

Management of Hazards Associated with Location of Process Plant Permanent Buildings

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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;