OBSTRUCTION LIGHTING FIXTURES

Any construction, such as skyscrapers, towers, equipment plant tours, pylons etc. that could represent an obstacle to air navigation, even if located outside the airport fence, must be provided with adequate warning lights.
Air traffic safety is regulated by ICAO (International Civil Aviation Organization). ICAO classifies airports into ten categories and, for each category of airport, defines an area, including in so-called "area of obstacles delimitation" that extends to a predetermined distance from the airport itself.
Any object, which rises above the surfaces of obstacles delimitation and cannot be removed, becomes an obstacle to air navigation and must be properly signaled.
The responsibility for the placement of obstruction lighting fixture and their maintenance in efficiency is of the owner of the obstacle that must be lighted. So, all the refinery towers, for example, in a petrochemical plant are obstacles to be signaled. In this case, ICAO regulations and explosion-proof standards must be respected.

Obstruction lighting fixtures may be:

- low intensity, red, and fixed type unidirectional;
- medium intensity, red and intermittent;
- high intensity, white and intermittent.

ICAO regulations, acknowledged in Italy by ENAC, require that the medium intensity lights are used to signal, in combination with other low-intensity also, obstacles of large extensions such as all the tours of a chemical plant.
The signal lights must be placed first on the top of the object. In the case of an object of great extension or a group of nearby objects, the fixtures must be placed at least on points or on the higher sides of objects, in order to signal the contours. In the case of high and thin obstacles, if the installation of signal lights (high intensity) on the top was impossible because of their weight, the lights must be placed at the highest point possible, with on the top a white intermittent light of medium intensity of weight compatible with the structure.
However, at any level they are placed, is important that the lights are visible from every direction.

Regarding the power supply, there are no specific regulations. However, please note that if an obstacle is placed inside the airport or in the zones around it, the security power supply of obstruction lighting fixtures must be guaranteed. For the signal fixtures of pylons, which can also be placed in the most inaccessible places, are commercially available LED lights with spare battery.

Regarding the obstruction lighting fixtures installed in areas with presence of potentially explosive atmosphere, they must be in accordance with the ATEX directive 94/9/EC. The lighting fixtures today on the market usually have a protection Ex d, Ex e or mixed Ex de.

Currently, with the improvement of the luminous efficiency of LEDs, Ex de equipment are taking off, in accordance with IEC EN 60079-1 and e IEC 60079-7, which contain the proper lighting set up by groups of high efficiency LEDs. They guarantee protection against explosions and periodic maintenance much extended over time, as the duration of the LEDs is around 50,000 hours.
This means that frequent maintenance operations are not necessary.
This is a benefit for safety and for saving on maintenance costs.