Getting Ready to Take Off: New Rules To Consider When Using Drones On Construction Sites

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Drones have the potential to be valuable, cost-effective tools on a construction site. They can be employed to:

- take aerial and infrared images as well as topographical surveys;
- collect data to generate as-built models on a frequent basis;
- improve worker safety by identifying risks and conducting inspections in areas that may pose hazards if accessed by workers;
- assist in site surveillance and security; and
- provide real-time updates through live video feed and photographs to project stakeholders.

There are also exciting advancements for drone use in the construction industry that are developing, such as the use of a 3D bitumen printer attached to a drone for road repair, autonomous digging and sensor placement drones, and advances in battery technology that may someday allow for large payload transfers across distances.

Legally referred to as unmanned air vehicles (UAV), operators in Canada using drones that weigh more than 25 kg for commercial purposes (including on a construction site) must go through a rigorous process with Transport Canada to obtain a Special Flight Operating Certificate (SFOC). This requirement will change as of June 1, 2019 when new regulations from Transport Canada take effect as additional licensing and registration requirements, amongst other things, will be introduced. In reviewing the new regulations, we have highlighted some questions those in the construction industry should ask themselves so that they can better manage the legal risk factors before engaging in drone operations:

1. Can I fly my own drone under the new regulations?

Yes, as long as you are in compliance with the Transport Canada regulations, which include licensing and registration requirements. As well, the drone must be flown by a pilot who has passed an exam and, depending on the type of operations being conducted, complete an assessment with a flight reviewer.

2. Do I need to register my drone?

Yes. One of the most significant changes under the new regulations is that all drones must be registered. The registration number must also be clearly visible on the drone and the certificate of registration should be easily accessible by the pilot while flying the drone. Individuals, corporations, as well as government agencies are qualified to be registered owners of drones. If you already own a drone, you should verify whether it has been properly registered.

3. How much does my drone weigh?

A small drone purchased to survey elevation, as opposed to a larger one used to carry light loads, could trigger different obligations depending if the operations are considered “Basic” or “Advanced” (concepts which are explored later in this article). If your drone weighs between 250 grams and 25 kilograms, it will be considered to be a small remotely piloted aircraft (RPAS). Depending on how the RPAS is used, it may be categorized as a tool for basic or advanced operations with the latter triggering more onerous Transport Canada licensing requirements.

In contrast, if you are using a micro drones (less than 250 grams) or a drone weighing more than 25 kilograms, your operation will be subject to different rules. For example, for your over 25 kg drone, you will still need to obtain a SFOC from Transport Canada.

4. Where will my drone be flown?

If you are operating a drone weighing between 250 grams and 25 kilograms, you should determine if the operations will be considered “basic” or “advanced” as defined by Transport Canada.

To qualify for basic operations, the drone has to be:

1. Flown in uncontrolled airspace;
2. Flown more than 30 metres (100 feet) horizontally from bystanders (in other words,those not involved in the drone’s operation); and
3. Never flown over bystanders.

If the drone’s operations fall outside of any of the above conditions, the pilot’s operations will be considered advanced, which in turn triggers additional requirements that must be complied with. Given the bystander rule and the nature of construction operations, it is quite possible that Transport Canada will consider drone use on construction sites to be advanced.

If you are planning on using your drone for aerial surveys, be aware that Transport Canada has placed maximum altitude restrictions. If your drone will be flown more than 400 feet above the ground or more than 100 feet above any building or structure if it is less than 200 feet horizontally away from it, you must obtain a SFOC from Transport Canada. Special rules also apply if you will be operating your drones near airports, aerodromes, or sites operated under the authority of the Minister of National Defence. Given that construction projects may often be near or on such areas, the new

regulations should be examined carefully. Transport Canada has many resources available to assist pilots in determining areas that may limit the use of drones, such as the Canada Flight Supplement and an interactive map from the National Research Council.

For large project construction sites, it is important to be aware of an aviation concept referred to as “visual line-of sight.” It means that visual contact with the drone, without the use of any aids, can be maintained at all times while flying the drone. This allows the operator to maintain control of the drone, know its location and scan surrounding airspace to detect and avoid other aircrafts and objects. Though the new regulations permit the use of “visual observers” to assist in drone operations, care should be taken to understand these regulations closely. If visual line-of sight cannot be maintained, a SFOC will be required.

5. Who will be flying my drone?

Different licensing requirements for pilots are required depending on whether a drone is used for basic or advanced operations. Beyond the pilot, however, crew members are also subject to these new regulations, which include a prohibition on acting as a crew member within 12 hours of consuming alcohol. Crew members acting as “visual observers” to assist in operating a drone within a visual line-of-sight also have more responsibilities than regular crew members. For example, visual observers must communicate information to the pilot in a timely manner of any hazards and can generally only perform these duties for one drone at time.

Given that drone use may involve individuals from multiple stakeholders, from architects to subtrades, careful attention should be paid to ensure that these new regulations, ranging from training to responsibilities, are complied with.

6. What are my Operating Procedures and how are they Recorded?

Transport Canada has a number of provisions on safety and operations. As an operator, you must have established procedures for certain events including pre-flight, landing, and equipment failure. The new drone rules also specify pre-operations site survey requirements, acceptable weather conditions for operations, and record-keeping requirements. The government reserves the right to examine these records within a certain period. As in the case of any construction project, documentation is key.

You may still have to apply to Transport Canada for a SFOC if your procedures involve using a drone to transport certain types of loads or equipment on a construction site.

If a pilot is flying your drone while viewing a streaming video image (akin to actually being on board the drone), the new regulations also require visual observers to perform specific detect and avoid functions.

7. What is the Make and Model of Your Drone?

Knowing the make and model of your drone will allow you to check it against the Remotely Piloted Aircraft System (RPAS) Safety Assurance rating system. Drones have to meet certain safety requirements to be approved by Transport Canada for advanced operations. However, a drone model that might be approved for some advanced operations may not be approved for others. Transport Canada has indicated that it will publish an Advisory Circular before the new regulations come into force on June 1, 2019. Accordingly, the limits on the use of a particular model should be taken into consideration before purchasing or utilizing a drone.

8. What Penalties will I incur for Non-Compliance?

It is important for both individuals and organizations to understand the new regulations as there are penalties for non-compliance. Depending on the contravention, the maximum fine is $5,000 for individuals and $25,000 for corporations, or in some cases, imprisonment.

9. Privacy, Cybersecurity and Insurance

In addition to the incoming regulations, there may be other factors to consider in using drones. Depending on the nature of your operations, laws surrounding privacy and trespassing may come into play. If the drone is being used to collect data, agreements and procedures may be required between project stakeholders regarding the use, storage, and protection of said data. You should consider whether personal information of bystanders, including workers on site who are not involved in the drone's operations and members of the public, might be captured through drone operations and how privacy laws might apply. You may also need to review agreements with employees, unions, and other stakeholders to see if they address drone use. Given the increased connectivity on project sites, cybersecurity is an important aspect to keep in mind.

Furthermore, as accidents can happen on a construction site, some thought should be given as to whether you or the drone operator have the appropriate insurance coverage for both property and third-party liability.

Takeaway

The potential uses for drones on construction sites are an exciting area of development in the years to come. That said, individuals and organizations should take the time to learn the new regulations and consider their operations so that appropriate risk management policies and procedures are in place before taking off with their drone.

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