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Maximum Occupant Load Calculations
For Assembly Occupancies and Licensed Beverage Establishments

This bulletin supersedes Bulletin 2017-002-FI.

Any assembly space intended to have more than 60 persons is required to have a maximum occupant load determination, an occupant load permit and a stamped floor plan, in order to comply with Fire By-law Division B, Article 2.7.1.3. This bulletin provides guidance and the procedures that are required to demonstrate how the acceptable solutions in Article 2.7.1.3. are met.

In addition to the requirements by Vancouver Fire Rescue Services (VFRS), the B.C. Liquor and Cannabis Regulation Branch (LCRB) requires that any premises (regardless of size) applying for a liquor licence submit a reduced floor plan with a current occupant load determination and stamp from the fire department.

Prior to submitting an application for an occupant load determination from VFRS, the applicant or building owner must ensure the premises has all the required permits and approvals from the City of Vancouver for occupancy. New construction, renovations that alter an existing space, change of use, increase in occupant load, and all patios on private property must be reviewed by the Building Department. Patios on public property must be reviewed by the Engineering Department, Street Activities Division. Applications for new liquor primary establishments (e.g. bars and clubs) or requests for an increase in capacity of an existing liquor primary establishment must also get prior approval from the Licensing Department. Call 3-1-1 for more information from applicable departments.

DETERMINATION OF MAXIMUM OCCUPANT LOAD

The maximum occupant load of a room or floor area for an assembly occupancy, or licensed beverage establishment, shall be the least number derived by Criteria #1, #2, #3, and #4.

CRITERIA #1 – FIRE ALARM

The Building By-law requires a fire alarm system in the building when the building is sprinklered, or contains

- A total occupant load more than 300, other than in open seating areas
- An occupant load more than 150 above or below the first storey, other than in open air seating areas
- A school, college, or child care facility, including daycare facility for children, with an occupant load more than 40,
- A licenced beverage establishment or a licenced restaurant, with an occupant load more than 150, or
- An occupant load more than 300 below an open air seating area.

If the building is not provided with a fire alarm system, the occupant load is restricted to the total occupant load described above.

CRITERIA #2 – BUILDING DESIGN OCCUPANT LOAD

The building and the assembly occupancies must be designed to accommodate the maximum occupant load to ensure structural sufficiency, adequate ventilation for health, and sufficient number of washrooms are provided.

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CRITERIA #3 – DENSITY AND NET FLOOR SPACE

Net floor space is the amount of floor area when you take the gross floor area of a room intended for assembly, and then deduct all area occupied by structures, equipment, and furniture. Parts of the floor area used for circulation such as an aisle serving entrances and exits, aisles to kitchens, bars, and washrooms, must also be deducted.

In general, the net floor space in an assembly occupancy is where the public is expected to assemble and, in case of emergency, be able to move to an exit safely and in a timely manner. The area occupied by each person in the net floor space must not be less than 0.4 m^2.

CRITERIA #4 - EXIT CAPACITY

The exits must be in compliance with the Building By-law requirements, some of which are:

1. Distance between exits must be at least one half the diagonal dimension of the room. Where two exit doors are too close to each other, they are considered a single exit, with an exit width equal to the combined actual opening size of each door.
2. Where there is only one (1) exit, the maximum occupant load for the room is 60 persons.
3. If there is more than one (1) exit, every exit shall be considered as contributing not more than ½ the required exit capacity. If there are only two exits, the maximum occupant load is limited to 2 x the capacity of the more restricted exit.
4. Exit doors must swing in the direction of exit travel.
5. All egress doors in a room with more than 60 people must swing in the direction of travel to an exit.
6. All egress doors in a room with more than 100 people must be equipped with panic hardware.
7. Access through an open kitchen is not acceptable as a public access to exit.
8. Features for exits, particularly for existing buildings, must be in compliance (e.g. flame spread rating, emergency lights, exit lights, door hardware, etc.) in order to be considered as contributing to exit widths.

Exit capacity is calculated by the width of the exit divided by the appropriate factor below:

Location	Factor
• Ramps with slope not more than 1 in 8 • Doorways • Corridors and Passageways	6.1 mm /person
• Stairs with steps whose rise is not more than 180 mm and run not less than 280 mm	8 mm /person
• Ramps with slope more than 1 in 8 • Stairs other than above	9.2 mm /person

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