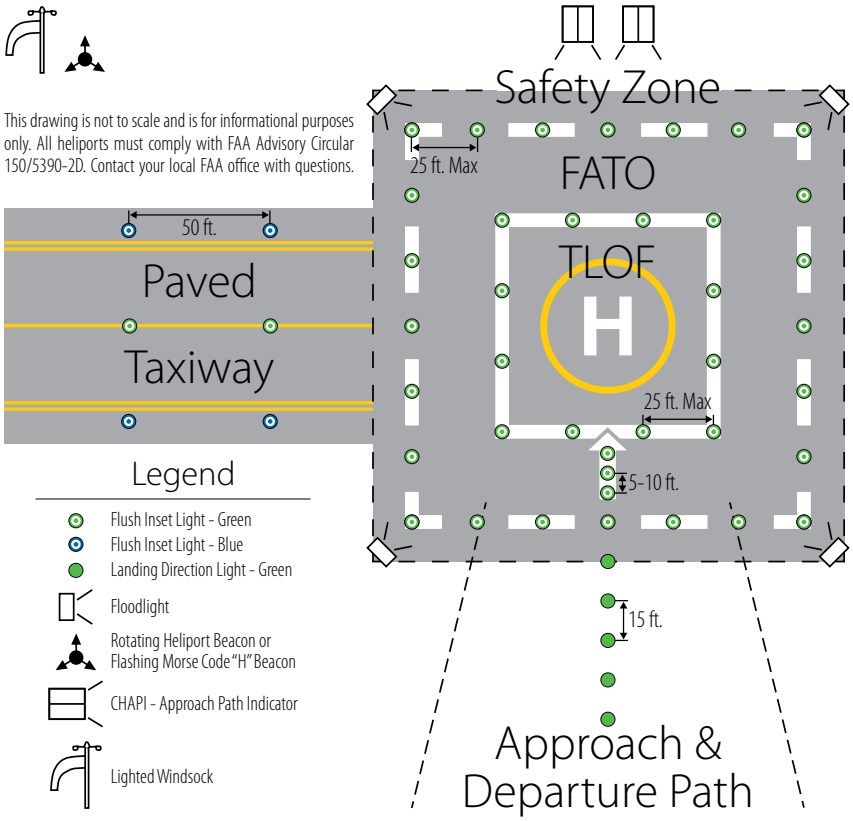
FAA Heliport Design



The following information is for the preliminary planning of a public use, general aviation heliport only. FAA recommendations and standards for heliport design are found in Advisory Circular 150/5390-2D. While the Advisory Circular (AC) provides general design guidance, the AC is advisory only and doesn't mandate required practices. Flight Light recommends that anyone constructing or modifying a heliport should determine all site-specific requirements and consult with a local FAA representative.

Basic Layout

The basic elements of a heliport include:

- Clear approach/departure paths
- Clear area for ground maneuvers
- Final approach and takeoff area (FATO)
- Touchdown and liftoff area (TLOF)
- Safety area
- Wind cone

A heliport should include at least one Touchdown and Liftoff (TLOF) area centered in a Final Approach and Takeoff (FATO) area, a peripheral safety area and two or more approach and departure paths. The TLOF must be at least as long and wide as the rotor diameter of the largest helicopter to use the heliport. The FATO must be at least 1.5 times the overall length of the helicopter. The width of the safety area must be at least 0.28 times the rotor diameter, but not less than 20 ft. (6.1 m). At least two approach/departure paths, with one aligned in the direction of the predominant wind, are required.

Heliport Lighting

Heliports that support night operations under visual meteorological conditions or instrument meteorological conditions for either day or night operations are lighted with TLOF and/or optional FATO perimeter lights. FATO perimeter lights may be used as an option under special circumstances to improve visual acquisition of the approach path and/or landing environment due to varying degrees of ambient light, proximity to airport taxiways, etc.

Other useful visual aids include: floodlights, landing direction lights, taxiway lights, lighted wind cone, heliport identification beacon, and a heliport approach path indicator (CHAPI). Obstruction lights must be installed where required to mark objects in close proximity to the approach/departure path.

Please note: since the FAA AC does not contain intensity standards, perimeter lights can't be FAA certified or deemed compliant.

Touchdown and Liftoff (TLOF) Lights

Flush green lights (meeting the standards of Appx. G) should be used to define the TLOF perimeter. Use a minimum of four light fixtures per side of a square or rectangular TLOF. Locate a light at each corner, with additional lights uniformly spaced between the corner lights. Using an odd number of lights on each side will place lights along the centerline of the approach. Define a circular TLOF using an even number of lights, with a minimum of eight, uniformly spaced. Space the lights at a maximum of 25 ft. (7.6 m). Locate flush lights within 1 ft. (30 cm) inside or outside of the TLOF perimeter. As an option, raised, omnidirectional lights (meeting the requirements of Appx. G) may be used to mark the TLOF perimeter. Locate elevated lights outside and within 10 feet (3 m) of the edge of the TLOF. Ensure elevated lights do not penetrate a horizontal plane at the TLOF elevation by more than 2 inches (51 mm).

Final Approach and Takeoff (FATO) Lights

Green lights (meeting the standards of Appx. G)(with the same candelas as the TLOF lights) may be used to define the FATO perimeter. When a heliport on an airport is sited near a taxiway, yellow lights may be used to avoid pilots confusing the green taxiway centerline lights with the FATO perimeter lights. Do not light the FATO perimeter if any portion of the FATO is not a load-bearing surface. Use a minimum of four flush or raised light fixtures per side of a square or rectangular FATO. Locate a light at each corner, with additional lights uniformly spaced between the corner lights. Using an odd number of lights on each side will place lights along the centerline of the approach. To define a circular FATO, use an even number of lights, with a minimum of eight, uniformly spaced. Space lights at a maximum of 25 ft. (7.6 m). Locate flush lights within 1 ft. (30 cm) inside or outside of the FATO perimeter. For elevated FATOs, locate elevated FATO perimeter lights, no more than 2 inches (51 mm) high, 10 ft. (3 m) from the FATO perimeter. Ensure the elevated lights do not penetrate a horizontal plane at the adjacent TLOF elevation by more than 2 inches (51 mm).

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Floodlights
If ambient light does not adequately illuminate markings for night operations, floodlights should be used to illuminate the TLOF, the FATO, and/or the parking area. Floodlights should be placed so they do not constitute an obstruction hazard. Aim floodlights down to provide adequate illumination on the surface. Make sure floodlights that might interfere with pilot vision during takeoff and landings are capable of being turned off by pilot control or at pilot request. White lighting for heliport applications should not be activated until the aircraft has landed and deactivated prior to takeoff.

Landing Direction Lights
To provide directional guidance, install landing direction lights - a configuration of five green, omnidirectional lights (meeting the standards of Appx. G) on the centerline of the preferred approach/departure path. Space these lights at 15 ft. (4.6 m) intervals beginning at a point not less than 20 ft. (6.1 m) and not more than 60 ft. (18.3 m) from the TLOF perimeter and extending outward in the direction of the preferred approach/departure path.

Flight Path Alignment Lights
You may indicate available approach and/or departure path directions by placing green lights (meeting the standards of Appx. G) in a straight line along the direction of approach and/or departure flight paths. If necessary, extend the lights across the TLOF, FATO, safety area or any suitable surface in the immediate vicinity of the FATO or safety area. Install three or more green lights spaced at 5 ft. (1.5 m) to 10 ft. (3 m).

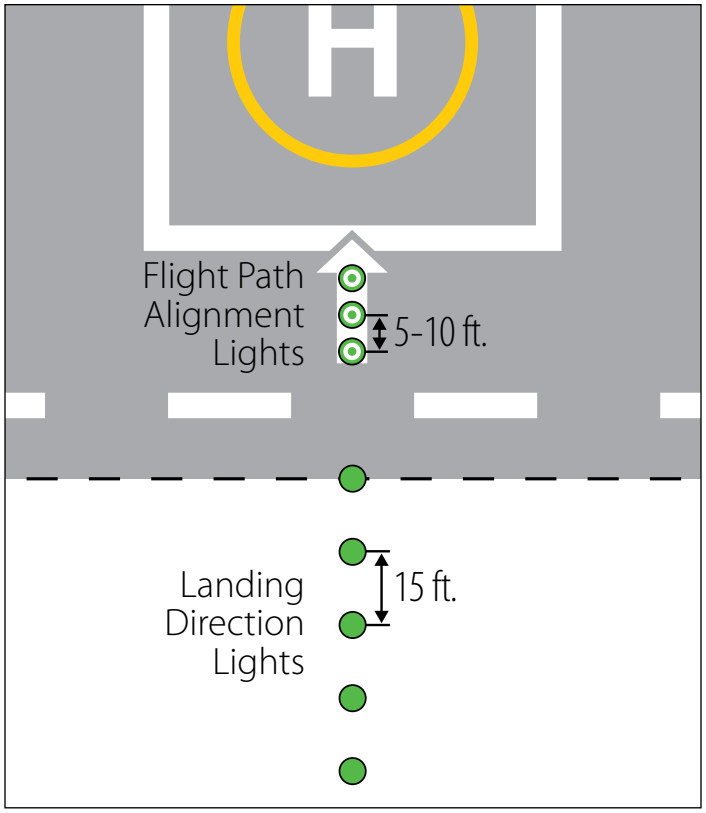
Visual Glide Path Indicator
The heliport approach path indicator (CHAPI) provides pilots with visual course and descent cues. The optimum location of a CHAPI is on the extended centerline of the approach path at a distance that brings the helicopter to a hover with the undercarriage between 3 and 8 ft. (0.9 to 2.4 m) above the TLOF.

Lighted Wind Cone
To show the direction and magnitude of the wind, an FAA L-807 Size 1 (about 22 ft. overall height with an 8 ft., international orange windsock) is recommended; the L-806 (10 ft. tall) may be substituted. The L-807 has a hinged pole and a rigid base, the L-806 has a frangible base. The wind cone must be placed outside the safety zone and away from flight paths.

Heliport Identification Beacon
Located within 1/4 mi of the heliport, three sealed beam lights rotate at 10 to 15 rpm to produce 30 to 45 fpm in white, green and yellow. A beacon using Morse code signals is also available.

Taxiway Lights
Define taxiway centerlines with in-pavement bidirectional green lights. Space these lights at maximum 50-foot (15.2 m) longitudinal intervals on straight segments and at maximum 25-foot (7.6 m) intervals on curved segments, using a minimum of four lights to define the curve. Uniformly offset the taxiway centerline lights no more than two feet (0.6 m) to facilitate painting of the taxiway centerline. For paved taxiways, use type L-852T in-pavement omnidirectional blue lights. The lateral spacing for the lights or reflectors is equal to 0.83 D of the design helicopter, but not more than 35 feet (10.7 m).

Obstruction Lights
Difficult-to-see objects should be marked with a red FAA approved obstruction light. Contact your local FAA office with questions.




TLOF & FATO Light Fixture


Floodlight


CHAPI: Approach Path Indicator


Heliport Identification Beacon


Wind Cone


Obstruction Light

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Basic Heliport Lighting System Packages

Basic packages may be customized and expanded to fit your needs. Call to discuss your requirements.

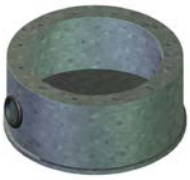
Package 1: Elevated, Incandescent

- Easy installation
- Easy maintenance
- Economical: uses off-the-shelf lamps

Qty:	Item #:	Description:
8	FL-860-G-69A-141	L-860: green, 69W, 14" height, A21 lamp, 1.5" frangible coupling, 120 VAC operation
8	BA-1935AA-25	Base plate for L-868AA base: 8.5" diameter, 7.25" bolt circle
8	BA-725-5-2P1	L-868AA base: 9" x 5" deep, 1" grm @ 0°, 180° with 2" drain, 7.25" BC
1	WCH-806-1-EX-120-N	Externally lit (halogen), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth), 120 VAC operation

FL-860

Base Plate



Base

Wind Cone

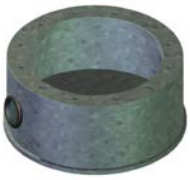
Package 2: Elevated, LED

- Easy installation
- Lowered maintenance: LED life expectancy exceeds 50K hours
- Lowered operating costs: low power LED technology

Qty:	Item #:	Description:
8	HL-860-GL-120-141	Elevated LED (5 watt) green perimeter light and 1.5" frangible coupling, 120V operation
8	BA-1935AA-25	Base plate for L-868AA base: 8.5" diameter, 7.25" bolt circle
8	BA-725-5-2P1	L-868AA base: 9" x 5" deep, 1" grm @ 0°, 180° with 2" drain, 7.25" BC
1	WCH-806-1-EX-120-5	Externally lit (LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 120 VAC operation

HL-860

Base Plate



Base

Wind Cone

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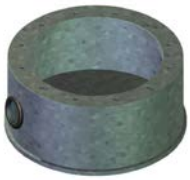
Package 3: Elevated, LED, Low Voltage

- Improved safety: low voltage DC operation
- Easy installation
- Lowered maintenance: LED life expectancy exceeds 50K hours
- Lowered operating costs: low power LED technology

Qty:	Item #:	Description:
8	HL-860-GL-12-141	Elevated LED (5 watt) green perimeter light and 1.5" frangible coupling, 12 VDC operation
8	BA-1935AA-25	Base plate for L-868AA base: 8.5" diameter, 7.25" bolt circle
8	BA-725-5-2P1	L-868AA base: 9" x 5" deep, 1" grm @ 0°, 180° with 2" drain, 7.25" BC
1	HL-HSC-AC1-DC	Low Voltage System Controller with 12 VDC output, on/off switch, 150 watt power output capability (See Controller data sheet for ordering options: Solar, Timer, etc.)
1	WCH-806-1-EX-12-5	Externally lit (low voltage LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 12 VDC operation

HL-860

Base Plate



Base

Controller

Wind Cone

Package 9: Elevated, Solar

- Solar powered, no AC power required.
- For fast, permanent and temporary installations.

Qty:	Item #:	Description:
8	AV70-G or OL4-G	Green, omni-directional, LED, solar elevated light
1	WCH-806-1-EX-12-5 Solar Power Supply	Externally lit (low voltage LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 12 VDC operation with Solar Power Supply

AV70

OL4

Wind Cone

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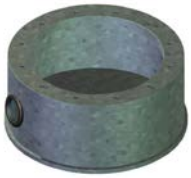
Package 4: Inset, Halogen, 8" Diameter

- Knockdown proof: low profile, used in high traffic areas
- Easy installation
- Easy maintenance
- Economical: uses off-the-shelf lamps

Qty:	Item #:	Description:
8	HL-292-G50 or HL-392-G50	Green omni-directional inset light: anodized aluminum construction, 8" diameter, 7.25" bolt circle, 50W, 120 VAC operation
8	BA-725-5-2	L-868AA base: 9" x 5" deep, 1" grm @ 0°, 180° with 2" drain, 7.25" BC
1	WCH-806-1-EX-120-N	Externally lit (halogen), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth), 120 VAC operation

HL-292

HL-392



Base

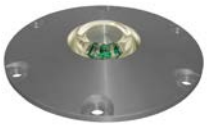
Wind Cone

Package 5: Inset, LED, 8" Diameter

- Knockdown proof: low profile, used in high traffic areas
- Easy installation
- Low maintenance: LED life expectancy exceeds 50K hours
- Low operating costs: low power LED technology

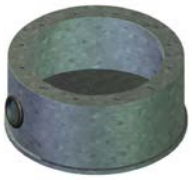
Qty:	Item #:	Description:
8	HL-292-GLP, HL-392-GLP, or HL-692LGAC	Green omni-directional LED inset light: anodized aluminum construction, 8" diameter, 7.25" bolt circle, 120V/240V operation
8	BA-725-5-2	L-868AA base: 9" x 5" deep, 1" grm @ 0°, 180° with 2" drain, 7.25" BC
1	WCH-806-1-EX-120-5	Externally lit (LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 120 VAC operation

HL-292



HL-392

HL-692L



Base

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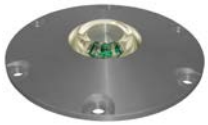
Package 6: Inset, LED, Low Voltage, 8" Diam.

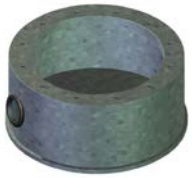
- Safety: low voltage DC operation
- Knockdown proof: low profile, used in high traffic areas
- Easy installation
- Low maintenance: LED life expectancy exceeds 50K hours
- Low operating costs: low power LED technology

Qty:	Item #:	Description:
8	HL-292-GLV, HL-392-GLV, or HL-692LGDC	Green omni-directional LED inset light: anodized aluminum construction, 8" diameter, 7.25" bolt circle, 12 VDC operation
8	BA-725-5-2	L-868AA base: 9" x 5" deep, 1" grm @ 0°, 180° with 2" drain, 7.25" BC
1	HL-HSC-AC1-DC	Low Voltage System Controller with 12 VDC output, on/off switch, 150 watt power output capability (See Controller data sheet for ordering options: Solar, Timer, etc.)
1	WCH-806-1-EX-12-5	Externally lit (low voltage LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 12 VDC operation


HL-292


HL-392


HL-692L


Base


Controller

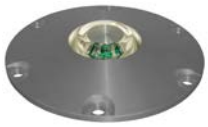

Wind Cone

Package 7: Inset, LED, Low Voltage, Dimming, 8" Diam.

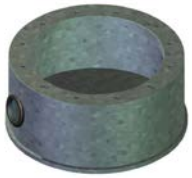
- Safety: low voltage DC operation
- Knockdown proof: low profile, used in high traffic areas
- Dim lights at night to reduce glare - select from three brightness levels
- Low maintenance: LED life expectancy exceeds 50K hours
- Low operating costs: low power LED technology

Qty:	Item #:	Description:
8	HL-292-GLVD, HL-392-GLVD, or HL-692LGDCD	Green omni-directional dimming LED inset light: anodized aluminum construction, 8" diameter, 7.25" bolt circle, 12 VDC operation
8	BA-725-5-2	L-868AA base: 9" x 5" deep, 1" grm @ 0°, 180° with 2" drain, 7.25" BC
1	HL-HSC-AC1-DC-D	Low Voltage Dimming System Controller with 12 VDC output, on/off switch, dimming option, 150 watt power output capability (See Controller data sheet for ordering options: Solar, Timer, etc.)
1	WCH-806-1-EX-12-5	Externally lit (low voltage LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 12 VDC operation


HL-292


HL-392


HL-692L


Base


Controller


Wind Cone

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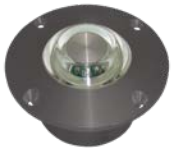
Package 8: Inset, LED, Low Voltage, 6" Diam.*

- Safety: low voltage DC operation
- 6" recessed, semi-flush mounted fixture
- Knockdown proof: low profile, used in high traffic areas
- Easy installation
- Low maintenance: LED life expectancy exceeds 50K hours
- Low operating costs: low power LED technology

Qty:	Item #:	Description:
8	HL-492-GLV	Green omni-directional LED (8 watt) inset light: anodized aluminum construction, 6" diameter, 5.25" bolt circle, 12 VDC operation
8	BA-525-6	Base: 6.5" x 6" deep, 1" grm @ 0°, 180°, 5.25" BC
1	HL-HSC-AC1-DC	Low Voltage System Controller with 12 VDC output, on/off switch, 150 watt power output capability (See Controller data sheet for ordering options: Solar, Timer, etc.)
1	WCH-806-1-EX-12-5	Externally lit (low voltage LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 12 VDC operation

* The HL-492 is also available in 120 VAC LED and Low Voltage Dimming LED packages.



HL-492

Base

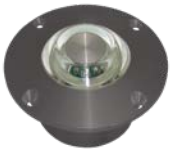
Controller

Wind Cone

Package 10: Inset, LED, 6" Diam., "Drone Heliport"

- 6" recessed, semi-flush mounted fixture
- Knockdown proof: low profile, used in high traffic areas
- Easy installation
- Low maintenance: LED life expectancy exceeds 50K hours
- Low operating costs: low power LED technology

Qty:	Item #:	Description:
4	HL-492-GLP	Green omni-directional LED (8 watt) inset light: anodized aluminum construction, 6" diameter, 5.25" bolt circle, 120V/240V operation
4	BA-525-6	Base: 6.5" x 6" deep, 1" grm @ 0°, 180°, 5.25" BC



HL-492

Base

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Package 11: Surface Mount, LED, Stainless Steel

- Low-profile.
- Easy installation.
- Easy maintenance.
- Corrosive resistant stainless steel construction.

Qty:	Item #:	Description:
8	HL-580L-G	Green omni-directional LED (8 watt) surface mount light: stainless steel construction, 5" height, 120V/240V operation
1	WCH-806-1-EX-120-5	Externally lit (LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 120 VAC operation

HL-580L

Wind Cone

Package 12: Surface Mount, LED, Machined Aluminum

- Low-profile.
- Easy installation.
- Easy maintenance.
- Sturdy aluminum construction.

Qty:	Item #:	Description:
8	HL-582L-G	Green omni-directional LED (8 watt) surface mount light: machined aluminum construction, 5" height, 120V/240V operation
1	WCH-806-1-EX-120-5	Externally lit (LED), L-806 wind cone with orange nylon wind sock (8 ft. long by 18 in. diameter at the mouth) and L-810 LED obstruction light, 120 VAC operation

HL-582L

Wind Cone