

Antenna Structures & Towers

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Questions regarding this information may be directed to telecom@nsp.org

Most antenna structures that are taller than 60.96 meters (200 feet) above ground level or that may interfere with the flight path of a nearby airport must be *cleared* by the Federal Aviation Administration (FAA) and *registered* with the FCC.

Unless [specifically exempted](#), FAA notification and FCC registration are required for:

1. Any construction or alteration of more than 60.96 meters (200 feet) in height above ground level at its site.
2. Any construction or alteration of greater height than an imaginary surface extending outward and upward at one of the following slopes:
 - o 100 to 1 for a horizontal distance of 6.10 kilometers (20,000 feet) from the nearest point of the nearest runway of each [specified airport](#) with at least one runway more than 0.98 kilometers (3,200 feet) in actual length, excluding heliports;
 - o 50 to 1 for a horizontal distance of 3.05 kilometers (10,000 feet) from the nearest point of the nearest runway of each [specified airport](#) with its longest runway no more than 0.98 kilometers (3,200 feet) in actual length, excluding heliports; and,
 - o 25 to 1 for a horizontal distance of 1.52 kilometers (5,000 feet) from the nearest point of the nearest landing and takeoff area of each heliport at a [specified airport](#).
3. Any construction or alteration that would be in an instrument approach area and available information indicates it might exceed an obstruction standard of the FAA. In this case, the FAA would specifically ask you to file a notification -- you would then be required to register the structure.
4. Any construction or alteration on a [specified airport](#).

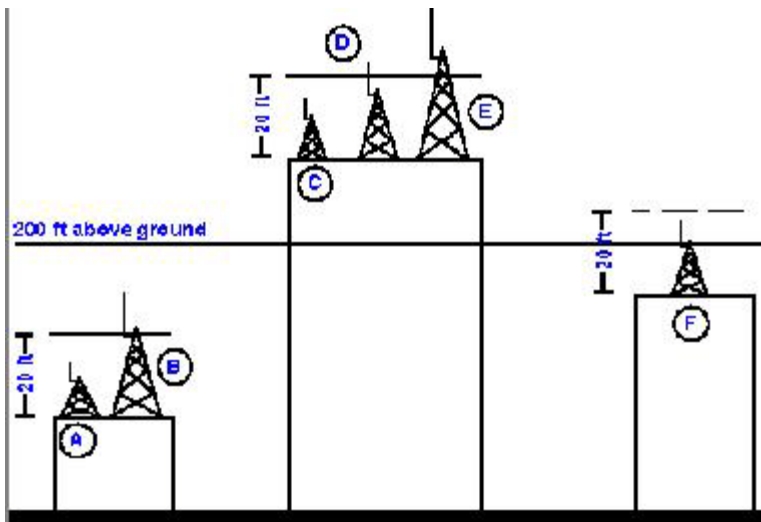
The following types of antenna structures are exempt from the FAA notification requirements and FCC registration requirements:

1. Any antenna structure that would be shielded by existing structures of a permanent and substantial character or by natural terrain or topographic features of equal or greater height, and would be located in the congested area of a city, town or settlement where it is evident beyond all reasonable doubt that the structure so shielded will not adversely affect safety in air navigation.
2. Any antenna structure of 6.10 meters (20 feet) or less in height except one that would increase the height of another antenna structure. [Examples](#) of the "20 foot rule."
3. Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device, of a type approved by the FAA, the location and height of which is fixed by its function.

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Examples

Antenna structures mounted on man-made structures:



NOTE: *In order to simplify this example, we have assumed that the antenna structures are far from an airport. The same principles, however, hold true when substituting the "imaginary surface" for the 60.96 meter (200 foot) line shown in the example.*

(A) and (B) -- Registration is not required. Neither of these antenna structures exceeds 60.96 meters (200 feet) above ground.

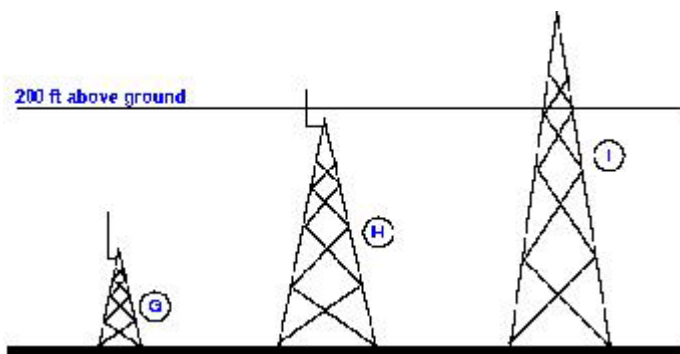
(C) -- Registration is not required. Although the tip of the structure is more than 60.96 meters (200 feet) above ground, the structure meets the 6.1 meter (20 foot) exception.

(D) -- Registration **IS REQUIRED**. Although the structure itself does not exceed 6.1 meters (20 feet) above the building, the tip of the antenna mounted on the structure exceeds 6.1 meters (20 feet) above the building.

(E) -- Registration **IS REQUIRED**. The structure clearly exceeds 6.1 meters (20 feet) above the building.

(F) -- Registration *is not* required. Although the antenna structure causes the overall height of the building to exceed 60.96 meters (200 feet) above ground, the antenna structure meets the 6.1 meter (20 foot exception). (Note -- the building owner would be responsible for notifying the FAA concerning the overall height of the building. This action would not affect the antenna structure.)

Free-standing antenna structures:



NOTE: *In order to simplify this example, we have assumed that the antenna structures are far from an airport. The same principles, however, hold true when substituting the "imaginary surface" for the 60.96 meter (200 foot) line shown in the example.*

(G) -- Registration *is not* required. The structure does not exceed 60.96 meters (200 feet) above ground.

(H) -- Registration **IS REQUIRED**. Although the structure itself does not exceed 60.96 meters (200 feet) above ground, the antenna mounted on the top causes the overall height of the structure to exceed 60.96 meters (200 feet).

(I) -- Registration **IS REQUIRED**. The structure clearly exceeds 60.96 meters (200 feet) above ground.

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"Specified Airports"

The following airports are "specified airports" for purposes of determining whether an antenna structure meets the registration criteria:

- A public use airport listed in the Airport Directory of the current Aeronautical Information Manual or in either the Alaska or Pacific Airman's Guide and Chart Supplement;
- An airport under construction, that is the subject of a notice or proposal on file with the FAA, and except for military airports, it is clearly indicated that the airport will be available for public use; or
- An airport that is operated by an armed force of the United States.

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TOWAIR - determining the "slope" calculation

To determine whether a structure penetrates the imaginary line extending outward and upward from the nearest point of the nearest airport runway, you may use the FCC's on-line Landing Facility Slope Calculation program ([TOWAIR](#)).

TOWAIR, which uses FAA-supplied airport data, may be queried based on a specific set of coordinates, elevation and overall height criteria. When reviewing licensing applications to determine whether a proposed site is located on a structure that requires registration, the FCC will use the TOWAIR calculations. Therefore, if TOWAIR indicates that registration is required but you believe otherwise, you should be prepared to submit appropriate documentation in conjunction with any licensing activity at the site. Alternately, you may wish to register the structure in question.

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Shielded Structures

If a structure is shielded beyond all reasonable doubt by other structures, registration is not required. In the event that one of the structures that originally shielded the antenna structure is removed, the antenna structure's owner must register the structure if it meets the notice criteria and shielding is no longer valid.

If there is any doubt as to whether the exception applies, an owner should register its structure.

In the case of structures that are "shielded" and do not require FAA notification or Commission registration, FCC rules require applicants to submit a showing to that effect. An owner claiming shielding does not need to submit any information as part of the Antenna Structure Registration program, but instead should be prepared to supply information sufficient to establish whether FAA notification and Commission registration is required, if so requested by the Commission.

Because the FCC does not have a means to provide for automated evaluation of shielding claims, applicants for station licenses may be asked by a Bureau's licensing staff to make a showing that shielding applies for the structure upon which they intend to site.

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When to Register

All new or altered antenna structures meeting the registration criteria must be registered with the Commission prior to construction or alteration. All antenna structures meeting the registration criteria must first have been studied by the FAA before being registered with the Commission.

"Existing structures" (those studied by the FAA and cleared by the FCC prior to July 1, 1996) were required to have been registered during the two year period between July 1, 1996 and June 30, 1998. Owners of existing structures that are unregistered but that meet the registration criteria are not in compliance with FCC regulations and **must register their structures immediately.**

A structure is not registered unless it has a valid seven-digit FCC Registration Number. Six-digit "Tower Numbers" pre-date the ASR program and are invalid.