

Cornell Tech UAS Guidelines Safety & Security

Purpose: Safety & Security has published these guidelines as a resource for members of the Cornell Tech community to help them safely, responsibly, and legally operate drones / unmanned aerial systems (UAS) in furtherance of their objectives and the institution's mission.

Commercial Operations

Safety & Security must approve all drone / UAS operations on the Cornell Tech campus. Commercial operators must provide evidence of the following at least (5) business days prior to the proposed UAS operation:

- Valid UAS Pilot certification / license
- FAA Registration number
- Evidence of Commercial General Liability Insurance
- Waivers and/or Airspace Authorization documents (if operating in controlled airspace)
- UAS Operation Request Form

Obtaining UAS Pilot Certification / license:

1. Part 61 pilot certificate holders with a current flight review must complete the FAA's training course. There are two options for completing the training:
 1. ALC-451: Part 107 Small Unmanned Aircraft Systems (small UAS). <https://www.faasafety.gov/>, or
 2. The initial FAA Unmanned Aircraft General (UAG) Knowledge Test at a Knowledge Testing Center (KTC)
2. All other applicants must complete the ALC-451: Part 107 Small Unmanned Aircraft Systems (small UAS) training course (<https://www.faasafety.gov/>) and pass the initial FAA Unmanned Aircraft General (UAG) Knowledge Test at a Knowledge Testing Center (KTC). Knowledge Testing Centers: [knowledge-testing-centers](#)
3. After satisfying the applicable initial training or testing requirements, apply for a part 107 remote pilot certificate with a small UAS rating through an online or paper process. Apply online through the Integrated Airman Certificate and/or Rating Application (IACRA) website or submit a paper FAA Form 8710-13, Remote Pilot Certificate and/or Rating Application. You may be required to meet with an FAA-authorized individual.
4. Please submit a copy of your Remote Pilot Certificate to Cornell Tech Safety & Security.

UAS Registration:

1. All UAS must be registered with the FAA prior to operating on the campus, if the UAS weighs more than 0.55 lbs.
2. The registration number must be a unique identifier number, legible, durable and visible or accessible without tools.

Insurance:

1. UAS operators must have commercial general liability insurance with minimum coverage limits of \$2,000,000 per occurrence. Cornell University will need to be named as the certificate holder and an additional insured on a Certificate of Insurance (COI). A certificate of insurance demonstrating proof of the coverage must be submitted to Safety & Security.

Recreational and Hobbyist Operations

Recreational and Hobbyist users are allowed to conduct UAS operations on campus that are in compliance with FAA regulations and with the approval of Safety & Security. Recreational and hobbyist users must provide evidence of the following at least (5) business days prior to the proposed UAS operation:

- Valid UAS Pilot certification / license (if possessed)
- FAA Registration number
- Waivers and/or Airspace Authorization documents (if operating in controlled airspace)
- UAS Operation Request Form

The FAA considers students as recreational or hobbyist operators when operating a UAS for recreational purposes at educational institutions or when operating in furtherance of their education.

Educational Users

To fly drones for educational or instructional purposes (for example, teaching a STEM class or a drone training program) there are 2 options:

Option 1: Fly under Part 107

Part 107 is the main set of rules for flying small drones (less than 55 lbs.) in the United States.

You can fly under part 107 rules for any reason, including for work or business, for fun in your backyard, to teach, or for public safety missions.

To fly under part 107 rules, there are 3 main steps:

Step 1: Learn the Rules

Make sure you understand what is and is not allowed under Part 107 rules. [Review a summary of the Part 107 rules](#) (PDF) .

Still unsure if Part 107 rules work for you and your intended operation? [Check our user identification tool](#).

Step 2: Become an FAA-Certified Drone Pilot by Passing the Knowledge Test

- a. To be eligible to get your Remote Pilot Certificate, you must be:
 - At least 16 years old
 - Able to read, write, speak, and understand English

- Be in a physical and mental condition to safely fly a UAS
- b. Review the full [process to get your Remote Pilot Certificate](#).
- c. Study for the Knowledge Test by reviewing the [Test Prep materials provided by the FAA](#).
- d. Schedule an appointment to take the Knowledge Test at an [FAA-approved Knowledge Testing Center](#) (PDF). You must bring a government issued ID with you to the test.
- e. Once you've passed your test, complete FAA Form 8710-13 for a remote pilot certificate (FAA Airman Certificate and/or Rating Application) using the electronic [FAA Integrated Airman Certificate and/or Rating Application system \(IACRA\)*](#)

Step 3: Register your drone with the FAA

- Registration costs \$5 and is valid for 3 years. You'll need a credit or debit card and the make and model of your drone handy in order to register.
- Visit dronezone.faa.gov and select "Fly sUAS under Part 107" to create an account and register your drone.
- Once you've registered, mark your drone with your registration number in case it gets lost or stolen.

Option 2: Fly as a Recreational Fliers or as part of a Modeler Community-Based Organization

Review the rules for flying your drone below to ensure that your operations meet the requirements.

Step 1: Register Your Drone

Even if you're only flying in your backyard, drones that weigh more than 0.55 pounds must be registered.

1. Register your drone with the FAA – Visit faadronezone.faa.gov and select "Fly Model Aircraft under Section 336" to get started.

- You must be at least 13 years old to register your drone. If you are less than 13 years old, a responsible adult must register in your place.
- Registration costs \$5 and is valid for 3 years.

2. Once you've registered, [mark your drone](#) (PDF) with your registration number in case it gets lost or stolen.

Step 2: Review the Rules

It is important to review the rules for flying your drone, prior to your first flight.

- Fly only for fun or recreation
- Follow the safety guidelines of a model aircraft community-based organization
- Fly at or below 400 feet when in uncontrolled airspace (Class G)

- Fly within visual line-of-sight, meaning you as the drone operator use your own eyes and needed contacts or glasses (without binoculars), to ensure you can see your drone at all times.
- Never fly near other aircraft.
- Never fly over groups of people, public events, or stadiums full of people.
- Never fly near or over emergency response efforts.

If you want to fly more advanced drone operations, review the [Part 107 operational waiver information](#).

Step 3: Where Can You Fly

Knowing where you can and can't fly your drone will help to maintain a safe airspace for not only you, but others flying as well. You are responsible for flying within FAA guidelines and regulations. That means it is up to you as a drone pilot to know the Rules of the Sky, and where it is and is not safe to fly.

- [Where Can I Fly?](#)
- [Drone Safety Tips](#)
- [Airspace Restrictions](#)

Be sure to download the [B4UFLY app](#) on your mobile device. This will assist you in being a responsible drone pilot.

Recreational Fliers & Modeler Community-Based Organizations

You are considered a recreational user if you fly your drone for fun, as a hobby. It is important to know when and where you can fly and how to register your drone.

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Guideline for both Commercial & Recreational Users

Airspace authorizations and waivers for operating in controlled airspace:

1. Operations that occur within five miles of an airport require FAA approval. The Cornell Tech campus is within five miles of LaGuardia Airport; therefore, all operators flying a drone / UAS on campus must obtain an FAA airspace authorization or waiver form. https://www.faa.gov/uas/recreational_fliers/where_can_i_fly/airspace_restrictions/flying_near_airports/
2. If the operation cannot be conducted within the regulatory structure of part 107, the Remote Pilot in Command (RPIC) is responsible for submitting an application for a Certificate of Waiver and proposing a safe alternative. Only certain provisions of part 107

are waivable. The FAA will determine if the proposed operation can be safely conducted under the terms of that Certificate of Waiver. Safety & Security must approve all operations occurring within the terms of a waiver.

Evaluation of impacts with safety:

1. The review of the UAS activity is limited to the scope of campus or public safety. It does not review all safety implications.
2. Safety & Security reviews proposed UAS operations for loss reduction and prevention strategies for personnel safety, property damage, privacy concerns and regulatory compliance. An effective means for these loss prevention and reduction strategies is to relocate UAS activity to large, open areas away from non- participating persons.
3. Ultimately, the Remote Pilot in Command (RPIC) is responsible for maintaining a safe operating environment. Not all UAS safety risks are capable to be reviewed. The review of UAS safety does not absolve an RPIC's responsibility to ensure a safe operating environment.

UAS safety:

1. The UAS operation review process is meant to ensure that the RPIC is aware of potential risks and has procedures to mitigate risks.
2. Not all potential safety considerations may be applicable. Many risks associated with UAS activity can be mitigated by selecting operating locations where a UAS incident or accident would be unlikely to cause an injury. Planning for safety is an important aspect to UAS activity. Many RPICs have documented standard operating procedures that may be used to fulfill safety planning requirements.

Safety planning should include the following parameters:

- a. All operations at Cornell Tech must comply with FAA regulations, state and local laws / ordinances and Cornell University regulations.
- b. UAS shall not exceed an altitude of 400 feet above ground level.
- c. UAS speeds shall not exceed 20 miles per hours (MPH).
- d. The UAS must always be within the operator's line-of-sight.
- e. UAS shall not interfere with manned aircraft.
- f. UAS shall not fly over large crowds or people.
- g. Operators shall take reasonable precautions to respect other people's privacy.
- h. Operators shall reasonably attempt to notify people in the area about the operation.
- i. Operators shall not control the UAS from moving vehicles.
- j. Operators shall not recklessly operate the UAS.

- k. Operators shall not operate the UAS while under the influence of drugs or alcohol.
- l. Operations shall only occur during daylight hours, unless the operator has received FAA authorization to operate at night and obtained approval from Safety & Security.
- m. Operations shall not occur if the FAA issues any Temporary Flight Restrictions for the airspace over the campus.

Aerial threats to UAS activity:

- 1. One of the biggest UAS safety concerns for the FAA is aircraft to aircraft strikes. Detecting and avoiding aircraft is a four-stage process: detect, assess, decide, act. Each stage takes a significant amount of time.
- 2. Minimize the threat of aerial collisions by making sure you have enough time to get out of the way.

Maintaining privacy:

- 1. The use of UAS is still relatively new and there is still much concern regarding privacy, civil rights, liberties and UAS. UAS use for purposes of recording or transmitting visual images must take all reasonable measures to avoid violations of areas normally considered private.
- 2. The perceived invasion of privacy is additionally to be avoided. It is unlikely that a proponent would blatantly propose activity that would invade a person's privacy. However, there may be proposed activity that may be perceived as potentially invading privacy. An example of this would be UAS activity in close proximity to residential buildings. Regardless of the intent or business nature of the UAS activity, unless mitigating strategies are employed, such activities should be prohibited.

Emergency first responder use of UAS:

- 1. Operation of UAS by emergency first responders may be exempt from this policy based on determination of emergency needs. First responders should refer to their internal department protocols and FAA regulations.

Crew resource management:

- 1. UAS operations may involve one individual or a team of crew-members. The Remote Pilot in Command ("RPIC") has the final authority and responsibility for the operation and safety of the UAS. A person who is not a Remote PIC may operate a UAS only under the direct supervision of the Remote PIC. A visual observer may be used as a flight crew-member to help see and avoid other objects in the sky or on the ground.

Accident reporting:

- 1. Accidents resulting in serious injury to any person or any loss of consciousness, or damage to property, other than the UAS, if the cost to repair or replace is greater than \$500 must be reported to the FAA within 10 days of the operation.

2. Complete a Cornell University Injury Report in the event of injuries to any person or any loss of consciousness. [Injury Report Form](#)
3. Some common UAS accidents, incidents and malfunctions that have been reported include:
Operator error resulting in collision with stationary object, loss of battery/fuel, fly-away/loss of control, Hardware malfunctions such as GPS interference, improper Part 107 operation.