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# Netted Drone Enclosure Requirements & FAA Compliance

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*By Dolvin Todd, President — Gorilla Netting LLC*

1-800-274-1079

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*Drone enclosures are purpose-built netted structures that contain unmanned aircraft during flight — for training, research, testing, FPV racing, and secure operations. Unlike outdoor free flight, a fully enclosed netted structure changes both the engineering requirements and the regulatory picture. This guide covers what it takes to design, build, and operate a compliant drone enclosure.*

## What Is a Netted Drone Enclosure?

A netted drone enclosure is a fully or partially enclosed structure — with netted walls, and typically a netted ceiling — designed to contain drones during operation. The structure keeps drones from leaving the defined airspace and protects people, equipment, and adjacent property from runaway aircraft or crashes.

Applications include military and defense testing, university research labs, drone racing leagues, commercial UAV manufacturers, delivery service R&D, and law enforcement training ranges.

## Key Design Considerations

- **Aircraft type** — Consumer quadcopter, commercial multi-rotor, fixed-wing, or hybrid. Each has a different containment profile.
- **Weight and speed** — Heavier and faster aircraft demand stronger netting and reinforced attachment hardware.
- **Flight profile** — Hovering vs. high-speed traversal; vertical takeoff vs. horizontal flight affects ceiling and wall height requirements.
- **Enclosure use case** — Racing, testing, training, or production each have different size and durability requirements.
- **Indoor vs. outdoor** — Outdoor enclosures must account for wind, UV, precipitation, and often obstruction lighting.

## Material Options

Material selection depends heavily on the aircraft being contained — specifically its size, weight, and whether it is a fixed-wing or rotor-based platform. A lightweight consumer quadcopter and a large fixed-wing research drone require very different containment specifications.

- **HDPE (high-density polyethylene)** — Lightweight, UV-resistant, does not absorb water. Appropriate for indoor or light-duty applications where aircraft weight and impact are modest.



- **UV-stabilized knotted nylon** — Higher tensile strength and superior impact absorption. Preferred for outdoor enclosures and for containing heavier or faster aircraft.
- **Kevlar** — Flame-rated (NFPA 701 options available), exceptional tensile strength. Used for high-security enclosures, indoor arenas where fire code applies, and specialty defense applications.

## Structural Engineering

Drone enclosures follow the same structural principles as sports netting: engineered poles, tensioned cables, and a supported netting field. For taller enclosures — 30 feet and above — stamped engineering drawings are typically required, including wind-load calculations, foundation design, and cable specifications.

Gorilla Netting's engineered systems use steel poles with concrete foundations (2,500 PSI backfill) for any permanent outdoor enclosure of meaningful size. Cable specifications mirror sports applications: upper support cables rated to 3,000 lb bursting strength minimum, netting supported every 1,300 square feet.

## FAA Considerations

A fully enclosed netted structure is generally exempt from FAA Part 107 jurisdiction because the interior airspace is not considered outdoor airspace. However, regulatory exposure does not end there.

- **Structure height** — Tall structures near airports or in busy airspace corridors may qualify as aviation obstructions regardless of their function.
- **Obstruction lighting** — Tall structures may require aviation obstruction lights (also called aircraft warning lights, or AWL).
- **Local zoning and building codes** — Height restrictions, setback requirements, and permit processes are handled locally and vary by jurisdiction.

*Note: Always consult with an FAA-authorized specialist and your local building department before finalizing enclosure height and siting.*

## Indoor vs. Outdoor Enclosures

Indoor enclosures — inside warehouses, hangars, or purpose-built facilities — face fewer environmental variables but often stricter fire codes. HDPE netting is commonly used indoors for light-duty applications; Kevlar for flame-rated environments.

Outdoor enclosures must handle wind loads, UV exposure, precipitation, and temperature cycling. UV-stabilized nylon or polyester is the outdoor standard. Foundation engineering is more demanding, and obstruction lighting may apply.

## Project Scope and Cost Drivers

- **Enclosure footprint** — Square footage and shape (rectangular vs. complex geometry).
- **Height** — Bigger drones and higher flight ceilings mean taller structures and more engineering.
- **Material selection** — HDPE, nylon, polyester, or Kevlar — each with different cost profiles.
- **Indoor or outdoor** — Outdoor systems require heavier engineering and more hardware.
- **Access points** — Doors, airlocks, and equipment access all add complexity.
- **Lighting, power, observation points** — Integrated features beyond the netting itself.

## Frequently Asked Questions

### **Q: Do I need FAA approval for a netted drone enclosure?**

A: A fully enclosed netted structure is generally exempt from FAA Part 107 jurisdiction because it is not outdoor airspace. However, if your structure is tall enough to qualify as an obstruction near an airport or in high-traffic airspace — or if it exceeds local height regulations — FAA approval may be required. Tall structures may also require aviation obstruction lights (also called aircraft warning lights, or AWL). Always consult with an FAA-authorized specialist for your specific location and structure height.

### **Q: How tall should a drone enclosure be?**

A: Enclosure height depends on the application, the size and type of aircraft, and the operational requirements for the space. FPV racing enclosures are typically 30+ feet. Research and testing facilities vary based on drone type and flight profiles. Gorilla Netting has built some of the largest drone enclosures in the world. There is no upper limit — if the budget and the will to build it are there, we can accommodate any size.

### **Q: Can a drone enclosure be built outdoors?**

A: Yes. Outdoor drone enclosures require engineered poles, concrete foundations, UV-stabilized netting, and wind-load calculations. Permitting and obstruction lighting may apply.

### **Q: What is the right netting material for a drone enclosure?**

A: HDPE for indoor and light-duty applications. UV-stabilized nylon for outdoor and heavier aircraft. Kevlar for flame-rated environments or high-security applications. The specific choice depends on aircraft size, weight, type, and operational environment.

### **Planning a drone enclosure project?**

Gorilla Netting designs and installs netted drone enclosures for research, training, racing, and commercial testing — across all 50 states. Call **1-800-274-1079** or visit [gorillanetting.com/get-quote](https://gorillanetting.com/get-quote).