Elements of a Fixed Equipment Mechanical Integrity (FE MI) Program

API BULLETIN 592
FIRST EDITION, JUNE 2025

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1 Scope

1.1 General

Mechanical integrity (MI) is a key pillar in safe operation of any process facility. The term mechanical integrity (or asset integrity) applies broadly to all equipment types including fixed equipment, rotating equipment, mitigation equipment (lower explosive limit, deluge, gas detector, suppression), and instrumentation/controls. Inspection, testing, and preventive maintenance tasks for each equipment type are crucial for safe operation and reliability of a process facility.

1.2 Purpose

The purpose of this document is to provide information on the MI program for the different types of fixed equipment. Other process equipment, such as rotating equipment and instrumentation/controls, are not covered in this document. Development of MI programs in various industries involves interpretation of regulations and case-by-case decision making, depending on the complexity of the equipment. The contents of this document are intended to assist in determination of:

— the key elements and considerations in developing a fixed equipment MI program based on process safety management (PSM) guidelines/principles (or best practices);

— how API documents and other codes, standards, and guidance documents fit into the MI program.

1.3 Limitations

The principles outlined are intended to be used by owner-operators for fixed equipment in their facilities to align with construction codes, inspection codes, standards, or other prevailing requirements. This document is not used as a substitute for a complete Mechanical Integrity Program as defined by applicable local regulations (e.g. OSHA[1] 1910.119) but only as a compendium of principles and common industry practices by which such a program is established.

Local regulatory or jurisdictional requirements may be in contradiction with some of the suggestions provided in this document or some of the referenced codes and standards. In these cases, local regulatory or jurisdictional requirements take precedence.

2 Normative References

No other document is identified as indispensable or required for the application of this publication. A list of documents associated with API 592 is included in the bibliography.

3 Terms, Definitions, Acronyms, and Abbreviations

3.1 Terms and Definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
aboveground storage tank
A vertical, cylindrical structure built above ground level and designed to hold a liquid or gas, but other shapes are also used.

[1] U.S. Department of Labor, Occupational Safety and Health Administration, 200 Constitution Avenue, NW, Washington, DC 20210, www.osha.gov.