Management of Hazards Associated with Location of Process Plant Permanent Buildings

API RECOMMENDED PRACTICE 752
FOURTH EDITION, JANUARY 2024

Special Notes

API publications necessarily address problems of a general nature. With respect to particular circumstances, local, state, and federal laws and regulations should be reviewed. The use of API publications is voluntary. In some cases, third parties or authorities having jurisdiction may choose to incorporate API standards by reference and may mandate compliance.

Neither API nor any of API's employees, subcontractors, consultants, committees, or other assignees make any warranty or representation, either express or implied, with respect to the accuracy, completeness, or usefulness of the information contained herein, or assume any liability or responsibility for any use, or the results of such use, of any information or process disclosed in this publication. Neither API nor any of API's employees, subcontractors, consultants, or other assignees represent that use of this publication would not infringe upon privately owned rights.

Users of this recommended practice (RP) should not rely exclusively on the information contained in this document. Sound business, scientific, engineering, and safety judgment should be used in employing the information contained herein.

API is not undertaking to meet the duties of employers, manufacturers, or suppliers to warn and properly train and equip their employees, and others exposed, concerning health and safety risks and precautions, nor undertaking their obligations to comply with authorities having jurisdiction.

Information concerning safety and health risks and proper precautions with respect to particular materials and conditions should be obtained from the employer, the manufacturer or supplier of that material, or the material safety datasheet.

Where applicable, authorities having jurisdiction should be consulted.

Work sites and equipment operations may differ. Users are solely responsible for assessing their specific equipment and premises in determining the appropriateness of applying the RP. At all times users should employ sound business, scientific, engineering, and safety judgement when using this RP.

API publications may be used by anyone desiring to do so. Every effort has been made by the Institute to assure the accuracy and reliability of the data contained in them; however, the Institute makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any authorities having jurisdiction with which this publication may conflict.

API publications are published to facilitate the broad availability of proven, sound engineering and operating practices. These publications are not intended to obviate the need for applying sound engineering judgment regarding when and where these publications should be used. The formulation and publication of API publications is not intended in any way to inhibit anyone from using any other practices.

Any manufacturer marking equipment or materials in conformance with the marking requirements of an API standard is solely responsible for complying with all the applicable requirements of that standard. API does not represent, warrant, or guarantee that such products do in fact conform to the applicable API standard.

Foreword

Nothing contained in any API publication is to be construed as granting any right, by implication or otherwise, for the manufacture, sale, or use of any method, apparatus, or product covered by letters patent. Neither should anything contained in the publication be construed as insuring anyone against liability for infringement of letters patent.

The verbal forms used to express the provisions in this document are as follows.

Shall: As used in a standard, “shall” denotes a minimum requirement to conform to the standard.

Should: As used in a standard, “should” denotes a recommendation or that which is advised but not required to conform to the standard.

May: As used in a standard, “may” denotes a course of action permissible within the limits of a standard.

Can: As used in a standard, “can” denotes a statement of possibility or capability.

This document was produced under API standardization procedures that ensure appropriate notification and participation in the developmental process and is designated as an API standard. Questions concerning the interpretation of the content of this publication or comments and questions concerning the procedures under which this publication was developed should be directed in writing to the Director of Standards, American Petroleum Institute, 200 Massachusetts Avenue, Suite 1100, Washington, DC 20001. Requests for permission to reproduce or translate all or any part of the material published herein should also be addressed to the director.

Generally, API standards are reviewed and revised, reaffirmed, or withdrawn at least every five years. A one-time extension of up to two years may be added to this review cycle. Status of the publication can be ascertained from the API Standards Department, telephone (202) 682-8000. A catalog of API publications and materials is published annually by API, 200 Massachusetts Avenue, Suite 1100, Washington, DC 20001.

Suggested revisions are invited and should be submitted to the Standards Department, API, 200 Massachusetts Avenue, Suite 1100, Washington, DC 20001, standards@api.org.

Contents

Contents

Figures

Tables

Contents

Management of Hazards Associated with Location of Process Plant Permanent Buildings

1 Scope

1.1 General

This recommended practice (RP) provides guidance for managing the risks from process-related explosion, fire, and toxic material release hazards to personnel located in on-site buildings. This RP covers:

— new and existing permanent buildings;

— new and existing portable buildings (other than light wood trailers) intended for perpetual use (intended to be used for the life of the building or life of the process plant) in a specific, fixed location.

Annex B provides examples on the coverage of permanent and portable buildings/tents.

This RP was developed for use at refineries, petrochemical and chemical operations, natural gas liquids extraction plants, natural gas liquefaction plants, and other onshore facilities, such as those covered by the Occupational Safety and Health Administration (OSHA) process safety management regulation, 29 *CFR* 1910.119 [1].

Non-process-related hazards exist that could present risks to building occupants including, but not limited to, fires originating from within the building, structural collapse due to extreme weather/seismic events, and objects falling on or striking the building. These non-process-related hazards are addressed by building design standards and applicable building codes/regulations, and are not within the scope of this RP.

1.2 Guiding Principles

API has established guiding principles for building/tent siting, which are used in API 752, API 753, and API 756. These guiding principles apply to all buildings and tents intended for occupancy:

1) locate personnel away from process areas consistent with safe and effective operations;

2) minimize the use of buildings/tents in close proximity to process areas;

3) manage the occupancy of buildings/tents in close proximity to process areas, especially during periods of planned abnormal operation with increased risk including, but not limited to, unit start-up, testing, or planned shutdown operations;

4) design, construct, install, modify, and maintain buildings/tents to protect occupants from the hazards created by explosion, fire, and toxic material release;

5) manage the use of buildings/tents as an integral part of the design, construction, maintenance, operation, and emergency response of a facility.

These guiding principles reflect the concept of the hierarchy of controls. With respect to building hazards, mitigations arranged in a hierarchy, beginning with the most effective, involve:

— eliminating either the occupancy or the hazards;

— reducing occupancy or the severity of the hazards;

— increasing the distance between the occupants and the hazards;

— increasing the resistance of the building to the hazards;