FAQ: 2022-2023 Design-Build-Vertical Flight Competition  
[Updated 4/1/2023]

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Q: How strict the 5-person limit is? And is there a reason for this restriction?
A: The number is restricted to five (5) for all teams. The restricted number is based on SURVICE host facility capacity limitations and to properly and safely support eleven (11) teams and all the staff, guests and judges that need to be present for a successful flyoff competition.
Q: When a team member does not follow the regular schedule of a study, but still is busy with studying for resits and other commitments, does he still meet this requirement? And if a student, still registered as a full time student, is doing an internship, does that meet this rule?
A: YES

Q: How many people are going to be permitted at the competition fly-off?
A: The fly-off will be restricted to 5 total team members (students plus faculty or staff). A faculty/staff member is suggested but not required to be at the competition fly-off.

Q: Can the regulation on maximum single battery capacity be increased beyond 100 W-hr to avoid multiple batteries being strung together?
A: No. The competition rules as set in the RFP will remain the same, as increasing battery capacity could give an unfair advantage to some teams. When connecting multiple batteries, ensure that the batteries are a) of the same chemistry, voltage and capacity; b) at the same charge level; and c) of the same age, charge cycle history, and health. Running LiPo batteries in parallel can cause reduced battery performance, which may lead to a crash and subsequent damaging of the batteries, but usually not in itself leading to a thermal event. However, if you try and charge those damaged batteries, it can lead to a thermal event. As such, batteries will be inspected after any crash to assess their readiness for continued use.
Q: As a part of our testing process, our team will try to replicate the course to be completed during the competition. Is there any kind of landing pads or zones that were visible to the drone's fpv camera or the pilot's VLOS? If not, what would the landing zones be made out of?
A: There is only one landing zone this year, and it will be within easy visual line of sight of the pilot. The landing zone will be in front of the pilot, with appropriate spacing for safety. The LZ will be marked on the ground with chalk and or short flags, there will be no ‘lip’ such as an elevated surface or other that the aircraft have to contend with. This LZ should be at least 20' in diameter. Please note that although FPV is permitted by a team member other than the pilot controlling the aircraft, the pilot must maintain a visual line of sight to the aircraft at all times. For the autonomous course attempt, the team should plan to program in waypoints prior to the course attempt.

Q: Can you elaborate on the fuse requirement? Why would we want the fuse to have a rating less than the continuous discharge rating of the battery? We would expect that to cause the fuse to blow under nominal use?
A: The fuse requirement as specified in the RFP section 4.3, “Each battery used in the propulsion system must have a fuse directly in-line with its positive terminal that has a maximum continuous current rating equal to or less than the maximum continuous discharge rating of the battery.” Teams should ensure their design (motor and rotor combination, with ESC) do not attempt to draw more power than the battery can provide. If it attempts to do so, the fuse is tripped.

Q: Travel: currently the competition is listed as June 6-8. Will the team need to be there for all three days? We are assuming yes, and that we will fly on the best weather day, but we just want to confirm.
A: At this point, it would be safe to plan for being on-site all three days. This provides teams the opportunity to repair their aircraft if needed between course attempts or if there are weather delays. VFS will work with the competition host to develop a tentative schedule and advise more directly on this question.
Q: In the RFP teams are told to climb vertically to 5 feet before beginning cruise. So teams must climb vertically to 5 feet before cruising, but are not required to cruise at 5 feet during the entire flight?
A: That is correct. The intent of this verbiage is so that VTOL take-offs and landings are conducted. Once the aircraft has cleared the landing pad, however, teams are free to fly at higher altitudes. The host will likely cap flight altitude closer to the competition, which will be shared with teams.

Q: Please confirm that the Chinese made component restriction of last year is no longer required?
A: That is correct. Teams should be using only the 2023 RFP as their guidance. Any information from previous year RFPs no longer applies.

Q: Are any FAA waivers required for operation at the competition?
A: No FAA waivers will be required at the competition. The UAS will be operated within the host’s COA airspace. As such, the host (SURVICE) will set any rules and restrictions for flight operation within their private airspace such that all teams operate in a safe fashion and in accordance with the rules given to them by the FAA for their airspace.
Q: Will the competition take place in the rain, or will we move to an alternate day within the span of the competition?
A: The event host will make the final go-no go call for inclement weather. Teams may elect to pass on their flight opportunity if they deem the weather to be too adverse for operation of their aircraft. The next team in the flight line would then move forward in the rotation. Time pending, a team that gave up its flight slot may have another opportunity later to fly their aircraft. This flight line rotation will be discussed in greater detail as the competition draws closer.

Q: What is the rough amount of time between flights that our team would need to complete a battery swap in?
A: The past years' competitions gave each team a period of time within which they had to perform all flight course attempts, including any time to reset and reconfigure between attempts. Speed of a battery change should not be a limiting factor here. A more precise timeline of events will be forthcoming once the total number of teams is known and exact fly-off schedule is drafted.

Q: Can a few more details be provided on the 5 ft. flight height for the autonomy course? Is that a rough "eyeball" measurement, or do we need to prove that we are staying within a tolerance of 5ft?
A: Yes, it is a rough eyeball vertical take-off. The decision rests with the course judge. Some leniency applies, but a VTOL takeoff is the intent of this verbiage in the RFP. The course judge may first warn a team if vertical take-off and landings are not being conducted, and may choose to disqualify a course attempt if they deem the team to repeatedly violate the requirement. For practical reasons, 5 ft can be considered eye-level of the pilot.

Q: Additionally, does this 5ft height apply to the performance course as well?
A: Yes. All take-offs and landings should be done VTOL.

Q: Can more details be provided on the charging / power situation at the competition grounds? Will teams have the ability to have a laptop plugged in for power as our ground station, or is it just for recharging LiPo batteries?
A: A power station will be available both on the flight course and back in the team working locations. A separate facility may be provided for charging of LiPo batteries. More information on this will be forthcoming from the host.

Q: It was mentioned that it is necessary for every team member to become a member of Vertical Flight Society to participate in the Design-Build-Vertical Flight Competition. We do not belong to any of the Chapters, so what should we do?
A: An individual does not need to be part of a VFS chapter in order to join the Society. A chapter will be assigned once a person becomes a member based on their address/zip code if provided. https://vtol.org/what-we-do/benefits-of-membership

Q: Would a European A2 drone flying license be accepted as equal to the FAA Part 107 drone certification?
A: Yes, a European A2 drone flying license is an acceptable substitute.
Q: Can we still add more members to the team?
A: Yes, teams can add additional members at any time. VFS does not need to be updated with any changes to the main team roster. For purposes of the fly-off, teams will submit a list of students to VFS of who will attend. This list must be updated ASAP if any changes are required (see RFP).

Q: Does a regular failsafe system that cuts throttle to zero on signal loss meet requirement number 8 under section 4.0 in the RFP document?
A: Yes it does.

Q: For the autonomy flight course, can the aircraft fly without payload?
A: Yes, it can fly without a payload for the autonomous flight course.

Q: We have found the 2020 version of the “Achieving Autonomy” document mentioned in section 8.0, is this the latest version available?
A: Yes, this is the latest version created by a past competitor to give a helping hand to future competing teams.

Q: Is assistive autonomy permitted in the piloted / performance course? An example of assistive autonomy would be a system that keeps altitude at 5 ft during cruise or a system that holds the aircraft in place when the pilot releases control input.
A: Yes, this is permitted.

Q: We understand that the propulsion and flight control systems must have separate batteries. Does this mean that only their power supplies must be separate, or that their electrical systems must be entirely separate? We would like to run a battery monitor through our flight controller that monitors the battery life on our propulsion battery, but just want to make sure that is acceptable.
A: This would be acceptable so long as the connection between the propulsion system battery and the flight control system is not a high-power carrying line. i.e. Any connection should transmit a signal only, and no substantial amount of power. This separation of propulsion and flight control system battery is commonly done to allow continued control of an aircraft even after a remote-kill command has been issued to the main propulsion system battery, or if it has otherwise failed.

Q: How are the Letter of Intents (LOIs) scored?
A: LOIs are reviewed for completeness only. The LOI requirements are found in the RFP.