

CHAPTER 4 LOADS AND ENVIRONMENTAL ACTIONS

In general, the loads and the environmental actions shall be considered in accordance with the Standard Specifications for Design and Construction of Concrete Structures 1996 (Design) (Seismic Design) (Construction) and the Standard Specifications for Design and Construction of Concrete Structures 1999 (Construction).

[Commentary]

The type of load, combination of loads, characteristic value for loads, load factors and other values should be considered in accordance with the Standard Specifications for Design and Construction of Concrete Structures (Design). Moreover, the seismic actions should be considered as "accidental load" in accordance with Standard Specifications for Design and Construction of Concrete Structures (Seismic Design).

Environmental actions imply the successive actions on the structure during its service life, causing the materials in the structure to change and deteriorate over time. These actions include temperature, humidity, the influence of dryness and moisture, salts, acids, alkaline, chemical substance, ultraviolet light, wear caused by drifting sand, and so on.

In addition, when preparing upgrading design using continuous fiber sheets or continuous fiber strands, it is important to consider impacts from drifting rocks, drifting wood, vehicles, flying objects, and the effects of fire as factors causing change and deterioration to upgraded materials, in accordance with the structure environment. At present, there is no general established methods for expressing the magnitude of the actions and the change over time for most types of environmental actions. However, suitable values for environmental actions may be established after referring to these recommendations, the Standard Specifications for Design and Construction of Concrete Structures (Design) (Construction), the Recommendations for Durability design of Concrete Structures, the Recommendations for Maintenance of Concrete Structures.