The Intersection of Drones and Insurance

March 30, 2017
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A discussion of the use of drones by insurance companies and the insuring of drones in both commercial and personal settings.
Outline

1) Regulatory/legal matters affecting drone use.

2) Use of Drones by Insurance Companies.

3) Insurance products regarding the commercial use of drones.

4) Insurance products regarding personal use of drones.
Arc de Triomphe in Paris.

In the 2014-2015 holiday season there were nearly one million consumer drones sold in the U.S.

In 2016 FAA estimates 600k commercial drones in use. 2.7 million in 2020.
Drone statistics

$5.6$ billion

- Drone industry in 2020.

- Estimated Annual growth rate of $32\%$ between 2015 and 2020 into a $5.6$ billion industry.
Out of the four major companies that produce drones, DJI is the biggest. Chinese Co. Founded in 2006.

In May of 2016, it was valued at $10 billion -- nearly six times the market cap of GoPro at the time, which is now entering the drone market.

Manhattan, New York.
Regulatory/legal matters affecting drone use

1) 1958 Federal Aviation Administration or FAA established. Predecessor was Civil Aeronautics Administration (CAA).

2) Through the FAA the Federal Government controls all U.S. airspace. There are several different types of airspace depending on altitude and location to important/restricted areas (airports, stadiums, etc.).

3) 1981 – FAA issued Advisory Circular 91-57, Model Aircraft Operating Standards. Model RC airplanes had been around since early 1900s.
ADVISORY CIRCULAR

DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Washington, D.C.

Subject: MODEL AIRCRAFT OPERATING STANDARDS

1. PURPOSE. This advisory circular outlines, and encourages voluntary compliance with, safety standards for model aircraft operators.

2. BACKGROUND. Modelers, generally, are concerned about safety and do exercise good judgment when flying model aircraft. However, model aircraft can at times pose a hazard to full-scale aircraft in flight and to persons and property on the surface. Compliance with the following standards will help reduce the potential for that hazard and create a good neighbor environment with affected communities and airspace users.

3. OPERATING STANDARDS:
   a. Select an operating site that is of sufficient distance from populated areas. The selected site should be away from noise sensitive areas such as parks, schools, hospitals, churches, etc.
   b. Do not operate model aircraft in the presence of spectators until the aircraft is successfully flight tested and proven airworthy.
   c. Do not fly model aircraft higher than 400 feet above the surface.
   d. When flying aircraft within 3 miles of an airport, notify the airport operator, or when an air traffic facility is located at the airport, notify the control tower, or flight service station.
   e. Give right of way to, and avoid flying in the proximity of, full-scale aircraft. Use observers to help if possible.
   f. Do not hesitate to ask for assistance from any airport traffic control tower or flight service station concerning compliance with these standards.

Initiated by: AAT-220

R. D. VAN WINK "Director, Air Traffic Service"
Regulatory/legal matters affecting drone use

4) In the Mid 2000s FAA clarified that commercial use of drones was illegal/prohibited. Only exception was COAs from the FAA, and only granted to businesses with a public entity (public university or government agency) as a sponsor. 2005 to 2013 timeframe.

5) But drone use (particularly commercial) was limited.

6) There still was a carve out for recreational/personal use.
Regulatory/legal matters affecting drone use

7) Desire to use drones commercially vastly increased.

8) Ease of regulation began with granting exemptions – section 333. Started in 2013. No longer needed public entity sponsor but still hard to obtain.

9) Hundred of pages in application and $10,000 plus in legal fees. Takes six months or longer.
Regulatory/legal matters affecting drone use

10) Initially commercial pilot’s license required – gradually relaxed.

11) 500 feet from any vehicle, vessel or structure. Needed permission. 500 feet from any uncovered person regardless. Many other rules.

12) These were extreme constraints. Very prohibitive.

13) January 2016 some companies began pushing more relaxed drone use for industry. In August 2016, new rules approved.
Regulatory/legal matters affecting drone use

14) Current FAA rules (Part 107):
   a) Must weigh less than 55 lbs. (25 kg).
   b) Line of sight.
   c) Not over any person not involved in use of drone.
   d) Daylight only.
   e) Maximum groundspeed of 100 mph (87 knots).
   f) Maximum altitude of 400 feet.
   g) ...

Federal government has jurisdiction but states attempting to assert jurisdiction.
Regulatory/legal matters affecting drone use

13) Registration required. In December of 2015 the FAA announced that all UAVs weighing more than 250 grams flown for any purpose must be registered with the FAA.

14) State and local rules.

13) Personal privacy and trespass issues.
Regulatory/legal matters affecting drone use

Resources:

a) www.faa.gov/uas
b) https://www.faa.gov/uas/media/Part_107_Summary.pdf
e) https://www.faa.gov/about/history/timeline/
Regulatory/legal matters affecting drone use

- Take away - there is a lot of regulation of commercial drone use. It’s new. It’s complicated.
- Regulation frequently changing. Generally becoming less regulated.
- Potential for conflict/inconsistency between Federal Law (FAA) and State and local law.
- Lots of illegal/unauthorized commercial drone use. Wild WILD West – but FAA is beginning to crack down.
Volcano Plosky in Kamchatka, Russia
Examples of problems/issues

1) $55,000 fine for taking photos for friend.  

2) Drone photography company fined $200,000 by FAA.  Drone-photography company fined $200,000 by FAA – initial fine sought was $1.9 millillion -  
3) Cleveland Indians starting pitcher Trevor Bauer was pitching Game 3 of his team’s playoff series against the Toronto Blue Jays in October of 2016 when a serious cut on his right hand pinky finger caused him to exit game.

[Link to petapixel.com]

[Link to slate.com]
Examples of problems/issues

4) 12 drone disasters that show why the FAA hates drones.
   a) Drone crashes near the White House
   b) Drone "attack" on German Chancellor Angela Merkel
   c) Drone cuts off tip of photographer's nose
   d) Drone injures Australian triathlete
   e) Drone injures bystanders in Virginia crowd
   f) Drone flies too close to a news helicopter
   g) Drone nearly crashes into Airbus A320
   h) Drone caught carrying drugs near the border
   i) Drone flies over Bank of America Stadium
   j) Drone flies over Comerica Park
   k) Drone crashes into Grand Prismatic Spring
   l) Drone attacked by hawk

http://www.techrepublic.com/article/12-drone-disasters-that-show-why-the-faa-hates-drones/

Lots of potential for problems.
Iguasú Falls Argentina
Use of Drones by Insurance Companies

1) Underwriting (e.g. - inspection of hard to reach areas, roofs, inside of boiler, agriculture)

2) Claims (e.g. site investigations, flooded areas, towers, high pitched roofs).

3) Cost savings at a minimum in the millions.
3) As of April of 2015 four insurance companies had received approval to use drones for claims and risk management.
   a) AIG
   b) Erie Insurance Group
   c) State Farm
   d) USAA

http://riskandinsurance.com/insurers-flying-high/
Drone Adoption Rate by Fortune 500 Property Insurers

https://www.cbinsights.com/blog/drone-property-insurance/
Efficiency Gains Using Drones

- Residential: 1 hour manually, 0.5 hours with drone
- Commercial: 3 hours manually, 1 hour with drone
- > 20 Stories: 6 hours manually, 2 hours with drone

https://www.cbinsights.com/blog/drone-property-insurance/
Use of Drones by Insurance Companies

Travelers has a Claims University to train its claims professionals. At the claims university they show how drones can be used to adjust claims.

Property Inspection: UAS (Unmanned Aircraft System)
Use of Drones by Insurance Companies

1) Drone footage of roof inspection – [https://www.youtube.com/watch?v=PsEi5a5yJJ8](https://www.youtube.com/watch?v=PsEi5a5yJJ8)

2) Wind Turbine Inspection - [https://www.youtube.com/watch?v=5MDUs5vBI_k](https://www.youtube.com/watch?v=5MDUs5vBI_k)

3) Drone Solar Panel Inspection with FLIR - [https://www.youtube.com/watch?v=zfRaq2d0kZg](https://www.youtube.com/watch?v=zfRaq2d0kZg)

4) MnDOT tests drones for bridge inspections - [https://www.youtube.com/watch?v=a4QcwQZPwcU](https://www.youtube.com/watch?v=a4QcwQZPwcU)

Use of Drones by Insurance Companies

Recent News Articles

Drones are proving to be a valuable tool for adjusters. Property Casualty 360, March 22, 2016. http://www.propertycasualty360.com/2016/03/22/drones-are-proving-to-be-a-valuable-tool-for-adjus


Angel Falls in Venezuela
Insurance products regarding the commercial use of drones

1) Types of commercial uses: (Construction companies, Utilities, Real estate agents, Marketing firms, Motion picture industry, etc.)

2) Separate drone policies v. add on coverage to CGL policy.

3) Commercial use probably better understanding and managing the risk of drone use.

4) Coverage for commercial use drone use under typical general liability policies. Probably not. Policy language will determine.
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Insurance products regarding the commercial use of drones

5) AIG has an online application for drone insurance.

6) Insurance options that cover single drone flights and blanket policies to cover periods of time, like an auto insurance policy.

7) Currently, reports of insurance providers insuring commercial drone companies for up to $500 million in liability and up to $10 million in hull damage.
Insurance products regarding the commercial use of drones

8) Potential issue - Does commercial coverage match regulations?

9) Specific Drone insurance policies are usually broken up into two parts:
   a) Liability (damage and claims to third parties)
   b) Hull damage (damage related to your UAV).
Insurance products regarding the commercial use of drones

11) Rates currently range from about $900 per drone per year on the low end to $10,000 per drone per year on the high end.

12) A new company, Verifly, provides on-demand policies for personal and commercial users for about $10 an hour, currently approved in 45 states. The user simply geo-locates through an app. The policy covers a quarter-mile radius for up to $1 million of third-party liability and unintentional invasion of privacy.

Insurance products regarding the commercial use of drones

13) New 2017 average “ballpark” pricing from one carrier – liability only - does not offer physical damage coverage at this time.

$1,000,000 UAV Liability Limits – $750/yr.
$2,000,000 UAV Liability Limits – $1,050/yr.
$3,000,000 UAV Liability Limits – $1,450/yr.
$5,000,000 UAV Liability Limits – $2,050/yr.

http://uavcoach.com/drone-insurance-guide/
Insurance products regarding the commercial use of drones

14) List of Drone Insurance Brokers (may not be complete)

Aerial Pak (Hill & Usher)  Allianz
Avalon Risk Management  Aviation Insurance (Pat Costello)
Aviation Insurance Resources  AVION Insurance
Berkley Aviation  BWI Aviation Insurance
Driessen Assuadeuren (Drone-Insurance.com)  Full Frame Insurance
Harpenau Insurance Agency  Houston Casualty
Kinney Pike Insurance  MeadowBrook
SkySmith  Skyvuze
Starr Aviation  Sutton James Incorporated
SwissRE  Transport Risk Management
UAV Protect  Unmanned Risk Management
USAIG  Verifly
XL Catlin

http://uavcoach.com/drone-insurance-guide/
Insurance products regarding the commercial use of drones

15) List of Drone Insurance Underwriters (may not be complete)

AIG
Global Aerospace
Lloyds

http://uavcoach.com/drone-insurance-guide/
Taj Mahal in India
Insurance products regarding personal use of drones

1) Types of personal use of drones.

2) Coverage already in place through homeowner’s/renter’s policy vs. separate drone policies v. add on coverage.

3) Personal use probably much less understanding and managing the risk of drone use.

4) Current status of personal insurance for drones is somewhat unclear.
Insurance products regarding personal use of drones

5) A few years ago generally most homeowner’s policies will cover use of drones – at least for personal use.

6) This is changing. More and more exclusions being added for use of drones.

7) Now most(?) homeowner’s policies will not cover personal or commercial use of drones??? Policy language will determine.
Insurance products regarding personal use of drones

8) If coverage is in place does this cover everything?

9) Invasion of privacy – intentional or unintentional.

10) Some companies will only issue policies for commercial drone use.

11) Anticipated more and more insurance companies will offer drone coverage for personal use.
Dubai, UAE
Questions?
Neuschwanstein Castle in Germany.
Thank you!

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Unmanned aircraft systems (UAS), commonly called unmanned aerial vehicles or drones, have a host of applications including law enforcement, land surveillance, tracking, search and rescue operations, disaster response, border patrol and responds. State legislatures across the country are debating if and how UAS technology can be used, taking into account the benefits of their use, privacy concerns and their economic impact. So far, 35 states have enacted laws addressing UAS issues and additional four states have adopted resolutions. Common issues addressed in the legislation include defining when an UAS, UAV or drone is, how they can be used by law enforcement or other state agencies, how they can be used in general public and regulations for their use in hunting game.

NCSL has a report, "Taking Off: State Unmanned Aircraft Systems Policies," exploring state and federal policies related to this report is now available.

**State UAS Legislation**

Beginning in the 2013 legislative session, state lawmakers have frequently considered many pieces of legislation addressing UAS. To learn more about state UAS laws, bills and resolutions, please follow the link covering from a specific session below.

**2017 Legislation**

At least 38 states are considering legislation related to UAS in the 2017 legislative session. Three states—Virginia and Wyoming—passed five pieces of legislation.

South Dakota SB 22 exempts UAS that weigh less than 55 pounds from aircraft registration requirements. A "drone" as a powered aerial vehicle without a human operator that can fly autonomously or be piloted remotely requires that UAS operation comply with all applicable FAA requirements. It also prohibits operation of drone equipment on the grounds of correctional and military facilities, making such operation a class 1 misdemeanor. If a drone is used to transport contraband or drugs to a correctional facility, the operator is guilty of a class 1 misdemeanor. The law also modifies unlawful surveillance to include intentional use of a drone to observe, photograph or record someone in a dwelling without a reasonable expectation of privacy and landing a drone on the property of an individual without that person's consent. Unlawful surveillance is a class 1 misdemeanor. The unlawful surveillance provisions do not apply to operating a drone for commercial or agricultural purposes or to emergency management workers using aerial duties.

Virginia HB 2350 makes it a Class 1 misdemeanor to use UAS to trespass upon the property of another for the purpose of secretly or furtively peeping, spying, or attempting to peep or spy into a dwelling or occupied building or on property. SB 873 specifies that the fire chief or other officer in charge of a fire department has authority to address an emergency incident including the immediate airspace. Individuals who don’t obey the orders of the officer are guilty of a class 4 misdemeanor.
Wyoming SF 170 defines the term operator and defines “unmanned aircraft” to exclude small unmanned aircraft weighing under 55 pounds. The law requires the Wyoming Aeronautics Commission to develop rules regulating unmanned aircraft can take off and land. The commission is also permitted to develop reasonable rules regulating the operation of unmanned aircraft through coordination with the unmanned aircraft industry and local government. The commission specifies that the commission does not have the power to regulate unmanned aircraft operation in navigation. The commission makes it unlawful to land an unmanned aircraft on the property of another person, but operators can land an unmanned aircraft over their own property.

### 2016 Legislation

At least 38 states considered legislation related to UAS in the 2016 legislative session. Eighteen states—Alaska, Arizona, California, Delaware, Illinois, Indiana, Kansas, Louisiana, Michigan, Oklahoma, Oregon, Rhode Island, Tennessee, Utah, Vermont, and Wisconsin—passed 32 pieces of legislation. Alaska adopted a resolution supporting the aviation industry. Delaware adopted a resolution expressing support for the development of many facets of UAS and the increased economic opportunities available within the FAA regulatory framework. The governors of Georgia and North Dakota issued executive orders related to UAS.

Alaska HB 256 requests the Department of Fish & Game evaluate the use of UAS for aerial survey work and findings related to safety and cost-savings compared to manned aircraft.

Arizona SB 1449 prohibits certain operation of UAS, including operation in violation of FAA regulations and interfering with first responders. The law prohibits operating near, or using UAS to take images of, a critical preempts any locality from regulating UAS.

Califorina SB 807 provides immunity for first responders who damage a UAS that was interfering with their work while he or she was providing emergency services. California AB 1680 makes it a misdemeanor to interfere with activities of first responders during an emergency.

Delaware HB 195 creates the crime of unlawful use of an UAS and prohibits operation over any event with 1500 attendees, over critical infrastructure and over an incident where first responders are actively engaged or transport. The law also specifies that only the state may enact a law or regulation, preempting the authority of local governments.

Georgia’s governor issued an executive order creating the Commission on Unmanned Aircraft Technology level rule recommendations to the governor.

Idaho SB 1213 prohibits the use of UAS for hunting, molesting or locating game animals, game birds and animals.

Illinois HB 5808 expanded the membership of the UAS Oversight Task Force and extended the deadline for the force to issue a report from July 1, 2016 to July 1, 2017.

Indiana HB 1013 allows the use of UAS to photograph or take video of a traffic crash site. HB 1246 prohibits UAS to scout game during hunting season.

Kansas SB 319 expands the definition of harassment in the Protection from Stalking Act to include certain UAS. SB 249 appropriates funds that can be used to focus on research and development efforts related to educational institutions. The law specifies a number of focuses for the research, including the use UAS for...
surveillance by the department of transportation, highway patrol and state bureau of investigation. It requir
director of UAS make recommendations regarding state laws and rules that balance privacy concerns and
“robust UAS economic development” in the state.

Louisiana SB 73 adds intentionally crossing a police cordon using a drone to the crime of obstructing an o
law enforcement or fire department personnel to disable the UAS if it endangers the public or an officer's $
prohibits using a drone to conduct surveillance of, gather evidence or collect information about, or take ph a
school, school premises, or correctional facilities. Establishes a penalty of a fine of up to $2,000 and up
jail. HB 335 authorizes the establishment of registration and licensing fees for UAS, with a limit of $100. H
use of UAS to the crimes of voyeurism, video voyeurism and peeping tom. SB 141 specifies that surveill
unmanned aircraft constitutes criminal trespass under certain circumstances.

Michigan SB 992, known as the “unmanned aircraft systems act,” prohibits localities from regulating UAS,
the regulated drone belongs to the locality. It specifically permits commercial operation in the state if the oi
authorized by the FAA to operate commercially and permits hobby operation so long as the operator comp federal law. The law prohibits using a drone in a way that interferes with emergency personnel and it also
use of a drone to harass an individual, to violate a restraining order, or to capture images in a way that inv
individual's reasonable expectation of privacy. The law also prohibits sex offenders from using a drone to f
or photograph a person that they are prohibited from contacting. Anyone who uses a drone in a prohibited
misdemeanor. The law also creates the unmanned aircraft systems task force to “develop statewide poli
recommendations on the operation, use, and regulation” of UAS in the state. It specifies the members of tl
the length of appointment and other specifics related to the task force.

North Dakota’s governor issued an executive order establishing the Northern Plains Unmanned Systems a
oversee the operation of the UAS test site in the state.

Oklahoma HB 2599 prohibits the operation of UAS within 400 feet of a critical infrastructure facility, as defi
Oregon HB 4066 modifies definitions related UAS and makes it a class A misdemeanor to operate a wea
doctrine of reckless interference with an aircraft through certain uses of UAS. The law regi
of drones by public bodies, including requiring policies and procedures for the retention of data. It also pro
of UAS near critical infrastructure, including correctional facilities. SB 5702 specifies the fees for registrac
UAS.

Rhode Island HB 7511/SB 3099 gives exclusive regulatory authority over UAS to the state of Rhode Island,
Rhode Island Airport Corporation, subject to federal law.

Tennessee SB 2106 creates the crime of using a drone to fly within 250 feet of a critical infrastructure facil
purpose of conducting surveillance or gathering information about the facility. HB 2376 clarifies that it is pe
person to use UAS on behalf of either a public or private institution of higher education, rather than just pu
stitutions.

Utah HB 126 makes it a class B misdemeanor to operate a UAS within a certain distance of a wildfire. It be
A misdemeanor if the UAS causes an aircraft fighting the wildfire to drop a payload in the wrong location c
without dropping the payload. It is a third degree felony if the UAS crashes into a manned aircraft and a se
that causes the manned aircraft to crash. HB 3003 increases the penalties for offenses related to operatin
certain distance of a wildfire and permits certain law enforcement officers to disable a drone that is flying i
area near a wildland fire.
Vermont SB 155 regulates the use of drones by law enforcement and requires law enforcement to annul use of drones by the department. It also prohibits the weaponization of drones.

Virginia HB 412 prohibits the regulation of UAS by localities. HB 29 and HB 30 appropriate funds to Virginia Tech for UAS re-development.

Wisconsin SB 338 prohibits using a drone to interfere with hunting, fishing or trapping. AB 670 prohibits the UAS over correctional facilities.

- 2015 UAS legislation overview
- 2014 UAS legislation overview
- 2013 UAS legislation overview

Federal UAS Regulation

On June 21, the Federal Aviation Administration (FAA) released the first operational rules (PDF) for routine use of small UAS. The new rule, which takes effect in late August, offers safety regulations for unmanned weighing less than 55 pounds that are conducting non-hobbyist operations.

The final rule requires drone pilots to keep an unmanned aircraft within visual line of sight and operations allowed during daylight and during twilight if the drone is equipped with “anti-collision lights.” The new regulation establishes height and speed restrictions and other operational limits, such as prohibiting flights over unpopulated areas on the ground who aren’t directly participating in the UAS operation. There is a process through which users have some of these restrictions waived, while those users currently operating under section 333 exemptions allowed commercial use to take place prior to the new rule) are still able to operate based upon the condition of the exemption. Further, the operator actually operating a drone must be at least 16 years old and have a remote pilot certificate with a small UAS rating, or be directly supervised by someone with such a certificate. To qualify as a remote pilot certificate, an individual must either pass an initial aeronautical knowledge test at an FAA-approved testing center or have an existing non-student Part 61 pilot certificate.

For more information on the rule, please review NCSL’s info alert.

On Dec. 14, 2015, the FAA unveiled an interim final rule for drone registration that would require consumer drones between .55 lbs and 55 lbs to register their crafts by Feb. 19, 2016. Drones purchased after Dec. 2 will be registered before its first outdoor flight. Everyone will be able to register online at the registration webs can register as many drones as they like, but each will be required to have the owner’s contact information registration number visible on the craft. Registrations, which are valid for three years, will have a fee of $5 owner. The FAA waived the registration fee for the first 30 days of the program to encourage early registration proposal the FAA can impose a civil penalty of up to $27,500 or criminal penalties of up to $250,000 and/or prison for noncompliance.

On Dec. 17, 2015, the FAA released a fact sheet on state and local regulation of UAS. The fact sheet includes regulations that the FAA believes are within the authority of the states, including requirements for police warrant prior to using a UAS for surveillance, specifying that UAS may not be used for voyeurism, prohibit for hunting or fishing, or to interfere with or harass an individual who is hunting or fishing, and prohibiting the use of firearms or similar weapons to UAS.

More information about the FAA's work with UAS can be found here.

The 2012 Federal Aviation Administration Modernization and Reform Act required the FAA to integrate UA airspace by 2015. To complete this task, the law also charges the FAA with establishing six test sites where standards for UAS can be researched and developed by collecting information to determine the best way to integrate UAS into the existing aviation system. These test sites are located in six states: Alaska, Nevada, New York, North Dakota, Texas and Virginia.

NCSL Resources

- Taking Off: State Unmanned Aircraft Systems Policies, June 2016
- 2016 UAS State Legislation Update, March 2017
- Drones and Critical Infrastructure, August 2016
- NCSL Blog: States Gearing Up for UAS Test Sites

State Resources

- Oregon: Department of Aviation, Report to the Legislature.
- Virginia: Department of Criminal Justice Services, Protocols for the Use of Unmanned Aircraft Systems by the Virginia State Police, June 30, 2016.

Additional Resources

- Congressional Research Service Report | "Drones in Domestic Surveillance Operations: Fourth Amendment Implications and Legislative Responses," PDF
- Airline Safety Forum, video, July 2013 | James H. Williams, manager, Unmanned Aircraft Systems I Office, Aviation Safety Organization, Federal Aviation Administration
- United States Senate Committee on the Judiciary, The Future of Drones in America: Law Enforcement Considerations, March 20, 2013, PDF
### Summary of Small Unmanned Aircraft Rule (Part 107)

**Operational Limitations**

- Unmanned aircraft must weigh less than 55 lbs. (25 kg).
- Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the remote pilot in command and the person manipulating the flight controls of the small UAS. Alternatively, the unmanned aircraft must remain within VLOS of the visual observer.
- At all times the small unmanned aircraft must remain close enough to the remote pilot in command and the person manipulating the flight controls of the small UAS for those people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.
- Small unmanned aircraft may not operate over any persons not directly participating in the operation, not under a covered structure, and not inside a covered stationary vehicle.
- Daylight-only operations, or civil twilight (30 minutes before official sunrise to 30 minutes after official sunset, local time) with appropriate anti-collision lighting.
- Must yield right of way to other aircraft.
- May use visual observer (VO) but not required.
- First-person view camera cannot satisfy “see-and-avoid” requirement but can be used as long as requirement is satisfied in other ways.
- Maximum groundspeed of 100 mph (87 knots).
- Maximum altitude of 400 feet above ground level (AGL) or, if higher than 400 feet AGL, remain within 400 feet of a structure.
- Minimum weather visibility of 3 miles from control station.
- Operations in Class B, C, D and E airspace are allowed with the required ATC permission.
- Operations in Class G airspace are allowed without ATC permission.
- No person may act as a remote pilot in command or VO for more than one unmanned aircraft operation at one time.
- No operations from a moving aircraft.
- No operations from a moving vehicle unless the operation is over a sparsely populated area.
- No careless or reckless operations.
- No carriage of hazardous materials.
• Requires preflight inspection by the remote pilot in command.
• A person may not operate a small unmanned aircraft if he or she knows or has reason to know of any physical or mental condition that would interfere with the safe operation of a small UAS.
• Foreign-registered small unmanned aircraft are allowed to operate under part 107 if they satisfy the requirements of part 375.
• External load operations are allowed if the object being carried by the unmanned aircraft is securely attached and does not adversely affect the flight characteristics or controllability of the aircraft.
• Transportation of property for compensation or hire allowed provided that-
  - The aircraft, including its attached systems, payload and cargo weigh less than 55 pounds total;
  - The flight is conducted within visual line of sight and not from a moving vehicle or aircraft; and
  - The flight occurs wholly within the bounds of a State and does not involve transport between (1) Hawaii and another place in Hawaii through airspace outside Hawaii; (2) the District of Columbia and another place in the District of Columbia; or (3) a territory or possession of the United States and another place in the same territory or possession.
• Most of the restrictions discussed above are waivable if the applicant demonstrates that his or her operation can safely be conducted under the terms of a certificate of waiver.

### Remote Pilot in Command Certification and Responsibilities

- Establishes a remote pilot in command position.
- A person operating a small UAS must either hold a remote pilot airman certificate with a small UAS rating or be under the direct supervision of a person who does hold a remote pilot certificate (remote pilot in command).
- To qualify for a remote pilot certificate, a person must:
  - Demonstrate aeronautical knowledge by either:
    - Passing an initial aeronautical knowledge test at an FAA-approved knowledge testing center; or
    - Hold a part 61 pilot certificate other than student pilot, complete a flight review within the previous 24 months, and complete a small UAS online training course provided by the FAA.
  - Be vetted by the Transportation Security Administration.
  - Be at least 16 years old.
- Part 61 pilot certificate holders may obtain a temporary remote pilot certificate immediately upon submission of their application for a permanent certificate. Other applicants will obtain a temporary remote pilot certificate upon successful completion of TSA security vetting. The FAA anticipates that it will be able to issue a temporary remote pilot certificate within 10 business days after receiving a completed remote pilot certificate application.
- Until international standards are developed, foreign-
certificated UAS pilots will be required to obtain an FAA-issued remote pilot certificate with a small UAS rating.

A remote pilot in command must:
- Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the rule.
- Report to the FAA within 10 days of any operation that results in at least serious injury, loss of consciousness, or property damage of at least $500.
- Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is in a condition for safe operation.
- Ensure that the small unmanned aircraft complies with the existing registration requirements specified in § 91.203(a)(2).

A remote pilot in command may deviate from the requirements of this rule in response to an in-flight emergency.

<table>
<thead>
<tr>
<th>Aircraft Requirements</th>
<th>FAA airworthiness certification is not required. However, the remote pilot in command must conduct a preflight check of the small UAS to ensure that it is in a condition for safe operation.</th>
</tr>
</thead>
</table>
| Model Aircraft         | Part 107 does not apply to model aircraft that satisfy all of the criteria specified in section 336 of Public Law 112-95.  
- The rule codifies the FAA’s enforcement authority in part 101 by prohibiting model aircraft operators from endangering the safety of the NAS. |