

## Study Session

# 3

## 2012 IRC Sections R303 – R310 Building Planning II

**OBJECTIVE:** To develop an understanding of the health and safety criteria of the code, including light and ventilation; minimum room areas and ceiling height; sanitation; toilet, bath, and shower spaces; glazing, including safety glazing; carports and garages; and emergency escape and rescue openings.

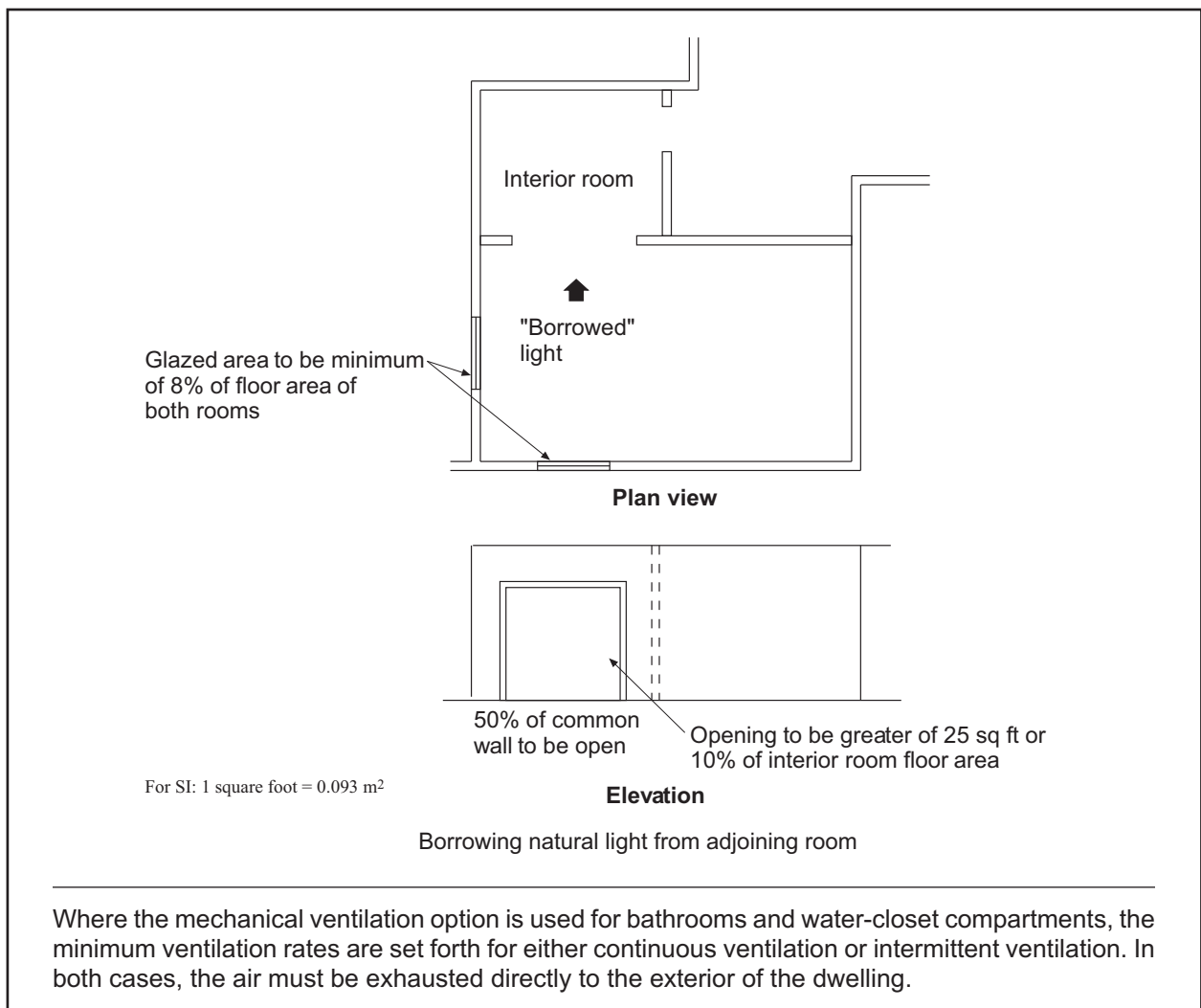
**REFERENCE:** Sections R303 through R310, 2012 *International Residential Code*

- Where natural light is used to satisfy the minimum illumination requirements, how is the minimum required amount of glazing determined? Where artificial light is used, what illumination level is mandated?
- Under what conditions is a whole-house mechanical ventilation system required?
- How must mechanical and gravity outside air intake openings be located in relationship to vents, chimneys, parking lots and other potential areas of a hazardous or noxious contaminant?
- Where must illumination be located in relationship to interior stairways? Exterior stairways?
- In what climatic areas must a heating system be provided? What performance level is mandated for the system?
- What is the minimum required size of the largest habitable room in a dwelling unit?
- What is the minimum dimension permitted for a habitable room other than a kitchen?
- What is the minimum ceiling height permitted for a living room or bedroom? A hallway? Bathroom? Basement? Where can a reduction in such heights be acceptable?
- How much clear floor space is required in front of a water closet? In front of a shower opening? What is the minimum distance needed between the centerline of a water closet and the nearest adjoining obstruction such as a wall or shower compartment?
- In what manner must safety glazing be identified? Multipane assemblies?
- What test standards are applicable to safety glazing materials? Which test standard is acceptable for glazing installed in any hazardous location?

- KEY POINTS:**
- (Cont'd)**
- What specific locations in and adjacent to doors are subject to human impact and require safety glazing? In tub and shower areas? In guards and railings? At stairways and stairway landings?
  - When is sloped glazing considered a skylight? What glazing materials are permitted in skylights? When must a screen be installed below a skylight?
  - How does a carport differ from a garage? What limitations are placed on carports?
  - Where are escape and rescue openings required? What is the minimum size of such openings? Maximum sill height? What limitations are placed on the operation of the opening?
  - When a window well serves an escape and rescue opening, what is its minimum size?
  - How may a bulkhead enclosure be utilized as an escape and rescue opening?
  - Under what conditions may an emergency escape window be located under a deck or porch?

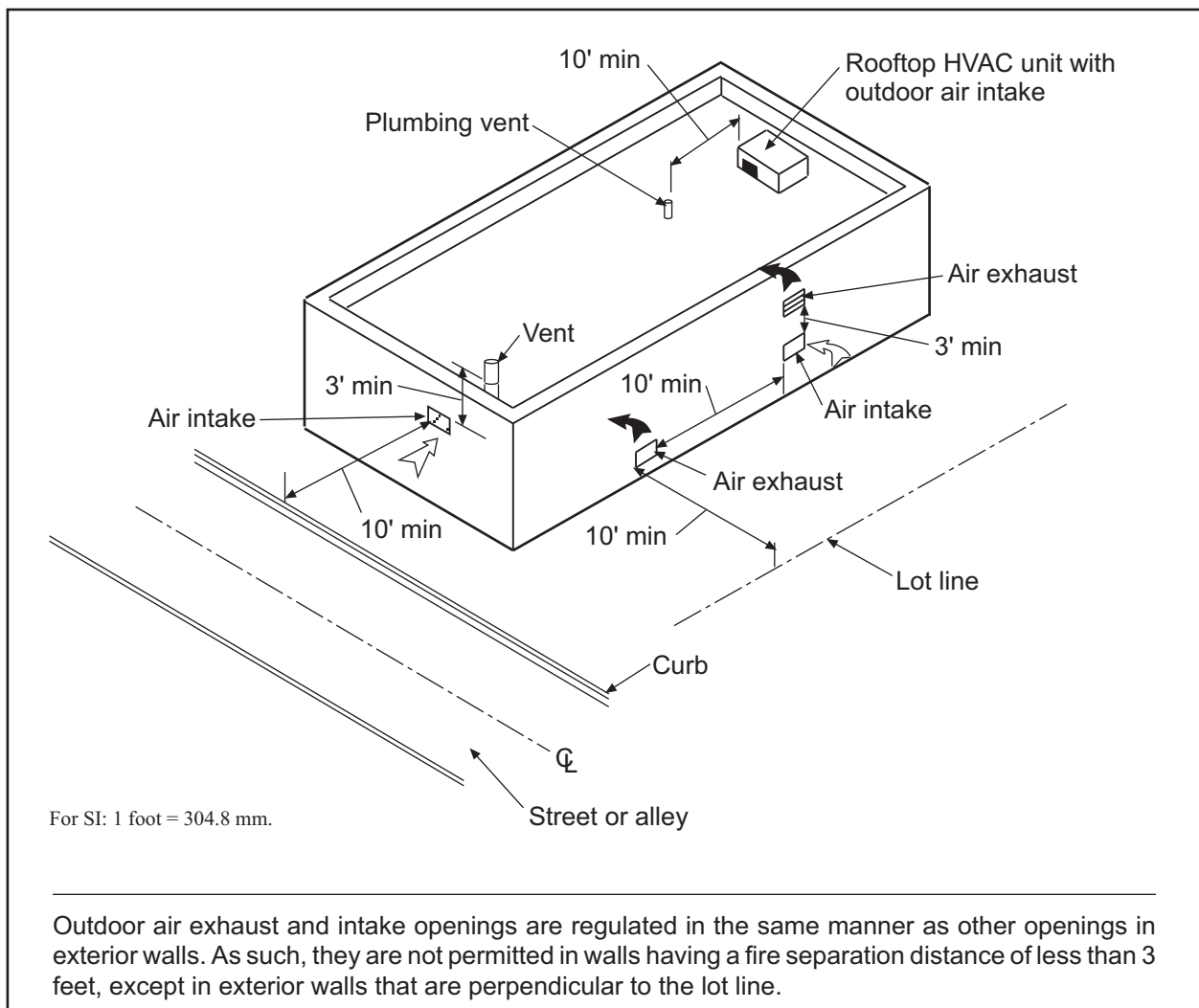
**Code Text:** *All habitable rooms shall have an aggregate glazing area of not less than 8 percent of the floor area of such rooms. Natural ventilation shall be through windows, doors, louvers or other approved openings to the outdoor air. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated. Exceptions allow the use of artificial light and mechanical ventilation.*

**Discussion and Commentary:** A usable and sanitary interior environment depends on the inclusion of adequate light and ventilation for the habitable spaces within the dwelling unit. Traditionally, the use of natural light and, to some degree, natural ventilation has been mandated as the means for achieving such an environment. It has become increasingly more common to use artificial lighting and a mechanical ventilation system. These methods create additional design flexibility and functionality while maintaining a pleasant and sanitary living environment.



**Code Text:** *Mechanical and gravity outdoor air intake openings shall be located a minimum of 10 feet (3048 mm) from any hazardous or noxious contaminant, such as vents, chimneys, plumbing vents, streets, alleys, parking lots and loading docks, except as otherwise specified in the IRC. Where a source of contaminant is located within 10 feet (3048 mm) of an intake opening, such opening shall be located a minimum of 3 feet (914 mm) below the contaminant source. Outside exhaust openings shall be located so as not to create a nuisance. Exhaust air shall not be directed onto walkways.*

**Discussion and Commentary:** In the context of this section, intake openings include windows, doors, combustion air intakes and similar openings that naturally or mechanically draw in air from the building exterior. The alternative to the 10-foot separation requirement, a 2-foot vertical separation distance, will allow noxious gases and contaminants to disperse into the atmosphere before they can be drawn into an air intake opening.



**Code Text:** Interior stairways shall be provided with an artificial light source located in the immediate vicinity of each landing of the stairway. See exception where light source is located over each stairway section. Exterior stairways shall be provided with an artificial light source located in the immediate vicinity of the top landing of the stairway. Where lighting outlets are installed in interior stairways, there shall be a wall switch at each floor level to control the lighting outlet where the stairway has six or more risers. See exception for lights that are continuously illuminated or automatically controlled.

**Discussion and Commentary:** A stairway is one of the most hazardous areas of a dwelling unit. As such, the code highly regulates the design and construction of all stairways. In addition, adequate lighting must be provided to enable the stairway user to see the treads, their nosings and any obstructions that may be present. Stairway landings must also be adequately lighted.

