



buildings 2023-0XX bulletin TECHNICAL

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ISSUER: Joseph Ackroyd, P.E., CFM

Assistant Commissioner

Technical Affairs & Code Development

PURPOSE: This bulletin clarifies BC Section 917.3.1 with regards to the stair ventilation method in that all enclosed exit stairs in Group R-2 occupancy be provided with a reversible fan system that is capable of pressurizing or exhausting the area of the largest floor

SUBJECT(S): Stair Ventilation for Post Fire Smoke Purge

RELATED CODE SECTIONS & RESOURCES: 2014 BC 916.3, 2022 BC 917.3

I. Background

Post-fire smoke purge systems are designed to extract smoke from indoor areas after a fire has been extinguished. The post-fire smoke purge systems help the building or the building occupants to resume normal activities as quickly as possible once the fire has been extinguished. The exhaust air/smoke by the post-fire smoke purge system shall not be recirculated into the building, and such air/smoke shall be discharged to a safe location outside of the building in accordance with the Mechanical Code.

The 2022 BC 917.3 (2014 BC 916.3) requires post-fire smoke purge systems in R-2 occupancies to be provided by either Stair Ventilation (BC 917.3.1) or Corridor Ventilation (BC 917.3.2).

II. Clarification

BC 917.3.1 for stair ventilation states, in part,

The top of all enclosed exit stairs shall be provided with a reversible fan system capable of introducing fresh air or exhausting air at a rate of 6 air changes per hour or 1 cubic foot per minute per square foot (cfm/ft²) (0.00508 m³/s • m²), whichever is greater, based on the area of the largest floor. ...

If the stair ventilation method is to be used per BC 917.3.1, a reversible fan system capable of introducing fresh air and exhausting air shall be installed at the top of every enclosed exit stairway. The reversible fan shall be capable of introducing or exhausting air at a rate of 6 Air Changes Per Hour or 1 CFM per square foot, whichever is larger, based on the largest floor served by the stairway. The fan's capacity shall be calculated based on the largest floor area to ensure it will be able to serve any other floor if affected.

Where multiple stairs are present in a building, the top of each exit stairway shall be provided with a reversible fan. Stairs sharing any common wall, floor, ceiling, scissor stair assembly, or other enclosure, are not counted as one exit stairway in accordance with BC 1007.1.1, Exception 3. A single reversible fan serving two or more exit stairways in high-rise R-2 buildings is prohibited.