REFERENCE GUIDE

FAA RECOMMENDATIONS

Marking & Visual Identification of Obstacles

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Avlite Systems an international designer & manufacturer of complete aviation lighting systems; airfield, heli & obstruction

We believe technology improves navigation™

FAA Regulations

The Federal Aviation Administration (FAA) is the national aviation authority of the United States. As an agency of the United States Department of Transportation, it has authority to regulate and oversee all aspects of civil aviation in the U.S., including obstruction lighting.

The following information is intended to provide basic guidance for marking structures. Please contact FAA for comprehensive information and guidelines.

Lighting systems

Red Obstruction Lighting System (L-864 and/or L-810)

This system increases conspicuity during nighttime and uses synchronized flashing beacons (L-864) and/or steady burning lights (L-810). This system is usually used on structures up to 150 feet (46m) in height.

If the malfunction of a single light could create an unsafe environment then a dual light fixture should be used either operating simultaneously or using a transfer relay to switch to the secondary unit if the primary light should fail.

Medium Intensity Flashing White Obstruction Lighting System (L-865)

This system uses medium intensity synchronized flashing white obstruction lights to provide conspicuity both day and night. This system is not usually used on structures less than 200 feet (61m).

High Intensity Flashing White Obstruction Lighting System (L-856)

To provide the highest degree of conspicuity both day and night, high intensity flashing white obstruction lights are used. This system is not usually used on structures which are 500 feet (153m) or less.

Dual Lighting with Red/Medium Intensity Flashing White Lighting Systems (L-864 and L-865)

In some populated areas where the use of medium intensity lights may cause environmental concerns this lighting system may be used in lieu of operating a medium flashing white lighting system at night. This system consists of red lights (L-864) for nighttime and medium intensity flashing white lights (L-865) for daytime and twilight use.

Dual Lighting with Red/High Intensity Flashing White Lighting Systems (L-864 and L-856)

Where the use of high intensity lights at night may cause environmental concerns or complaints, this lighting system may be used in lieu of a flashing white lighting system at night. This dual lighting system consists of red lights (L-864) for nighttime and high intensity flashing white lights (L-856) for daytime and twilight use.

General characteristics of obstruction lights

FAA Obstruction Lighting Equipment Classification

Type	Description
L-810	Steady-burning Red Obstruction Light
L-856	High Intensity Flashing White Obstruction Light (40 FPM)
L-857	High Intensity Flashing White Obstruction Light (60 FPM)
L-864	Flashing Red Obstruction Light (20-40 FPM)
L-865	Medium Intensity Flashing White Obstruction Light (40 FPM)
L-866	Medium Intensity Flashing White Obstruction Light (60 FPM)
L-864/L-865	Dual: Flashing Red Obstruction Light (20-40 FPM) & Medium Intensity Flashing White Obstruction Light (40 FPM)
L-885	Red Catenary 60 FPM

FPM: Flashes Per Minute

Flash Characteristics

Lights should flash in synchronisation when one or more light levels consists of flashing beacons.

FAA Obstruction Lighting System Configuration

FAA Style	Obstruction Lighting Standard	Day Protection	Twilight Protection	Night Protection
A	Red Obstruction Lighting	Aviation Orange/White paint		2,000cd Red Beacon & sidelights
B	High Intensity	200,000cd White Strobe	20,000cd White Strobe	2,000cd White Strobe
C	High Intensity	200,000cd White Strobe	20,000cd White Strobe	2,000cd White Strobe
D	Medium Intensity White	20,000cd White Strobe	20,000cd White Strobe	2,000cd White Strobe
E	Dual Medium Intensity	20,000cd White Strobe	20,000cd White Strobe	2,000cd Red Strobe & sidelights
F	Dual High Intensity	200,000cd White Strobe	20,000cd White Strobe	2,000cd Red Strobe & sidelights

Monitoring obstruction lights

The FAA states that 'conspicuity is achieved only when all recommended lights are working' and 'any outage should be corrected as soon as possible'. If a structure is not easily inspected by visual observation, an automatic monitoring system should be used. The operational status of all lights should be confirmed at least once every 24 hours.

Location of lights on obstacles

Obstruction lights should be located as close as practical to the top of the structure, however in the case of a chimney the top lights should be placed so as to minimize contamination by smoke.

The top lights should be positioned so they indicate the general definition and the extent of the structure(s) and need to at least indicate the points or edges of the object highest in relation to the obstacle limitation surface.

Light Levels

The height of the structure determines the number of light levels required.

Generally, structures less than 200 feet (61m) in height require one light level.

For heights greater than 200 feet (61m) intermediate light levels must be added.

The number and arrangement of obstruction lights at each level should be placed so the lighting is visible to a pilot approaching from any direction. Additional lights may be needed so as to retain the general definition of the structure.

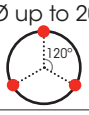
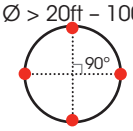
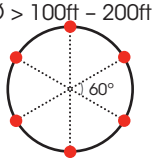
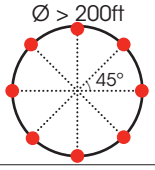
Longitudinal Light Spacing

The number of lights on each level is determined by the shape and height of the structure including antennas and similar appurtenances.

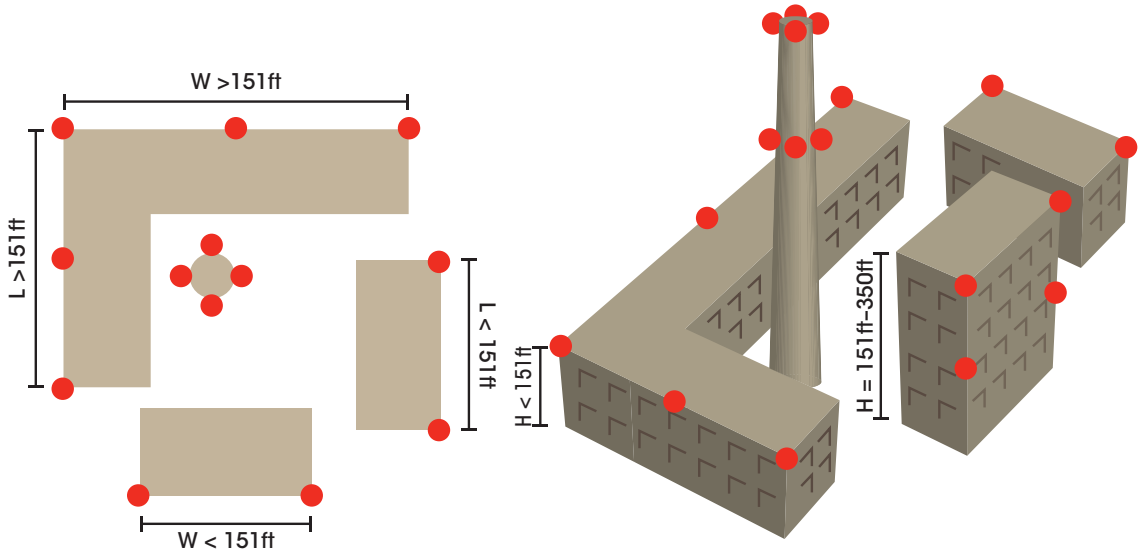
Obstruction lights should be spaced at longitudinal intervals no greater than 150 feet (46m).

In the case of a cylindrical structure such as a chimney or water tower the diameter of the structure determines the number of lights required per level. (See table: Longitudinal light spacing for cylindrical structures)

Longitudinal light spacing for cylindrical structures

Diameter of structure	Number of lights per level
Ø up to 20ft 	Diameter of level up to 20ft: • 3 obstruction lights • Lights to be placed at 120° intervals around the structure
Ø > 20ft – 100ft 	Diameter of level > 20ft up to 100ft: • 4 obstruction lights • Lights to be placed at 90° intervals around the structure
Ø > 100ft – 200ft 	Diameter of level > 100ft up to 200ft: • 6 obstruction lights • Lights to be placed at 60° intervals around the structure
Ø > 200ft 	Diameter of level > 200ft: • 8 obstruction lights • Lights to be placed at 45° intervals around the structure

Location of lights on buildings

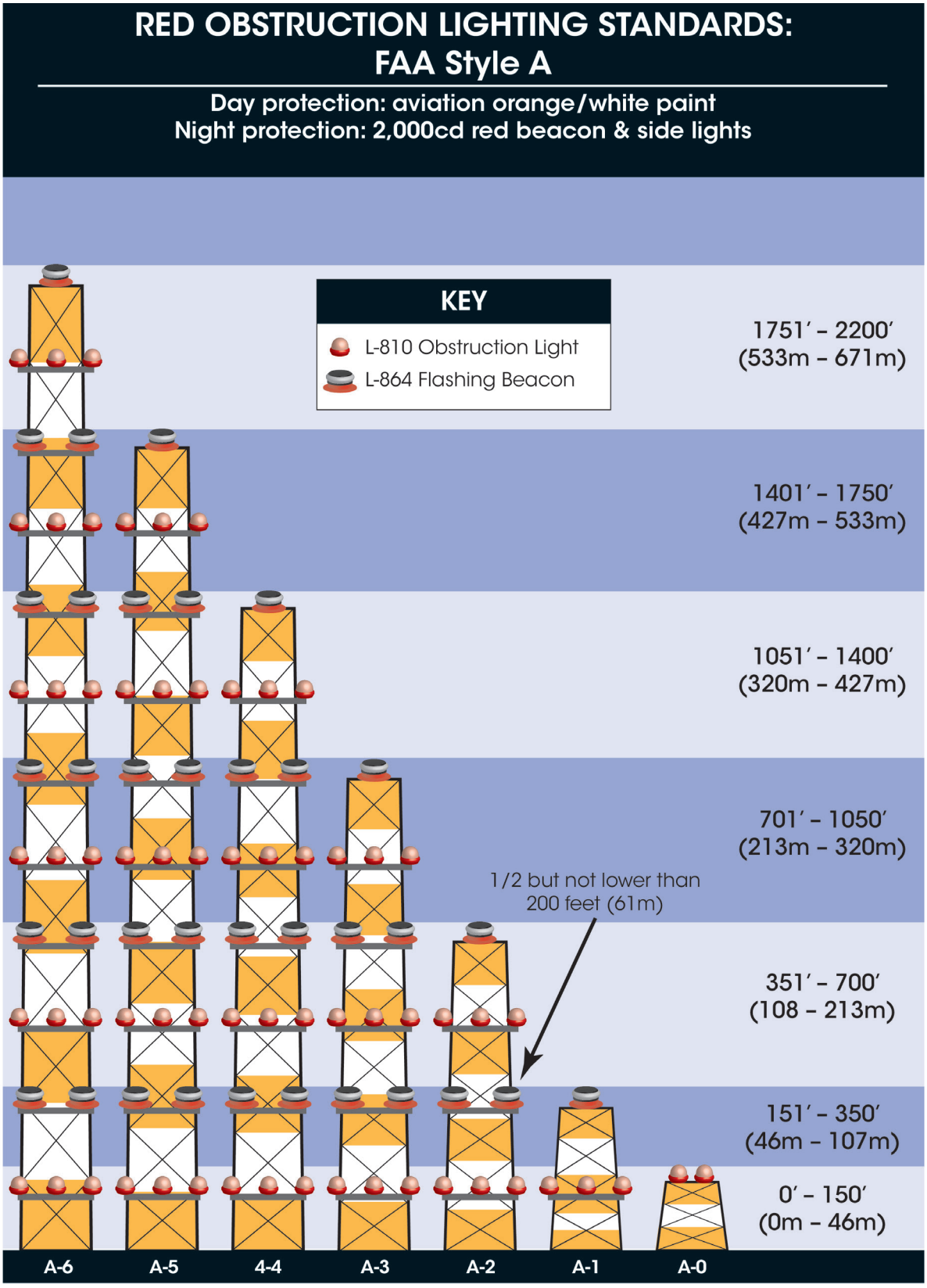


Disclaimer: The information contained in this publication is advisory only. Please contact your local authority for rules and regulations particular to your region. For further information about FAA and to view their standards and recommended practices for obstruction lighting and marking, please visit www.faa.gov

References: FAA Advisory Circular AC 70/7460/1K, Obstruction Marking and Lighting

FAA Regulations

Location of lights on obstacles



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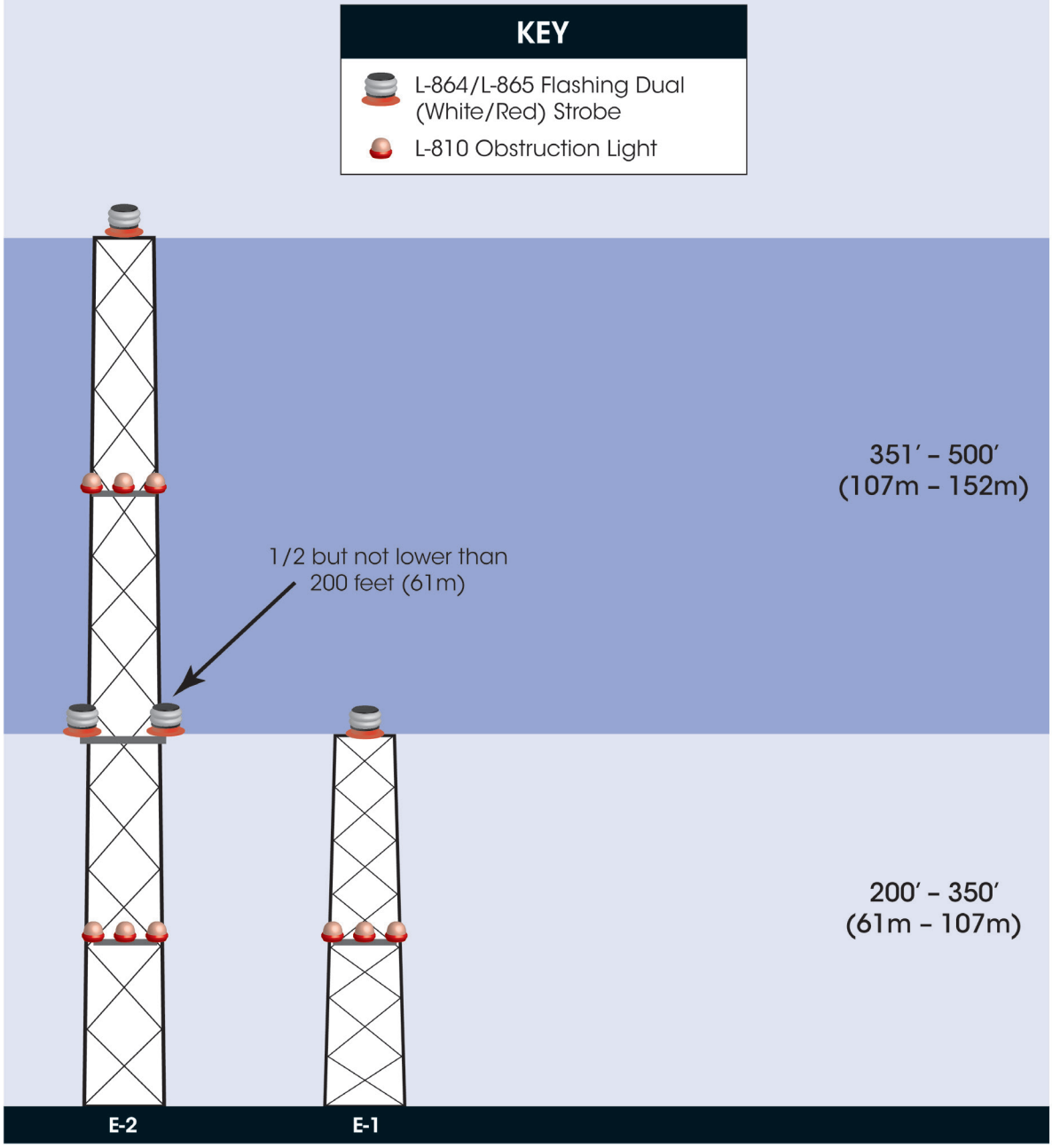
MEDIUM INTENSITY DUAL OBSTRUCTION LIGHTING STANDARDS: FAA Style E

Day/twilight protection: 20,000cd white strobe
Night protection: 2,000cd red strobe & sidelights
Painting of tower is typically not required



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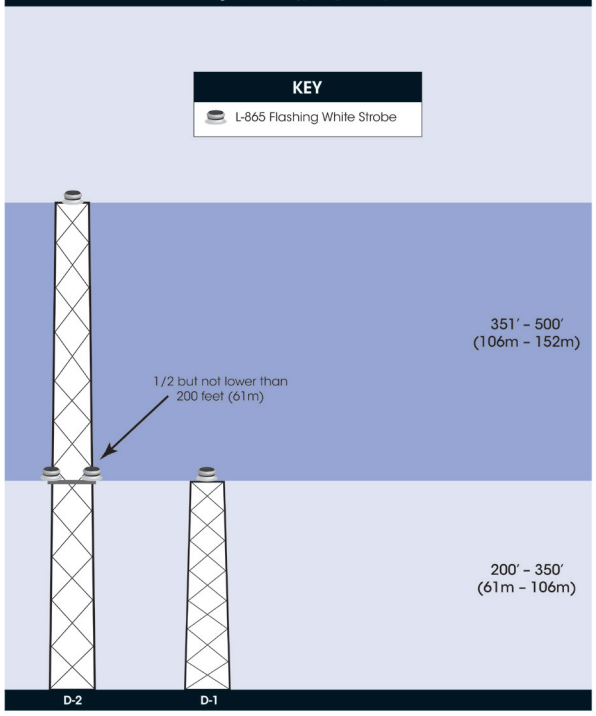
Location of lights on obstacles

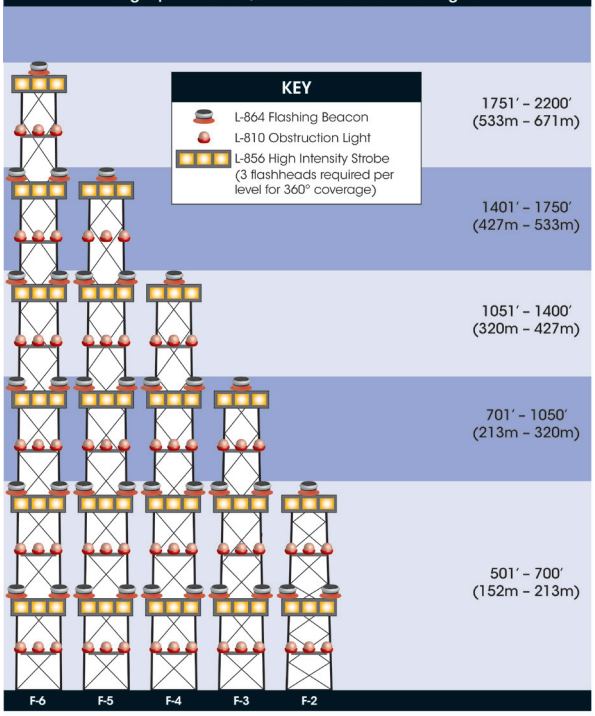
MEDIUM INTENSITY WHITE OBSTRUCTION LIGHTING STANDARDS: FAA Style D

Day/twilight protection: 20,000cd white strobe
Night protection: 2,000cd white strobe
Painting of tower is typically not required



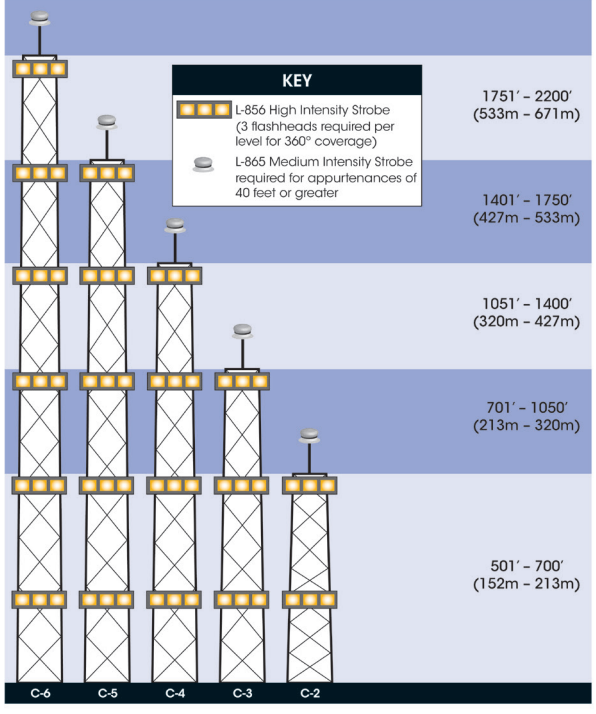
DUAL HIGH INTENSITY OBSTRUCTION LIGHTING STANDARDS: FAA Style F

Day protection: 200,000cd white strobe
Twilight protection: 20,000cd white strobe
Night protection: 2,000cd red beacon & sidelights



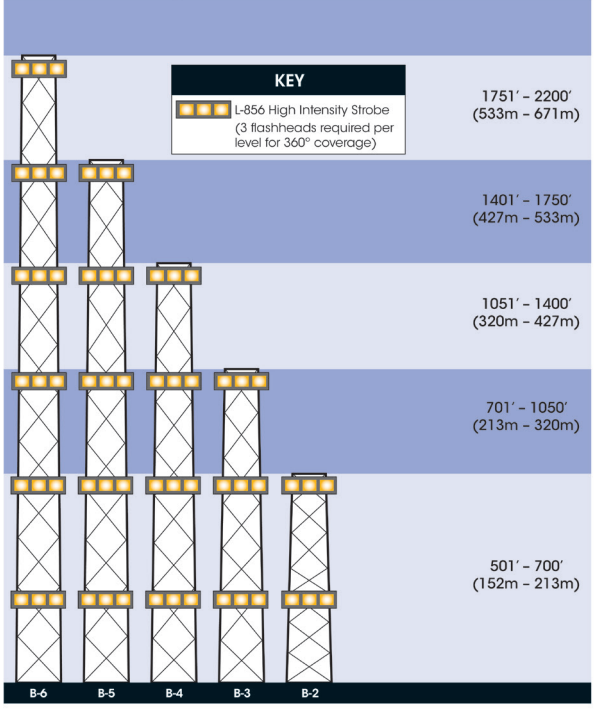
HIGH INTENSITY OBSTRUCTION LIGHTING STANDARDS: FAA Style C

Day protection: 200,000cd white strobe
Twilight protection: 20,000cd white strobe
Night protection: 2,000cd white strobe



HIGH INTENSITY OBSTRUCTION LIGHTING STANDARDS: FAA Style B

Day protection: 200,000cd white strobe
Twilight protection: 20,000cd white strobe
Night protection: 2,000cd white strobe



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