Overview
Heliport Design

United States Perspective

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Advisory Circular AC150/5390-2C

• **Applicability:**
  - Recommended guidelines
  - Mandatory for heliports funded with federal grants.

• **Types of Heliports:**
  - General Aviation
  - Transport
  - Hospital

• **Prior Permission Required (PPR)**
  - Exclusive use and authorized by the owner of the heliport
  - Pilots are expected to be knowledgeable of:
    - Approach / Departure path characteristics
    - Preferred heading and facility limitations
    - Lighting, obstacles, size and weight limits
AC150/5390-2C

• **Prescriptive standards** – Are design guidelines that prescribe specific dimensions and instructions.

• **Approach/departure** - All protection surfaces associated with a FATO area are not based on performance or capabilities of a Helicopter.

• **Assumptions** - The advisory circular assumes that no more than one helicopter will be within the final approach and takeoff (FATO) area and the associated safety area. If there is a need for more than one touchdown and liftoff (TLOF) area at a heliport, locate each TLOF within its own FATO and within its own safety area.
Design Parameters

**Design Helicopter** may be a composite helicopter that reflects:
- Maximum weight, contact area, single or multiple gears
- Overall length (D), rotor diameter (RD), tail rotor arc, undercarriage dimensions

**Design Loads:**
- Loads imposed by the design helicopter and any additional support vehicles and equipment.
- Static Load: maximum takeoff weight.
- Dynamic Load: is 150% of the maximum takeoff weight of the design helicopter.
Site selection

- **Planning** - future expansion, occasional military use, disaster relief.
- **Property requirements** - Hospital, wind indicator, clear approaches, approach lights, helicopter protection zone.
- **Turbulence** - Air flow, surrounding buildings, trees, terrain, roof-tops and ground-level.
- **Ground level** - Buildings, trees, light posts, logistics, etc.
- **Elevated** – Turbulence effects, adjacent structures, wind, approach / departure paths.
- **Electromagnetic effects** - presence of large metallic objects, ventilation shafts, magnetic resonance imaging, etc.
- **Helicopter Protection zone** – approach departure paths over parking lots, over or near power lines and trees, etc.
General Aviation

Notes:
1. Locate the wind cone so that it will not interfere with the Approach/Departure Path or Transitional Surface.
2. TLOF size and weight limitation box omitted for clarity.

<table>
<thead>
<tr>
<th>DIM</th>
<th>ITEM</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Minimum TLOF Length</td>
<td>1 RD</td>
</tr>
<tr>
<td>B</td>
<td>Minimum TLOF Width</td>
<td>1 RD</td>
</tr>
<tr>
<td>C</td>
<td>Minimum FATO Length</td>
<td>1 ½ D</td>
</tr>
<tr>
<td>E</td>
<td>Minimum FATO Width</td>
<td>1 ½ D</td>
</tr>
<tr>
<td>F</td>
<td>Minimum Separation Between the Perimeters of the TLOF and FATO</td>
<td>½ D - ½ RD</td>
</tr>
<tr>
<td>G</td>
<td>Minimum Safety Area Width</td>
<td>See Table 2-1</td>
</tr>
</tbody>
</table>
## Hospital Heliport

![Diagram of a Hospital Heliport]

### Minimum Dimensions

<table>
<thead>
<tr>
<th>ITEM</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum TLOF Length</td>
<td>1 RD but not less than 40 ft [12 m]</td>
</tr>
<tr>
<td>Minimum TLOF Width</td>
<td>1 RD but not less than 40 ft [12 m]</td>
</tr>
<tr>
<td>Minimum FATO Length</td>
<td>1 ½ D</td>
</tr>
<tr>
<td>Minimum FATO Width</td>
<td>1 ½ D</td>
</tr>
<tr>
<td>Minimum Separation between the Perimeters of the TLOF and FATO</td>
<td>¾ D - ½ RD</td>
</tr>
<tr>
<td>Minimum Safety Area Width</td>
<td>see Table 4-1</td>
</tr>
</tbody>
</table>
HPZ is for the protection of people and property on the ground below the flight paths.
Parking Positions

Back-out

Turn-around
Heliport on Airport

• Distance between FATO center to runway centerline for VFR Operations:

<table>
<thead>
<tr>
<th>Airplane Size</th>
<th>Small Helicopter 7,000 lbs or less</th>
<th>Medium Helicopter 7,001 to 12,500 lbs</th>
<th>Large Helicopter over 12,500 lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Airplane</td>
<td>300 feet (91 m)</td>
<td>500 feet (152 m)</td>
<td>700 feet (213 m)</td>
</tr>
<tr>
<td>12,500 lbs or less</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large Airplane</td>
<td>500 feet (152 m)</td>
<td>500 feet (152 m)</td>
<td>700 feet (213 m)</td>
</tr>
<tr>
<td>12,500 lbs to 300,000 lbs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy Airplane</td>
<td>700 feet (213 m)</td>
<td>700 feet (213 m)</td>
<td>700 feet (213 m)</td>
</tr>
<tr>
<td>Over 300,000 lbs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hospital Heliport
Thank you!

Questions!