens of states considered doing so. In 2016, the FAA finalized operating rules for small drones under Part 107.

Part 107 applies to drones weighing less than 55 pounds that are conducting non-hobbyist operations. Key elements of Part 107 include:

1. Visual-line-of-sight (VLOS) is required; in other words, the remote pilot must be able to watch the drone. Beyond-visual-line-of-sight (BLVOS) waivers can be applied for, but the FAA does not routinely grant them.
2. Operations are restricted to daylight-only or civil twilight (30 minutes before official sunrise and 30 minutes after official sunset) with appropriate anti-collision lighting.
3. Groundspeed cannot exceed 100 mph.
4. Drones may reach a maximum altitude of 400 feet above ground level, or if higher than 400 feet, remain within 400 feet of a structure. Pilots or operators planning to fly in controlled airspace under 400 feet must receive an airspace authorization from the FAA. LAANC is the Low Altitude Authorization and Notification Capability. LAANC is a collaboration between FAA and private industry to streamline the process of flying in controlled airspace. LAANC is available in hundreds of air traffic facilities.
5. Drones must maintain minimum weather visibility of three miles from the control station.

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6. Drones may not be operated from a moving aircraft or vehicle.
7. Drones must undergo pre-flight inspections by the remote pilot in command.

Various waivers can be applied for. In addition to these guidelines and others, the pilot must receive certification, which includes a minimum age requirement, vetting by the TSA and passing a test on aeronautical knowledge.

It is possible that a company who willingly engages the services of a drone operator knowing that he or she does not hold a Part 107 Remote Pilot Certificate could be subject to federal legal action.

Drones must also be registered. The cost is approximately $5.00, and the registration may be valid for up to three years. Once the drone is registered, the drone must be 'marked' with the registration number, per FAA guidelines.

If a contractor or owner of a project anticipates utilizing drones in the construction of a project, regardless of whether the drone is operated in-house or outsourced to a third party, compliance with state and federal law is critical. It's important to remember that drones are considered aircraft.

INSURANCE COVERAGES NEEDED FOR DRONES

Insurance companies that insure manned aircrafts likely will insure hull and liability risk for unmanned aircrafts. The specific application for this coverage could be several pages long and will inquire about the weight of the drone, weight of the payload, non-owned unmanned aircraft exposures, detailed pilot/operator information (including drug and alcohol use), flight information, and claim history.

Insurers who write specific coverage designed for drones will have coverage tailored for the exposure. For example, an insurer specializing in drone insurance likely will not have an exclusion for loss arising from electronic malfunctions and failure of electronic components, accessories and power equipment. The insurer should be able to offer coverage for hi-jacking or any unlawful seizure or wrongful exercise of control by means of spoofing or hacking.

Standard property and liability insurance companies may attempt to insure drones on policies not designed for this exposure. Underwriters will have limitations as to the type of drone that can be insured this way. Endorsing a standard property and liability insurance policy may be 'easier' and less expensive than insuring the drone on a specific drone policy. However, easier and cheaper may not be better. Drone aircraft policies are designed for the exposure. Numerous areas of standard property and liability policies would need to be modified, such as the definition of covered property to include drones/aircraft, liability operations and exclusions.

Cyber insurance should be strongly considered. An insurer may need to specifically endorse an existing cyber policy to insure the exposures associated with drone technology, such as data, media, hacking/viruses and third-party liability.

If the contractor outsources drone operations, the contractor should request that the operator have sufficient coverage to insure his or her obligations. Additionally, the contractor should explore whether his or her own insurance program will provide coverage such as contractual liability coverage for this exposure. For example, if aircraft is excluded on the contractor's liability policy, then it is possible that contractual liability associated with aircraft would be excluded as well.

CONCLUSION

When contractors embrace technology, such as drones, in a responsible manner, the benefits can outweigh the risk of using the technology. Drone technology in the construction industry can revolutionize projects and give the contractor a competitive edge. Conversely, if the risks and legal requirements are not understood and managed, the use of drones in construction can have a significant negative impact on a contractor's reputation and business.

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SOURCES

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