

Purpose

This guideline has been developed to help improve consistency with the installation, education and enforcement surrounding the installation of a spray operation within a building.



Code Reference

Current National Fire Code – Alberta Edition Article 5.4.5.2. Design, Operation and Maintenance
Current National Fire Code – Alberta Edition Table 4.2.9.1. Rooms for Container Storage and Dispensing
NFPA 33, “Spray Application Using Flammable or Combustible Materials”
NFPA 5000, “Building Construction and Safety Code”
Current National Building Code – Alberta Edition Table 3.1.3.1. Major Occupancy Fire Separations
Current National Building Code – Alberta Edition Article 3.1.3.2. Prohibition of Occupancy Combinations
Current National Building Code – Alberta Edition Article 3.2.2.6. Multiple Major Occupancies
Current National Building Code – Alberta Edition Article 3.2.2.8. Exceptions for Major Occupancies
STANDATA interpretation 23-BCI-004/23-FCI-015/22-LEG-PR-002/20-GCB-017



Summary

The requirements of this Guideline are applicable to, and provide clarity towards the options available for ensuring compliance to the current National Building Code – Alberta Edition when installing spray booths, spray rooms and mixing rooms associated with the use of a spray operation in a Part 3 building.



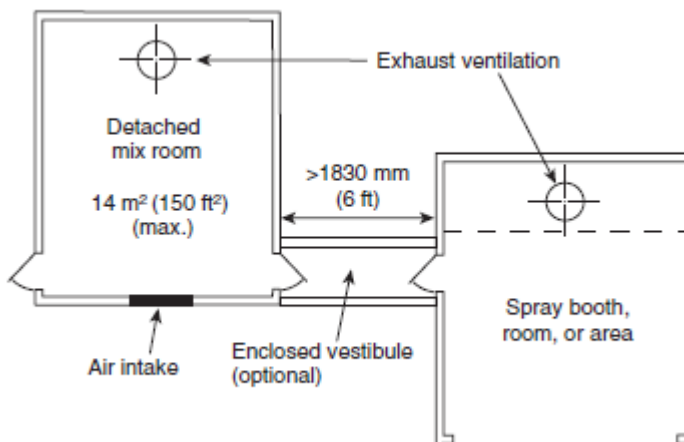
Interpretation

This Guideline provides clarity and direction from Rocky View County on their interpretation towards the installation of spray booths and spray rooms. Based on the information provided within this Guideline, spray operations should be installed in the following method(s).

- 1) Definitions – The definitions of spray booths, spray rooms and spray areas as per the NFPA 33 standard are:
 - a) Spray Booth – A power-ventilated enclosure for a spray application operation or process that confines and limits the escape of the material being sprayed, including vapors, mists, dusts,

and residues that are produced by the spraying operation and conducts or directs these materials to an exhaust system.

- b) Spray Room – A power-ventilated fully enclosed room used exclusively for open spraying of flammable or combustible materials.
- c) Spray Area – Any fully enclosed partly enclosed, or unenclosed area in which dangerous quantities of flammable or combustible vapours, mists, residues, dusts, or deposits are present due to the operation of spray processes, including 1) any area in the direct path of the spray application process, 2) the interior of a spray booth, spray room, or limited finishing workstation, etc.



2) Location Restrictions

- a) NFPA 33 – Spray application operations and processes shall be located in industrial occupancies as defined in NFPA 5000. Industrial occupancies are ones in which products are manufactured or in which processing, assembling, mixing, packaging, finishing, decorating, or repair operations are conducted. This does not include areas used primarily for the storage or sheltering of goods, merchandise, products or vehicles.
- b) Current National Building Code – Alberta Edition – A spray painting operation cannot be contained within Assembly occupancies (Group A), Care or Detention Occupancies (Group B), or Residential occupancies (Group C).

3) Clearances – As per the NFPA 33 standard.

- a) Spray Booths – When installed within a building, spray booths must provide a minimum clearance of 1 meter to any interior combustible wall or floor/ceiling assembly, **or** the assembly must be provided with a 1 hour fire resistance rating. Spray booths can be located within 1 meter to an exterior wall, if the exterior wall is constructed of non-combustible material.

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- b) Spray Rooms – When installed in a building, spray rooms shall be constructed of and separated from surrounding areas of the building by assemblies that have a fire resistance rating of 1 hour.
- 4) Installation
- a) Where a spray application operation is located in a building classified as a mercantile, business, or storage occupancy, the spraying must be located in a room separated both horizontally and vertically from all surrounding areas by construction having a 2-hour fire-resistance rating. The room must also be protected by a designed and installed NFPA 13 approved sprinkler system.
- b) When a spray application operation is installed in an industrial occupancy, the operation must meet the following separation conditions:
- i) Spray Booth / Spray Room - When a spray booth or spray room is installed, the booth/room must be located so that the clearances noted above in Item #3 have been met.
- ii) Mixing Room / Paint Storage Area – Where a mixing room and/or storage room is not located within an enclosed spray booth or spray room meeting the requirements noted above, this room/area must be separated from the adjacent space within the bay by a fire resistance rating meeting the minimum provided in the current National Fire Code Alberta Edition Table 4.2.9.1. Maximums stated below can be doubled if the room is sprinklered in conformance with NFPA 30 “Flammable and Combustible Liquids Code”, or protected by an automatic fire suppression system.

Table 4.2.9.1.
Rooms for Container Storage and Dispensing
Forming Part of Sentences 4.2.9.1.(1) and (2)

Maximum Quantity, L	Minimum Fire Separation Around Room, h	Maximum Density, L/m ²
10 000	2	200
1 500	1	100

- 5) Permit Application Requirements
- a) Pre-manufactured spray operation units, such as spray booths or spray rooms, must comply with the NFPA 33 “Spray Application Using Flammable or Combustible Materials” standard and provide certification through an accredited organization like CCMC, Intertek (ETL), or ULC. Additionally, the installation of HVAC, fire suppression, electrical, and gas systems requires safety codes permits. A registered professional must oversee the installation of a spray booth system to ensure it follows good Engineering practice. The NBC(AE) references the NFC(AE) in Article 6.9.1.2., which specifically mentions the NFPA 33 standard. The appendix of the NBC(AE) also identifies NFPA 33 as a standard for use by registered professionals. The plans for these units must be stamped and signed by a registered Engineering Professional and include the appropriate A and B schedules.

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- b) Site Constructed Units – Spray operation units such as spray booths and spray rooms which are constructed on site must be designed to meet the construction requirements set out in NFPA 33 “Spray Application Using Flammable or Combustible Materials” standard. The plans for these units must be stamped and signed by a registered Engineering Professional and include the appropriate A and B schedules.



Reference

Approval Date	• October 2024
Last Review Date	• October 2024