
STANDATA variance 23-BCV-005

Building

Occupancy classification of oil and gas processing buildings

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Purpose

To allow oil and gas Group F, Division 1 high-hazard industrial occupancies to be classified as Group F, Division 2 medium-hazard occupancy under certain conditions as an alternative solution under the National Building Code - 2023 Alberta Edition (NBC(AE)).

Discussion

Oil and gas processing buildings are often classified as Group F, Division 1, high-hazard industrial occupancies thus requiring these sites to comply with more restrictive provisions. In oil and gas facilities, the work environment, safe work procedures, and worker safety training is an important complement to the building's fire protection and suppression systems.

Oil and gas companies have developed guides describing design and operation practices that support safe working conditions at small, portable oil and gas production facilities, often classified as high hazard industrial occupancies. The objective of these guides is to limit the probability that a person in or adjacent to a facility may be exposed to an unacceptable level of risk of injury or illness.

The [Canadian Association of Petroleum Producers \(CAPP\)](#) recently produced "Safety Guidelines for Small, Portable Oil and Gas Production Facilities: Recommended Solutions for Design and Operations". The guide is intended to supplement other applicable standards and regulatory codes including the NBC(AE). It recommends solutions for safe design, operation, and maintenance practices for field facilities including worker training and competency. There are three main areas of focus: process safety, public safety, and occupational health and safety. Owners should assess their own requirements to establish design, operating, maintenance, and work.

Municipal Affairs reviewed the CAPP guide and found the implementation of the recommended guidelines, in addition to other safety conditions described in this variance, may allow for some oil and gas processing buildings to be classified as Group F, Division 2 medium-hazard occupancies.

Code References

Clause 3.3.1.5.(1)(c)

3.3.1.5. Egress Doorways

- 1) Except for *dwelling units*, a minimum of 2 egress doorways located so that one doorway could provide egress from the room or *suite* as required by Article 3.3.1.3. if the other doorway becomes inaccessible to the occupants due to a fire which originates in the room or *suite*, shall be provided for every room and every *suite*
 - c) in a *floor area* that is not *sprinklered* throughout, and
 - i) the area of a room or *suite* is more than the value in Table 3.3.1.5.A., or

ii) the travel distance within the room or suite to the nearest egress doorway is more than the value in Table 3.3.1.5.A.,

Table 3.3.1.5.A

Table 3.3.1.5.A. Egress in Floor Area not Sprinklered Throughout Forming Part of Sentence 3.3.1.5.(1)		
<i>Occupancy of Room or Suite</i>	Maximum Area of Room or Suite, m ²	Maximum Distance to Egress Doorway, m
Group F, Division 2	150	10

Application

This variance applies to oil or gas processing buildings that are:

1. considered as low human occupancy buildings,
2. located outside of urban areas, and
3. used to house oil and gas processing equipment, such as but not limited to:
 - compressor stations,
 - heater packages,
 - pump packages,
 - separator packages,
 - treater packages,
 - dehydrator units,
 - field equipment,
 - L.P.G. handling facilities,
 - refrigeration process units,
 - oil batteries, and
 - similar types of buildings.

This variance does not apply to residential buildings, office buildings, warehousing, and other buildings not specifically used for oil or gas processing even though these buildings may be located on the same site.

Variance

This variance provides approximately equivalent or greater safety performance with respect to persons and property as provided for by the *Safety Codes Act* and the NBC(AE).

Oil or gas processing buildings may be classified as Group F, Division 2 medium-hazard occupancy provided:

1. The building does not exceed 150 m² in building area.
2. A risk assessment has been prepared by a Registered Engineering Professional, licensed to practice in the province of Alberta, which includes:
 - The determination of adequate rates of gravity and/or mechanical ventilation based on
 - requirements for electrical area classification and recommendations given in API RP500, “Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities as Class I, Division 1 and Division 2” for normal or continuous operation,
 - a minimum of six air changes per hour, or
 - higher ventilation rates where sour gas may be present.
 - The installation of combustible and/or toxic gas detection,
 - The installation of emergency shut down stations with remote activators,
 - The installation of listed fire detection equipment (which may include flame detectors in lieu of smoke or heat detectors) to automatically shut down and depressurize the facility, and

- The provision of a supply of water for external fire fighting for buildings in remote areas.

Note: The recommendations given by the Registered Engineering Professional are to be listed in the building permit application submission.

3. The appropriate training and procedure measures outlined in the CAPP Guidelines are in place.
4. The following measures, as described below, and the NBC(AE), are incorporated:
 - At least two exit doors are installed, equipped with panic hardware, and located remotely from each other where the building exceeds 7.4 m² in building area so the travel distance to at least one exit from any point in the floor area does not exceed 10 m.
 - Buildings with related functions or through process may be considered as one building for the purposes of spatial separation between buildings.
 - Spatial separation calculations for limiting distances to property lines are calculated as per
 - Subsection 3.2.3. for Part 3 buildings, or
 - Subsection 9.10.14. for Part 9 buildings.

This VARIANCE is applicable throughout the Province of Alberta.

Unless stated otherwise, all Code references in this STANDATA are to Division B of the National Building Code - 2023 Alberta Edition

Issued by the Provincial Building Administrator

[Original signed]
Paul Chang

Alberta Municipal Affairs – Technical and Corporate Services

Email: safety.services@gov.ab.ca Phone: 1-866-421-6929

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