CHAPTER 18

MAINTENANCE

Article 103. Maintenance

103.1 Definition

Maintenance of a structure is understood to be the set of activities required to ensure that the level of performance for which it has been designed, under the criteria laid down in these This codes, do not fall below a certain threshold during the useful life of the design, which are determined by mechanical, durability, functional and, where appropriate, aesthetic characteristics. For this reason, from the time the structure is commissioned, the Owner shall plan and carry out the maintenance activities indicated in this Article in a manner consistent with the criteria adopted in the design.

When specific maintenance regulations exist based on the characteristics of the work, these shall be applied together with those indicated in these This codes.

Maintenance is an activity of a preventive nature that prevents or delays the onset of problems that would otherwise be more complicated and financially costly to resolve.

103.2 Maintenance strategy

Activities relating to the maintenance of the structure are part of a more extensive general framework that may be described as a “structural management system”. Maintenance activities are a great responsibility and it is a requirement that they should be carried out by staff with the necessary training and resources.

When managing these assets, the following aspects shall be considered from an operational viewpoint:

- For documentary archive for the structure The Owner shall be responsible for preserving the full Construction Design and also any subsequent design that may become necessary due to repairs, reinforcements, extensions, etc., and also memos or reports connected with the history of the structure.
- Routine inspections. The Owner is also responsible for carrying out routine inspections that allow the correct operation of components connected with the operation and durability of the structure to be ensured. In this sense, as an example, period operations shall be carried out to clean drainage components, repair waterproofing components, joints, etc., in general, auxiliary components, non structural components with a useful life less than that of the structure whose degradation could negatively affect that of the structure. The frequency of such inspections shall be established by the Designer, depending on the operational, seasonal conditions, etc.
- Main inspections, carried out on the request of the Owner, by qualified engineers experienced in this type of work, as indicated in 103.3.
- Special inspections and load tests that require specific monitoring of the structure and later analytical assessment for the formulation of diagnoses.

It is the Owner's responsibility to organise maintenance tasks around the operating guidelines given with the aim of providing information closely related to the long-term performance level of the structure at all times.

103.3 Maintenance plan

In the design of all types of structure, within the framework of this Code, it shall be obligatory to include an Inspection and Maintenance Plan that defines operations to be carried out throughout the useful life of the structure.

The Inspection and Maintenance Plan shall contain a specific definition of at least the following points:

- Description of the structure and exposure classes of its components.
- Useful life considered.
- Critical structural points, highlighted as requiring special attention for the purposes of inspection and maintenance.
- Regularity of inspections.
- Auxiliary equipment for access to the different areas of the structure, where appropriate.
- Recommended inspection methods and criteria.
- Identification and description of the recommended maintenance methods, where this need is identified, to an appropriate level of detail.

The main inspection of the structure shall be defined as the set of technical activities carried out in accordance with a prior plan that allows, where applicable, the detection of damage displayed by the structure, its user's operating, durability and safety conditions and also allow future behaviour to be predicted.

This task is of enormous importance and requires the contribution of engineers with certified training, resources and experience.

The process begins with the carrying out of a main, initial or status 0 inspection that is the outcome of an inspection carried out on the constructed components (Article 79). From this point, subsequent main inspections are carried out different intervals that take into account developments in the condition of the structure.

Having assessed the state of the structure and, where applicable, its speed of deterioration by comparison with previous inspections, the process shall specify whether a special inspection should be undertaken or whether, on the contrary, it is possible to wait until the next main inspection planned in accordance with the protocol laid down by the Design Author or, where applicable, by the Owner.

The frequency with which main inspections are carried out shall be defined by the Design Author in the corresponding Inspection and Maintenance Plan and shall not be less than that laid down by the Owner, where appropriate.