

---

**GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE AIRSPACE**

---

**TABLE OF CONTENTS**

**GACAR PART - SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE AIRSPACE**

**SUBPART A – GENERAL**

§ 77.1 Purpose.	3
-----------------	---

**SUBPART B – NOTICE REQUIREMENTS**

§ 77.11 Applicability.	4
§ 77.13 Form and Time of Notice.	4
§ 77.15 Construction or Alteration Requiring Notice.	5
§ 77.17 Supplemental Notice Requirements.	6

**SUBPART C – STANDARDS FOR DETERMINING OBSTRUCTIONS TO AIR NAVIGATION OR NAVIGATION AIDS OR FACILITIES**

§ 77.21 Applicability.	8
§ 77.23 Scope.	8
§ 77.25 Standards for Determining Hazards.	8

**SUBPART D – AERONAUTICAL STUDIES AND DETERMINATIONS**

§ 77.41 Applicability.	10
§ 77.43 Initiation of Studies.	10
§ 77.45 Evaluating Aeronautical Effect.	10
§ 77.47 Determinations.	11
§ 77.49 Effective Period of Determinations.	12
§ 77.51 Extensions, Terminations, Revisions, and Corrections.	13
§ 77.53 Operating Rules for Lights Required for Denoting Obstacles to Air Navigation.	14

**SUBPART E – PROJECTION OF DIRECTED BRIGHT LIGHT SOURCES AT AN AIRCRAFT AND PYROTECHNIC DISPLAYS**

§ 77.61 Projection of Directed Bright Light Sources at an Aircraft.	15
§ 77.63 Notice Requirements for Projecting Directed Bright Light Sources Into Navigable Airspace.	15
§ 77.65 Pyrotechnic Displays.	15

---

**GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE**

---

§ 77.67 Notice Requirements of Planned Pyrotechnic Displays. ....	15
APPENDIX A TO GACAR PART 77 – OBSTACLE NOTIFICATION SURFACES ...	16

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

**SUBPART A – GENERAL**

**§ 77.1 Purpose.**

This part prescribes—

- (a) Requirements to provide notice to the President of certain proposed construction, or the alteration of existing structures;
- (b) Standards used to determine obstructions to air navigation, and navigation and communication facilities;
- (c) Standards used to determine required markings and lighting for denoting obstacles to air navigation;
- (d) The process for aeronautical studies of obstructions to air navigation or navigation facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment;
- (e) Rules concerning the projection of directed bright light sources at an aircraft;
- (f) Rules concerning pyrotechnic displays; and
- (g) Rules governing the operation of required lighting for denoting obstacles to air navigation.

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

**SUBPART B – NOTICE REQUIREMENTS**

**§ 77.11 Applicability.**

(a) A person who proposes any construction or alteration described in General Authority of Civil Aviation (GACA) Regulation (GACAR) § 77.15 must provide adequate notice to the President of that construction or alteration.

(b) If requested by the President, the person must also file supplemental notice before the start date and upon completion of certain construction or alterations that are described in GACAR § 77.15.

(c) Notice received by the President under this subpart is used to—

(1) Evaluate the effect of the proposed construction or alteration on aviation safety and the efficient use and preservation of the navigable airspace and of aerodrome traffic capacity at public-use aerodromes.

(2) Determine whether the effect of proposed construction or alteration is a hazard to air navigation.

(3) Determine appropriate marking and lighting.

(4) Determine other appropriate measures to be applied for continued safety of air navigation.

(5) Notify the aviation community of the construction or alteration of objects that affect the navigable airspace, including the revision of charts, when necessary.

**§ 77.13 Form and Time of Notice.**

(a) If a person is required to file notice under GACAR § 77.15, it must file in a form and manner prescribed by the President.

(b) The person must submit this notice at least 45 working days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If a person proposes construction or alteration that is also subject to the licensing requirements of another Government authority, it must submit notice to the President on or before the date that

---

## GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE AIRSPACE

---

the application is filed with the other Government authority.

(d) If a person proposes construction or alteration to an existing structure that exceeds 500 ft (150 m) in height above ground level (AGL), the President presumes it to be a hazard to air navigation that results in an inefficient use of airspace. The person must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-working-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. A person must submit a notice to the President within 5 days of the emergency construction or alteration.

(f) A person required to file notice under GACAR §§ 77.15 or 77.17 may file the notice directly to the GACA or to a designated obstacle assessor certificated under GACAR Part 183.

### **§ 77.15 Construction or Alteration Requiring Notice.**

(a) If requested by the President, or if a person proposes any of the following types of construction or alteration, it must file notice with the President of—

(1) Any construction or alteration that is more than 150 ft (45 m) AGL at its site.

(2) Any construction or alteration that would penetrate the obstacle notification surfaces prescribed in Appendix A for any aerodrome in paragraph (a)(3) of this section, and in particular:

(i) Any construction or alteration that will be within 2.7 NM (5 km) radius of an existing or proposed aerodrome, and the overall height of the structure is more than 33 ft (10 m) AGL at its site.

(ii) Any construction or alteration that will be more than 2.7 NM (5 km), but less than 10 NM (18.5 km) radius of an existing or proposed aerodrome, and the overall height of the structure is between 33 ft (10 m) and 150 ft (46 m) AGL at its site.

(iii) Any construction or alteration that would be in an instrument approach area.

(3) Except as provided in paragraph (b)(3) of this section, any construction or alteration on

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

any of the following aerodromes (including heliports):

- (i) An aerodrome listed in the Kingdom of Saudi Arabia Aeronautical Information Publication (AIP).
- (ii) An aerodrome under construction that will be available for public use.
- (iii) A planned aerodrome that is the subject of a notice on file with GACA at the time of the proposed construction or alteration.
- (iv) An aerodrome with at least one approved instrument approach procedure.

(4) Any construction or alteration of a structure discharging efflux at a velocity in excess of 4.3 m/s through an obstacle limitation surface of an aerodrome or higher than 200 ft (60 m) AGL.

(b) A person does not need to file notice for construction or alteration of—

- (1) Any construction or alteration for which notice is required by any other GACAR; or
- (2) Any antenna structure of 20 ft (6 m) or less in height, except one that would increase the height of another antenna structure.
- (3) Any air navigation facility, aerodrome visual approach or landing aid, aircraft arresting device, or aviation meteorological device, the location and height of which is fixed by its functional purpose.

**§ 77.17 Supplemental Notice Requirements.**

(a) A person must file supplemental notice with the President when—

- (1) The construction or alteration is more than 200 ft (60 m) in height AGL at its site; or
- (2) Requested by the President.

(b) A person must file supplemental notice on a prescribed GACA form to be received within the time limits specified in the GACA determination. If no time limit has been specified, the person must submit supplemental notice of construction to the President within 5 days after the structure

---

**GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE**

---

reaches its greatest height.

(c) If a person abandons a construction or alteration proposal that requires supplemental notice, it must submit notice to the President within 5 days after the project is abandoned.

(d) If the construction or alteration is dismantled or destroyed, the person must submit notice to the President within 5 days after the construction or alteration is dismantled or destroyed.

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

**SUBPART C – STANDARDS FOR DETERMINING OBSTRUCTIONS TO AIR  
NAVIGATION OR NAVIGATION AIDS OR FACILITIES**

**§ 77.21 Applicability.**

This subpart prescribes the standards used for determining obstructions to air navigation, navigation aids, or navigation facilities. These standards apply to the following:

- (a) Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used and any permanent or temporary apparatus.
- (b) The alteration of any permanent or temporary existing structure by a change in its height, including appurtenances, or lateral dimensions, including equipment or material used therein.

**§ 77.23 Scope.**

- (a) This subpart describes standards used to determine obstructions to air navigation that may affect the safe and efficient use of navigable airspace and the operation of planned or existing air navigation and communication facilities. Such facilities include air navigation aids, communication equipment, aerodromes, airways, instrument approach or departure procedures, and approved off-airway routes.
- (b) Objects that are considered obstructions under the standards described in this subpart are presumed hazards to air navigation unless further aeronautical study concludes the object is not a hazard. Once further aeronautical study has been initiated, the President will use the standards in this subpart, along with GACA policy and guidance material, to determine if the object is a hazard to air navigation.
- (c) The President will apply these standards with reference to an existing aerodrome facility and aerodrome proposals received by the President before it issues a final determination.

**§ 77.25 Standards for Determining Hazards.**

An existing object, including a mobile object, is, and a future object would be, an obstruction to air navigation if—

- (a) It is 500 ft (150 m) AGL or higher at its site;



---

**GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE AIRSPACE**

---

- (b) It will or may discharge efflux at a velocity in excess of 4.3 m/s through the obstacle limitation surfaces applicable to an aerodrome;
- (c) It will or may discharge efflux at a velocity in excess of 4.3 m/s higher than 500 ft (150 m) AGL;
- (d) It is located within an existing or planned instrument flight procedures area that is specified in International Civil Aviation Organization Document 8168 (PANS-OPS, Volume II), including standard arrival routes, initial, intermediate, final, visual and missed approach segment areas, departure areas and standard instrument departure routes, and would result in—
- (1) The vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment being less than the obstacle clearance required for the instrument flight procedure; or
  - (2) Additional or new ceiling or visibility restrictions or a change in flight procedures applicable to departures within that area.
- (e) It is located within an instrument flight rules (IFR) en-route obstacle clearance area and would necessitate an increase in an existing or planned minimum obstacle clearance altitude;
- (f) It protrudes through the obstacle limitation surfaces of an aerodrome as defined in Annex 14 to the Convention on International Civil Aviation, Volume I, Chapter 4 or Volume II, Chapter 4 for heliports; or
- (g) It will adversely affect the performance of an aeronautical telecommunication facility (including communications, navigation or surveillance facilities) operating under GACAR Part 173 or an air traffic service facility operating under GACAR Part 171.

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

**SUBPART D – AERONAUTICAL STUDIES AND DETERMINATIONS**

**§ 77.41 Applicability.**

- (a) This subpart applies to any aeronautical study of a proposed construction or alteration for which notice to the President is required under GACAR § 77.15.
- (b) The purpose of an aeronautical study is to determine whether the aeronautical effects of a specific proposal and, where appropriate, the cumulative impact resulting from the proposed construction or alteration when combined with the effects of other existing or proposed structures, would constitute a hazard to air navigation.
- (c) The obstruction standards in Subpart C of this part are supplemented by other manuals and directives used in determining the effect on the navigable airspace of a proposed construction or alteration. When the President needs additional information, he may circulate a study to interested parties for comment.

**§ 77.43 Initiation of Studies.**

The President will initiate an aeronautical study when the President determines a study is necessary. The President may require the aeronautical study to be prepared by the sponsor of any proposed construction or alteration for which a notice is submitted under this part.

**§ 77.45 Evaluating Aeronautical Effect.**

- (a) The President requires the conducts an aeronautical study to determine the impact of a proposed structure, an existing structure that has not yet been studied by the President, or an alteration of an existing structure on aeronautical operations, procedures, and the safety of flight. These studies include, inter alia, evaluating—
- (1) The impact on arrival, departure, and en-route procedures for aircraft operating under visual flight rules (VFR);
  - (2) The impact on arrival, departure, and en-route procedures for aircraft operating under IFR;
  - (3) The impact on existing and planned public-use aerodromes;
  - (4) Aerodrome traffic capacity of existing public-use aerodromes and public-use aerodrome

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

development plans received before the issuance of the final determination;

(5) Minimum obstacle clearance altitudes, minimum altitudes, approved or planned instrument approach procedures, and departure procedures;

(6) The potential effect on air traffic control (ATC) radar, direction finders, ATC tower line-of-sight visibility, and physical or electromagnetic effects on air navigation, communication facilities, and other surveillance systems; and

(7) The aeronautical effects resulting from the cumulative impact of a proposed construction or alteration of a structure when combined with the effects of other existing or proposed structures.

(b) If a person withdraws the proposed construction or alteration or revises it so it is no longer identified as an obstruction, or if no further aeronautical study is necessary, the President may terminate the study.

(c) The President may consult air traffic service providers, aeronautical telecommunication service providers, instrument flight procedure sponsors, aerodrome operators, or other interested parties, as appropriate, when evaluating aeronautical effects.

**§ 77.47 Determinations.**

(a) The President will issue a determination stating whether the proposed construction or alteration would be a hazard to air navigation and will advise all known interested persons.

(b) The President will make determinations based on the aeronautical study findings and will identify the following:

(1) The effects on—

(i) VFR/IFR aeronautical departure/arrival operations,

(ii) Air traffic procedures,

(iii) Minimum flight altitudes, and

(iv) Existing, planned, or proposed aerodromes listed in GACAR § 77.23(e) of which the

---

## GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE AIRSPACE

---

President has received actual notice prior to issuance of a final determination.

(2) The extent of the physical and/or electromagnetic effect on the operation of existing or proposed air navigation facilities, communication aids, or surveillance systems.

(c) The President will issue a Determination of Hazard to Air Navigation when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard and would have a substantial aeronautical impact.

(d) A Determination of No Hazard to Air Navigation will be issued when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard but would not have a substantial aeronautical impact to air navigation. A Determination of No Hazard to Air Navigation may include the following:

(1) Conditional provisions of a determination;

(2) Limitations necessary to minimize potential problems, such as the use of temporary construction equipment;

(3) Supplemental notice requirements, when required; and

(4) Marking and lighting requirements, as appropriate, as established in accordance with marking and lighting standards prescribed in Annex 14 to the Convention on International Civil Aviation, Chapter 6.

(e) The President will issue a Determination of No Hazard to Air Navigation when a proposed structure does not exceed any of the obstruction standards and would not be a hazard to air navigation.

### **§ 77.49 Effective Period of Determinations.**

(a) The effective date of a determination for a proposed or existing structure is 40 days from the date of issuance, provided a valid petition for review has not been received by the President. If a valid petition for review is filed, the determination will not become final, pending disposition of the petition.

(b) Unless extended, revised, or terminated, each Determination of No Hazard to Air Navigation issued under this subpart expires 18 months after the effective date of the determination, or on the

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

date the proposed construction or alteration is abandoned, whichever is earlier.

(c) A Determination of Hazard to Air Navigation has no expiration date.

**§ 77.51 Extensions, Terminations, Revisions, and Corrections.**

(a) A person may petition the President to revise or reconsider the determination based on new facts or to extend the effective period of the determination, provided—

(1) Actual structural work of the proposed construction or alteration, such as the laying of a foundation, but not including excavation, has not been started;

(2) The petition is submitted at least 15 working days before the expiration date of the Determination of No Hazard to Air Navigation; and

(3) The petition is submitted in accordance with the appeal procedures prescribed in GACAR Part 13.

(b) A Determination of No Hazard to Air Navigation issued for those construction or alteration proposals not requiring a construction permit from another Government authority may be extended by the President one time for a period not to exceed 18 months.

(c) A Determination of No Hazard to Air Navigation issued for a proposal requiring a construction permit from another Government authority may be granted extensions for up to 18 months, provided—

(1) The person submits evidence that an application for a construction permit/license was filed with the other Government authority for the associated site within 6 months of issuance of the determination, and

(2) The person submits evidence that additional time is warranted due to requirements of another Government authority.

(d) When another Government authority issues a construction permit, a final Determination of No Hazard to Air Navigation is effective until the date prescribed by the other Government authority for completion of the construction. If an extension of the original completion date given by another Government authority is needed, an extension of the determination issued by the President must be requested.

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

(e) If another Government authority refuses to issue a construction permit, the final determination expires on the date of its refusal.

**§ 77.53 Operating Rules for Lights Required for Denoting Obstacles to Air Navigation.**

(a) Except as provided in paragraphs (b) and (c) of this section, all lights required by the President for denoting obstacles to navigation as determined under GACAR § 77.43 must be operated—

(1) Continuously during the hours of darkness or during the time the center of the sun's disk is more than 6° below the horizon, whichever requires the longer period of operation, unless otherwise required for the control of air traffic; and

(2) At any other time when their use, based on meteorological conditions, is considered desirable for the safety of air navigation.

(b) Lights on and in the vicinity of aerodromes that are not intended for en-route navigation purposes may be turned off if no likelihood of either regular or emergency operation exists, provided that they can be again brought into operation at least 1 hour before the expected arrival of an aircraft.

(c) Obstacle lighting associated with the approach to or departure from a runway or channel, where the obstacle does not project through the inner horizontal surface, as described in Annex 14 to the Convention on International Civil Aviation, Volume I, Chapter 6, may be turned off and on simultaneously with the runway or channel lights.

---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE  
AIRSPACE

---

**SUBPART E – PROJECTION OF DIRECTED BRIGHT LIGHT SOURCES AT AN  
AIRCRAFT AND PYROTECHNIC DISPLAYS**

**§ 77.61 Projection of Directed Bright Light Sources at an Aircraft.**

No person will project or cause to be projected a bright light source into navigable airspace in such a manner as to create a hazard to aviation safety or cause damage to an aircraft or injury to any person on board an aircraft.

**§ 77.63 Notice Requirements for Projecting Directed Bright Light Sources Into Navigable Airspace.**

(a) Any person intending to project or causing to be projected a directed bright light source into navigable airspace that may create a hazard to aviation safety must provide written notification to the President no less than 5 working days before the projection.

(b) The President will issue an authorization when the projection of the directed bright light source is not likely to create a hazard to aviation safety.

**§ 77.65 Pyrotechnic Displays.**

No person will stage a pyrotechnic display in such a manner as to create a hazard to aviation safety or cause damage to an aircraft or injury to any person on board an aircraft.

**§ 77.67 Notice Requirements of Planned Pyrotechnic Displays.**

(a) Any person intending to stage a pyrotechnic display meeting the criteria prescribed in paragraph (b) of this section must provide written notification to the President no less than 5 working days before the projection.

(b) Pyrotechnic displays that involve the firing or launching of a projectile that has a trajectory—

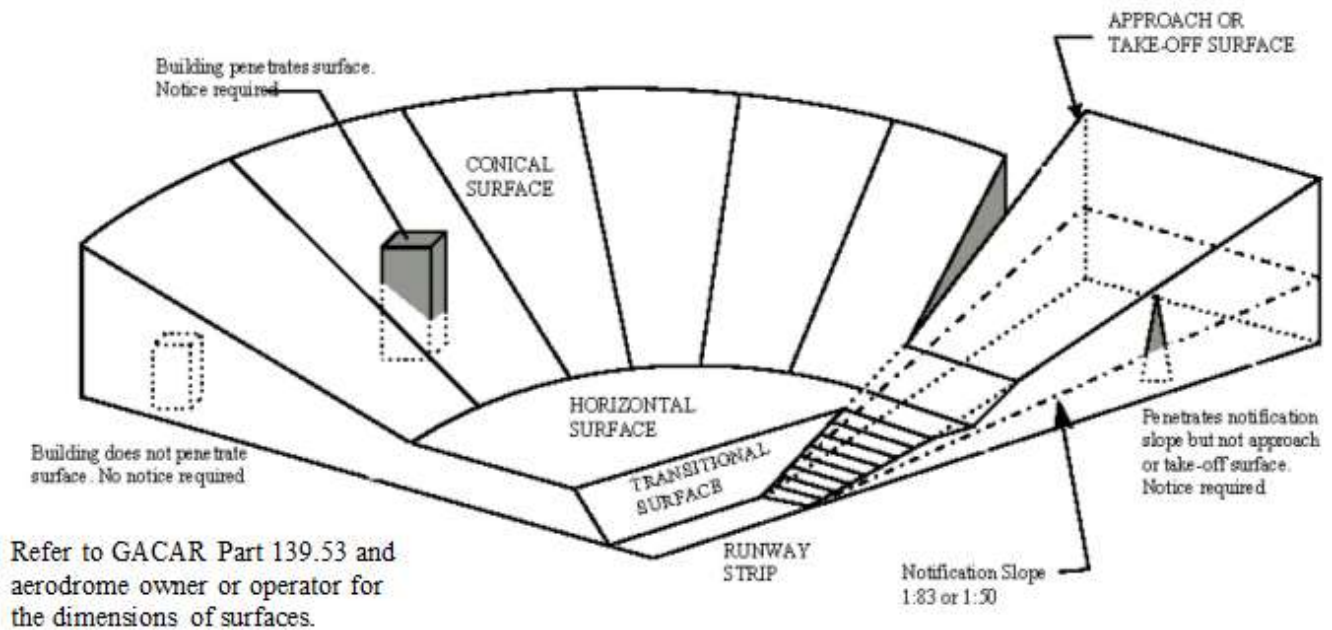
(1) Higher than 150 ft (45 m) if within 2.2 NM of an aerodrome boundary; or

(2) Higher than 400 ft (120 m) if more than 2.2 NM from an aerodrome boundary.

(c) The President will issue an authorization when the pyrotechnic display is not likely to create a hazard to aviation safety.

**GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE AIRSPACE**

**APPENDIX A TO GACAR PART 77– OBSTACLE NOTIFICATION SURFACES**



**Figure A-1. Aerodrome Notification Requirements**



---

GACAR PART 77 – SAFE, EFFICIENT USE AND PRESERVATION OF THE NAVIGABLE AIRSPACE

---

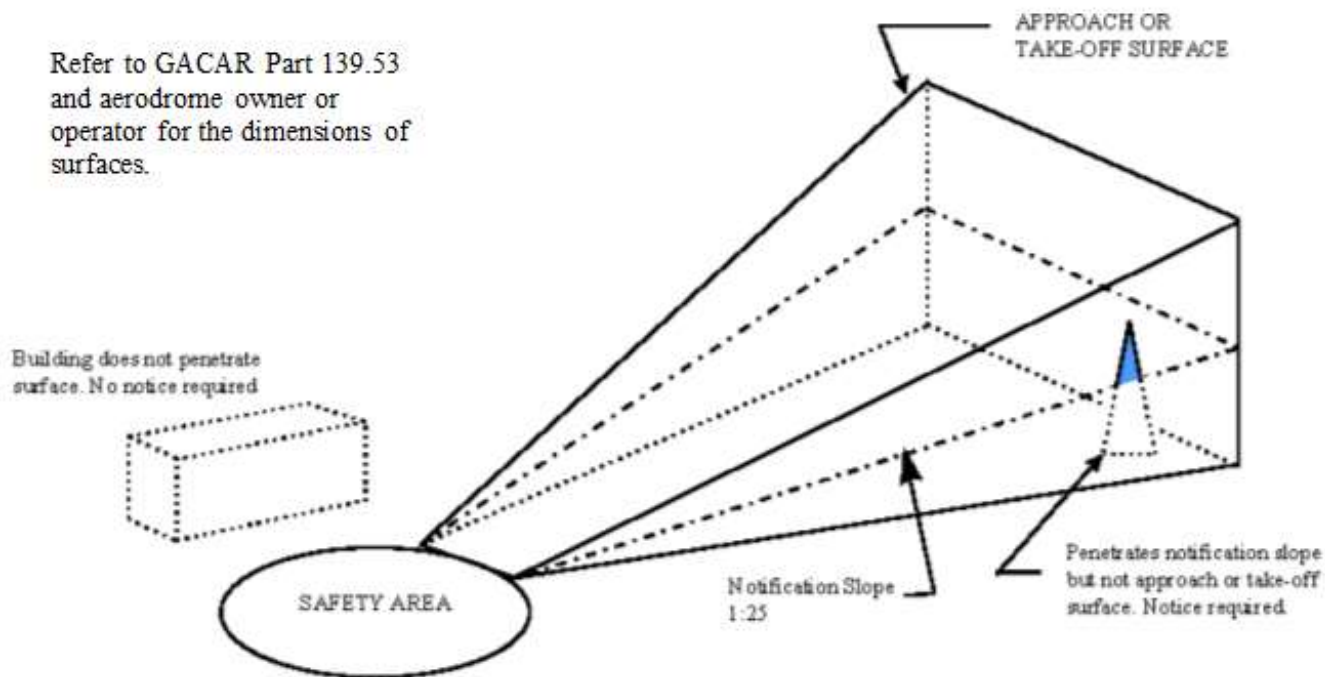


Figure A–2. Heliport Notification Requirements