

SECTION B101 GENERAL

B101.1 Scope. The procedure for determining fire-flow requirements for buildings or portions of buildings hereafter constructed shall be in accordance with this appendix. This appendix does not apply to structures other than buildings.

❖ This appendix is clearly intended for buildings only and would not be applicable to outside storage areas or similar hazards. Target hazards such as petroleum bulk plants, refineries, lumberyards, junk yards, etc., which present high challenge fire suppression scenarios, must be specifically evaluated and protected commensurate with the hazards and operational challenges that they present. The provisions of this appendix were originally drafted based on the *ISO Guide for Determination of Required Fire Flow* (now called the *Guide for Determination of Needed Fire Flow*), which focuses on buildings only and takes into account the construction type and building size as well as exposures from other buildings nearby. This method may not translate very well to other hazards but could be used as a starting point for other types of facilities. Also, the scope of this appendix is intended for new construction rather than existing buildings. Providing fire flow is generally costly, and requiring it for existing buildings would likely be unreasonable. Note that the appendix applies only if specifically adopted by ordinance by a jurisdiction. See the commentary to Section 508.1 for a discussion of this appendix's application to buildings constructed under the *International Residential Code®* (IRC®).

SECTION B102 DEFINITIONS

B102.1 Definitions. For the purpose of this appendix, certain terms are defined as follows:

❖ Definitions can help in the understanding and application of the code requirements. Having the definitions here puts them close to the subject matter to which they pertain.

FIRE-FLOW. The flow rate of a water supply, measured at 20 pounds per square inch (psi) (138 kPa) residual pressure, that is available for fire fighting.

❖ A set of consistent criteria is used to measure the water available for fire fighting. The criterion is that the fire flow available be measured at a residual pressure of 20 pounds per square inch (psi) (138 kPa). Residual pressure is the pressure in the water main measured when the water is flowing versus static pressure, which is measured when the water is not flowing. The residual pressure criterion of 20 psi (138 kPa) is used because it is the minimum pressure recommended for fire engine use by water authorities in order to minimize the possibility of creating a negative pressure in the water main and the resulting damage to the water supply system. It also provides a consistent point from

which to measure the available flow. Flow will vary based on the pressure for each system.

FIRE-FLOW CALCULATION AREA. The floor area, in square feet (m²), used to determine the required fire flow.

❖ This term defines what portion of the building is to be accounted for when applying Table B105.1. This term differs from the IBC definition of "Fire area" in that this definition allows a fire-flow calculation area, for the purposes of defining fire flow, to be divided only by a fire wall with no openings or penetrations. Fire barriers and fire partitions could not be used to create separate fire-flow calculation areas (see commentary, Section B104.2).

SECTION B103 MODIFICATIONS

B103.1 Decreases. The fire chief is authorized to reduce the fire-flow requirements for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire-flow requirements is impractical.

❖ The purpose of this section is to recognize that many factors may require adjustments to the numbers in Table B105.1. This particular section generally addresses issues such as proximity to exposures, general location, configuration and practicality.

This section gives the fire code official the authority to make adjustments based on the impracticality of fire-flow requirements in rural areas. The text conveys the message that the requirements found here will not be appropriate for all situations. For example, requiring that a fire main be extended to a house located by itself in the middle of a large open field is impractical. This is especially the case if the fire department has a considerable response time. When a considerable response time exists for buildings, such as one- and two-family dwellings in isolated locations, the effectiveness of fire flow is likely to be low because intervention may not be necessary once the fire department arrives. Although, if this same house is located in an wildland-urban interface area, this may be a different issue. The house may be a complete loss but the protection of the wildland from the exposure of this fire may be necessary.

This section intends to provide flexibility to better fit the needs of a specific community. In addition to the example above, the following examples describe instances where requiring the full fire flow given in Table B105.1 would be unreasonable:

- A rural area dependent on tanker supplies and on-site water sources;
- A water system for a small town or community is provided for domestic consumption with some incidental fire hydrants, but with no serious intent to provide fire protection water; or
- A fire department that does not have the equipment to pump the required fire flow.