Indian Standard

MECHANICAL VIBRATION AND SHOCK — VIBRATION OF FIXED STRUCTURES — GUIDELINES FOR THE MEASUREMENT OF VIBRATIONS AND EVALUATION OF THEIR EFFECTS ON STRUCTURES

1 Scope

This International Standard establishes principles for carrying out vibration measurement and processing data with regard to evaluating vibration effects on structures. It does not cover the source of excitation except when the source dictates dynamic range, frequency or other relevant parameters. The evaluation of the effects of structural vibration is primarily obtained from the response of the structure, using appropriate analytical methods by which the frequency, duration and amplitude can be defined. This International Standard only deals with the measurement of structural vibration and excludes the measurement of airborne sound pressure and other pressure fluctuations, although response to such excitations is taken into consideration.

This International Standard applies to all structures built above or below ground. Such structures are used or maintained and include buildings, structures of archaeological and historical value (cultural heritage), bridges and tunnels, gas and liquid installations including pipelines, earth structures (e.g. dykes and embankments), and fixed marine installations (e.g. quays and wharfs).

This International Standard does not apply to some special structures, including nuclear plants and dams.

The response of structures depends upon the excitation. This International Standard examines the methods of measurement as affected by the source of excitation, i.e. frequency, duration, and amplitude as induced by any source (e.g. earthquake, hurricane, explosion, wind loading, airborne noise, sonic boom, internal machinery, traffic, and construction activities).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2041, *Mechanical vibration, shock and condition monitoring — Vocabulary*