



Office of the Fire Marshal

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LOS ANGELES FIRE DEPARTMENT REQUIREMENT NO. 10

EMERGENCY HELICOPTER LANDING FACILITIES (EHLF) REQUIREMENTS

An Emergency Helicopter Landing Facility (EHLF) is required for High Rise Buildings per LAMC Section 57.4705.4. Every high-rise building shall have an approved emergency helicopter landing facility (EHLF) on the roof adjacent to or above the highest habitable level. **Exception** - If specific life safety features are provided as outlined below in Option 1 and 2 in LAFD Requirement No. 10, the EHLF is not required. A private use, state permitted helistop or heliport designed according to Los Angeles City Fire Department Standard No. 54 may substitute for an EHLF provided it meets the design requirements for the largest helicopter in the LAFD Air Operation's fleet at the time of design approval.

GENERAL

These requirements provide guidelines for the EHLF design and for the substitution of a Helicopter Tactical Landing Area (HTLA) (Option 1), or no rooftop helicopter landing facility (Option 2) in lieu of the load bearing emergency helicopter landing facility (EHLF).

DEFINITIONS

Approach-Departure Path – The flight track helicopters follow when landing or departing an emergency helicopter landing facility.

Emergency Helicopter Landing Facility (EHLF) – A clear area at ground level or on the roof of a building capable of accommodating a helicopter engaged in firefighting and/or emergency evacuation operations.

Helicopter Tactical Landing Area (HTLA) – Option 1 – A designated load bearing area with dimensions that will be less than those required for the load bearing area of an EHLF but with sufficient safety area around the HTLA to provide clearance for the helicopter.

Maximum Operating Weight (MOW) – The maximum operating weight for the heaviest helicopter in the LAFD fleet is 15,000 lbs.

Safety Area –Contains the Touchdown and Lifftoff area (TLOF) area plus a factor of safety. It is a defined, obstruction free area over which the pilot completes the final phase of the approach to a hover or a landing and from which the pilot initiates takeoff.

Touchdown and Liftoff area (TLOF) – A load-bearing, non-combustible area, centered in the Safety Area on which the helicopter lands or takes off.

A. **EMERGENCY HELICOPTER LANDING FACILITY (EHLF)**

The design of the emergency helicopter landing facility shall comply with the requirements of this guideline and be constructed in accordance with the Los Angeles City Building Code and Title 24 of the California Code of Regulations. An EHLF is required for High-Rise Buildings per LAFC Section 57.4705.4.

NOTIFICATION

1. **FEDERAL AVIATION ADMINISTRATION (FAA)** – The EHLF is not intended to operate as a private use heliport or heliport. Therefore, no notice for an airspace evaluation (FAA 7480) needs to be filed with the FAA.

PERMITS

An emergency helicopter landing facility is exempt from Caltrans Division of Aeronautics heliport permitting requirements in accordance with Division of Aeronautics – Caltrans – Title 21 CCR 3533 (b)(8) provided it is not used for any purpose other than as an emergency use facility.

DESIGN

1. **Size:** The TLOF shall be a square (50 ft x 50 ft) or circle with a 50 ft. inside diameter. (See Figure 1)
2. **Safety Area:** This area is a horizontal plane at the same elevation as the TLOF and shall extend out 25 ft. in all directions from the edge of the TLOF. No object shall penetrate above that imaginary horizontal plane.
3. **Approach-Departure Paths:** The emergency helicopter landing facility shall have two approach-departure paths separated in plan view from each other by at least 90 degrees. No objects shall penetrate above the approach-departure paths. The approach-departure flight path is a rising slope that begins at the edge of the TLOF with the same width or diameter as the TLOF. As it extends away from the TLOF, the flight path rises upward at a ratio of 8 ft horizontal distance to 1 ft. vertical height. (See Figure 2)
4. **Weight:** The TLOF shall be of non-combustible construction and shall support a maximum weight of 15,000 pounds in accordance with the provisions set forth in 2013 California Building Code Section 1607.6.
5. **Drainage:** Provisions shall be made to drain flammable liquid spillage away from any exit or stairway serving the landing area. A clarifier tank is not required. The slope of the TLOF shall be between 0.5 percent to 2 percent in any direction.
6. **Surface:** The TLOF shall have a skid-resistant surface for helicopters and a non-slippery surface for people.

7. **Safety Net:** TLOF's elevated more than 30 inches above the adjacent roof surface shall be provided with fall protection in the form of a safety net not less than 6 ft. wide. Such nets shall have load capability of 25 pounds per square foot and shall be constructed of materials resistant to environmental effects. The inner edge of the safety net shall drop down no greater than 1 ft. from the edge of the TLOF and the outer edge of the safety net shall slope up but not extend above the elevation of the TLOF.

FIRE PROTECTION

1. **Fire Hose Cabinets:** Two hose cabinets shall be provided with 100 ft. rubber-lined single jacketed 1½ inch fire hose equipped with a fog nozzle. They may be located at the intermediate stair landing or at the bottom of the EHLF stairs. A residual pressure of 80 psi at the nozzle while flowing 90 GPM shall be provided to achieve an acceptable fog pattern.

MEANS OF EGRESS

1. **Number of exits:** Each EHLF shall have not less than two means of egress from the TLOF in accordance with the 2013 California Building Code. At least one exit shall be a stairway. When the exit stairs are located within the safety area, stair handrails shall not extend above the elevation of the TLOF. However, adequate fall-off protection shall be provided through devices such as a safety net.
2. **Separation of exits:** Such egress points shall be separated a minimum of 75 ft. along the perimeter of the TLOF.

MARKINGS

1. **TLOF:** Define the limits of the Touchdown and Liftoff area with a solid 1 ft. wide red line. (See Figure 1)
2. **Weight Capacity:** In a circle in the middle of the TLOF, identify the maximum weight of the design helicopter, in units of thousands of pounds. The minimum helicopter weight is 15,000 pounds which is indicated by the number "15" in the middle of the TLOF. The weight numeral shall be 10 ft. in height with a minimum 1 ft. stroke; and the numeral shall be oriented on the axis of the preferred path of approach and departure, preferably toward the prevailing wind. (See Figure 1)

WIND CONE

Locate a lighted wind cone assembly that complies with the requirements of FAA Advisory Circular 150/5345-27E within the line of sight from the EHLF but outside the safety area and below the flight paths.

LIGHTING

Shield any ambient lighting to avoid affecting the pilot's vision.

B. REQUIREMENTS FOR ELIMINATION OF EHLF BASED ON BUILDING HEIGHT:

The following HTLA Option1 and the NO-EHLF or NO-HTLA Option 2 are both proposed in order to eliminate the use of the EHLF. These exemptions may be obtained through an alternate means of compliance when the following additional life safety features are provided and approved by the Fire Marshal.

I. OPTION 1 EHLF EQUIVALENCY- HELICOPTER TACTICAL LANDING AREA (HTLA)

APPROVALS

The HTLA design, if approved by the Fire Marshal, and reviewed by Helicopter Air Support Unit, may be substituted for an EHLF.

NOTIFICATION

FEDERAL AVIATION ADMINISTRATION (FAA) – The HTLA or No-EHLF is not intended to operate as a helistop or heliport for private use landings. Therefore no notice for an airspace evaluation (FAA 7480) needs to be filed with the FAA.

PERMITS

The HTLA is exempt from Caltrans Division of Aeronautics heliport permitting provided it is not used for any purpose other than an emergency use facility.

1. **For High Rise Buildings over 75 feet, but less than 120 feet, an EHLF is not required if the following are provided:**
 - A. A Fire Service Elevator as per 2013 California Building Code Sections 403.6 and Section 3007.
 - B. Two (2) stairways all with roof access. Access to the roof shall be provided through a penthouse complying with the 2014 LABC Section 91.1509.2.
 - C. Enclosed elevator lobbies shall be provided in accordance with the LAFC Section 57.4705.1.
 - D. Escalator openings or stairways that are not part of the means of egress system and connect more than two stories shall be protected by approved power-operated automatic shutters at every penetrated floor. All automatic shutters shall conform to 2014 LABC Section 91.712.1.3.2.

2. **For High Rise Buildings over 120 feet, but less than 240 feet, provide the following:**
 - A. A LAFD approved Helicopter Tactical Landing Area. (See Exception “EHLF Equivalency – Option 2” below).
 - B. Provide Two (2) Fire Service Access Elevators as required in the 2013 California Building Code 403.6.1.
 - C. Two (2) stairways all with roof access. Access to the roof shall be provided through a penthouse complying with the 2014 LABC Section 91.1509.2.
 - D. Enclosed elevator lobbies shall be provided in accordance with the 2014 LAFC Section 57.4705.1.
 - E. Escalator openings or stairways that are not part of the means of egress system and connect more than two stories shall be protected by approved power-operated automatic shutters at every penetrated floor. All automatic shutters shall conform to 2014 LABC Section 91.712.1.3.2.

3. **For High Rise Buildings 240 feet and over, but less than 420 feet, provide the following:**
 - A. A LAFD approved HTLA. (See Exception “EHLF Equivalency – Option 2” below)
 - B. Provide Two (2) Fire Service Access Elevators as required in the 2013 California Building Code 403.6.1.
 - C. Two (2) stairways (and a third if added) shall have roof access. Access to the roof shall be provided through a penthouse complying with the 2014 LABC Section 91.1509.2.
 - D. Enclosed elevator lobbies shall be provided in accordance with the LAFC Section 57.4705.1.
 - E. Escalator openings or stairways that are not part of the means of egress system and connect more than two stories shall be protected by approved power-operated automatic shutters at every penetrated floor. All automatic shutters shall conform to 2014 LABC Section 91.712.1.3.2.

4. **For High Rise Buildings 420 feet and over, but less than 1000 feet, provide the following:**
- A. A LAFD approved HTLA. (See Exception “EHLF Equivalency – Option 2” below)
 - B. Provide Two Fire Service Access Elevators as required in the 2013 California Building Code 403.6.1.
 - C. Two (2) stairways (and a third if added) shall have roof access. Access to the roof shall be provided through a penthouse complying with the 2014 LABC Section 91.1509.2.
 - D. Enclosed elevator lobbies shall be provided in accordance with the LAFC Section 57.4705.1.
 - E. Escalator openings or stairways that are not part of the means of egress system and connect more than two stories shall be protected by approved power-operated automatic shutters at every penetrated floor. All automatic shutters shall conform to 2014 LABC Section 91.712.1.3.2.

II. OPTION 2 EHLF EQUIVALENCY: NO – EHLF AND NO – HTLA-

When all applicable life safety elements in “**Option 1- EHLF Equivalency – HTLA**” have been provided, an exception to the EHLF and HTLA may be obtained through an alternate means of compliance, and defined as “**Option 2 EHLF Equivalency,**” if the following additional life safety features are included and approved by the Fire Marshal.

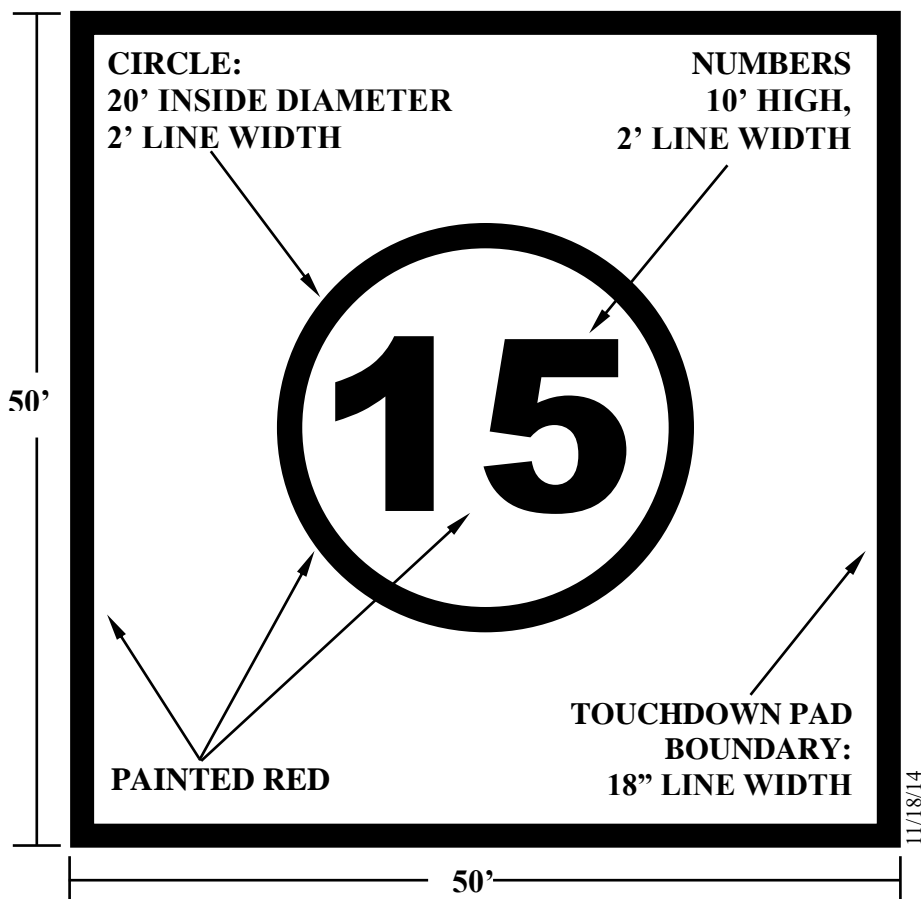
- 1. Provide an automatic sprinkler system installed throughout the High Rise building, designed in accordance with Sections 57.903.3.1 of the LAFC. In light and ordinary hazard areas, other than parking garages, listed quick-response sprinklers, including extended coverage quick-response sprinklers, shall be used throughout the system. The NFPA 13 reduction to the hydraulic design area of operation for quick-response sprinkler systems shall NOT be permitted. **Note:** To meet the intent of this life safety feature it will typically require larger size branch lines for the automatic sprinkler system with quick response sprinkler heads.

2. Provide a Video Camera Surveillance System with cameras located in all Fire Service Access Elevator Lobbies and on every 5th floor landing in exit stairway shafts, with an additional camera at the top of the exit stairway shaft. Fire Department video surveillance shall be usable from the Fire Department's "fire control room" and installed with system cabling "survivability" requirements similar to NFPA Standard 72 for fire alarm systems. System cameras are required to be active during a fire alarm condition within the building.
3. Additionally, High Rise Buildings over 420 ft. in height will provide egress stairways with a capacity, in inch's, calculated by multiplying the occupant load served by a means of egress capacity factor of 0.3 inches per person. However, the capacity shall not be less than specified elsewhere in the building and fire codes.

See Attached - Emergency Helicopter Landing Facility Table – Figure 3

FIGURE 1

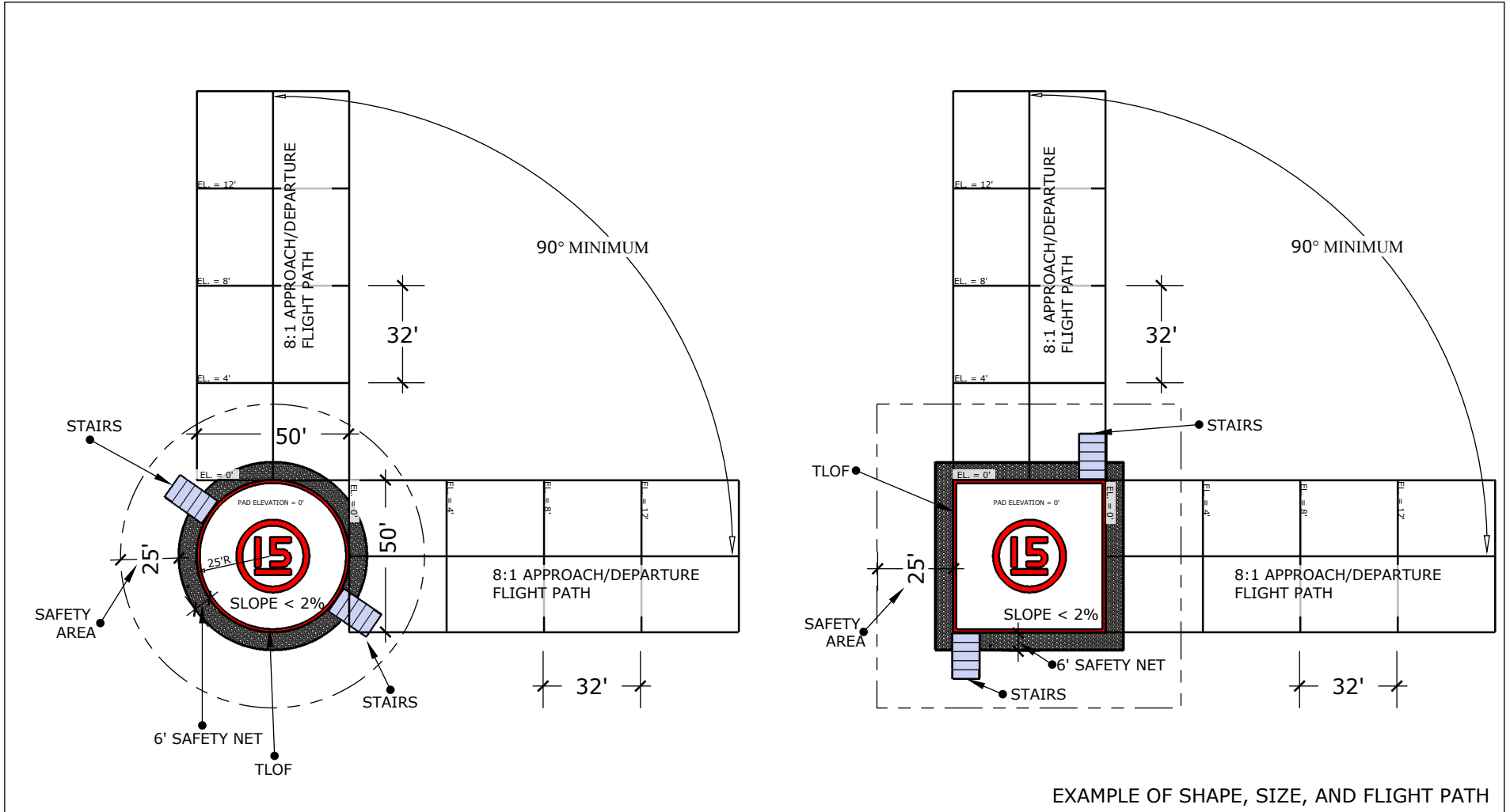
**MARKINGS UTILIZING A SQUARE FOR A ROOF-TOP
EMERGENCY HELICOPTER LANDING FACILITY.
(Amended by Ord. No. 167,326, Eff. 11/16/91.)**



Notes:

1. The preferred touchdown pad background color is white.
2. The red numeral indicates the allowable weight, in thousands of pounds, that the facility is capable of supporting.
3. The numbers shall be oriented toward the preferred flight path (typically facing the prevailing wind).
4. Allowable weight shall not be in metric units.

LOS ANGELES CITY FIRE DEPARTMENT EMERGENCY HELICOPTER LANDING FACILITY



EXAMPLE OF SHAPE, SIZE, AND FLIGHT PATH

11/18/14

SCALE
1" = 50'

FIGURE 2

CONCEPT PLANS

EQUIVALENCY / ALTERNATIVES to Helipad / Emergency Helicopter Landing Facilities based on building height

11/17/14
Figure 3

OPTION 1: Equivalency / alternatives required to implement a Helicopter Tactical Landing Area (HTLA) in lieu of a Helipad / Emergency Helicopter Landing Facility (EHLF). *(Projects must meet all indicated requirements for this category)*

OPTION 2: Equivalency / alternatives required in lieu of both Helicopter Tactical Landing Area (HTLA) and Helipad / Emergency Helicopter Landing Facility (EHLF). Neither HTLA nor EHLF would be required. *(Projects must meet all indicated requirements for this category)*

Life Safety Alternatives	Building Height			
"Option 1" alternatives	>75' ≤120'	>120' ≤240'	>240' ≤420'	>420' ≤1000'
A LAFD approved Helicopter Tactical landing Area (see separate "Option 2" alternatives below)	✗	✓	✓	✓
A fire service elevator as per 2013 CBC Sections 403.6 and 3007.	✓	✗	✗	✗
Provide Two Fire Service Access Elevators as required in the 2013 California Building Code 403.6.1.	✗	✓	✓	✓
Two (2) stairways (and a third if added) shall have roof access. Access to the roof shall be provided through a penthouse complying with the 2014 LABC Section 91.1509.2	✓	✓	✓	✓
Enclosed elevator lobbies shall be provided in accordance with the Los Angeles Fire Code (LAFD) Section 57.4705.1.	✓	✓	✓	✓
Escalator openings or stairways that are not part of the means of egress system and connect more than two stories shall be protected by approved power-operated automatic shutters at every penetrated floor. All automatic shutters shall conform to 2014 LABC Section 91.712.1.3.2	✓	✓	✓	✓
"Option 2" alternatives below must be achieved IN ADDITION to the above "Option 1" HTLA alternatives in order to eliminate both Helipad / EHLF and HTLA requirements, depending on building height				
Provide an automatic sprinkler system installed throughout the High Rise building, design in accordance with Sections 57.903.3.1 of the LAFD. In areas, other than parking garage, the design shall include quick response sprinklers with not less than two additional quick response sprinkler heads above the minimum applicable effective coverage requirements. <i>Note: To meet the intent of this life safety feature it will typically require larger size branch lines for the automatic sprinkler system with quick response sprinkler heads.</i>	✗	✓	✓	✓
Provide a Video Camera Surveillance System with cameras located in all Fire Service Access Elevator Lobbies, and on every 5th floor landing in exit stairway shafts, with an additional camera at the top of the exit stairway shaft. Fire Department video surveillance shall be usable from the Fire Command Center and installed with system cabling "survivability" requirements similar to NFPA Standard 72 for fire alarm systems. System cameras are required to be active during a fire alarm condition within the building.	✗	✓	✓	✓
Provide egress stairways with a capacity, in inches, calculated by multiplying the occupant load served by a means of egress capacity factor of 0.3 inches per person minimum. The capacity shall not be less than specified elsewhere in the building and fire codes.	✗	✗	✗	✓