MAINTENANCE PRINCIPLES

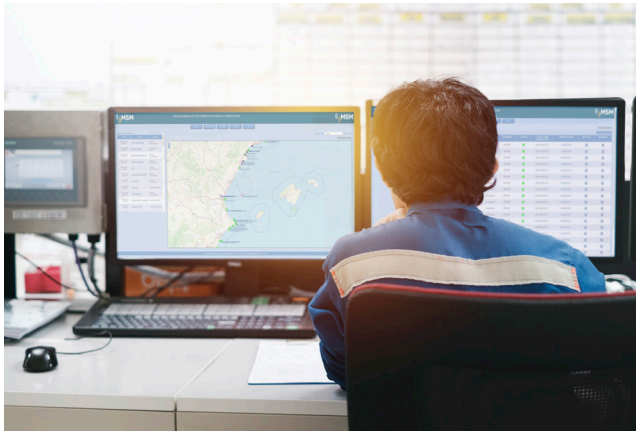
To properly preserve and maintain AtoN structures, particularly lighthouses, it is necessary to understand the original design concept. Whilst such information for very old lighthouses may be difficult to trace, many more recent ones have good reports as they are the work of known individual, or teams of, professional architects/ engineers.

It is also beneficial to understand the reasons for changes in the original design concept and the historical importance of alterations that structures have undergone, especially de-manning and automation, and as they continue to be modified and adapted to house new systems and modern equipment.

Structures used for AtoN purposes vary considerably in terms of their design, component materials, their location, the environment in which they are located and their exposure to environmental and climatic conditions.

Routine maintenance is essential to maximise the life of AtoN structures. Generally, most structures constructed of masonry, concrete and composite materials require a minimal maintenance regime, whereas, structures comprising iron, metal, steel and similar constructions require more frequent action to ensure a long service life.

Maintenance of any structure begins with scheduled inspections and routine maintenance. Scheduled inspections are the most basic form of maintenance and are critical in the long-term preservation of AtoN structures. The inspection process is a method for identification of maintenance issues and should be carried out periodically.



MAINTENANCE MANAGEMENT SYSTEMS

Computerised maintenance management systems are available to assist authorities schedule, plan, manage and track maintenance activities and keep a historical record of work performed.

MAINTENANCE OF HERITAGE AND HISTORIC LIGHTHOUSES

Lighthouses may have statutory designations applied to them such as historic lighthouses/buildings, protected structures, listed buildings, or similar. Care is required in the selection of materials, products and repair techniques, together with suitably qualified personnel in the repair and maintenance of such structures or buildings. Careless maintenance methods used on historic lighthouses can result in irreparable damage to the valuable material of the structure.

This article covers the following AtoN infrastructure:

- **Lighthouse:** A tower, or substantial building or structure, erected at a designated geographical location to carry a signal light and to assist marine navigation.

- **Beacon:** A fixed artificial navigation mark that can be recognised by its shape, colour, pattern, topmark or light character, or a combination of these. It may carry various additional aids to navigation.

- **Ancillary facilities:** All structures at a lighthouse station, other than the lighthouse tower, which can include dwellings, equipment rooms, outbuildings, boat landings, etc. necessary for facilities to support the AtoN services.

IALA

Materials typically used in the construction of lighthouses, beacons and ancillary facilities include:

- masonry (stone, brick, etc.);
- timber;
- concrete;
- iron (wrought and cast);
- steel (including galvanised steel, stainless steel, duplex steel);
- non-ferrous metal (e.g., aluminium, brass, copper, etc.);
- composite materials (e.g., GRP); and
- a combination of some of the above materials.

In the second part of this two article series, we will give specific information about performance, characteristics and maintenance for each of this materials and type of Aids to Navegation.

The autoevaluation test, will be done after this upcoming article.