

FIRE AND SMOKE PROTECTION FEATURES

permitted in *fire door* and *fire window assemblies* where tested and installed in accordance with their listings and where in compliance with the requirements of this section.

716.2 Fire door assemblies. *Fire door assemblies* required by other sections of this code shall comply with the provisions of this section. *Fire door* frames with transom lights, sidelights or both shall be permitted in accordance with Section 716.2.5.4.

716.2.1 Testing requirements. Approved *fire door* and fire shutter assemblies shall be constructed of any material or assembly of component materials that conforms to the test requirements of Sections 716.2.1.1 through 716.2.1.4 and the *fire protection rating* indicated in Table 716.1(2).

Exceptions:

1. Labeled protective assemblies that conform to the requirements of this section or UL 10A, UL 14B and UL 14C for tin-clad *fire door assemblies*.
2. Floor *fire door assemblies* in accordance with Section 712.1.13.1.

716.2.1.1 Side-hinged or pivoted swinging doors. *Fire door* assemblies with side-hinged and pivoted swinging doors shall be tested in accordance with NFPA 252 or UL 10C. For tests conducted in accordance with NFPA 252, the fire test shall be conducted using the positive pressure method specified in the standard.

716.2.1.2 Other types of assemblies. *Fire door* assemblies with other types of doors, including swinging elevator doors, horizontal sliding *fire doors*, rolling steel *fire doors*, fire shutters, bottom- and side-hinged chute intake doors, and top-hinged chute discharge doors, shall be tested in accordance with NFPA 252 or UL 10B. For tests conducted in accordance with NFPA 252, the neutral pressure plane in the furnace shall be maintained as nearly equal to the atmospheric pressure as possible at the top of the door, as specified in the standard.

716.2.1.3 Glazing in transoms lights and sidelights in corridors and smoke barriers. Glazing material in any other part of the door assembly, including transom lights and sidelights, shall be tested in accordance with NFPA 257 or UL 9, including the hose stream test, in accordance with Section 716.3.1.1.

716.2.1.4 Smoke and draft control. *Fire door* assemblies that serve as smoke and draft control assemblies shall be tested in accordance with UL 1784.

716.2.2 Performance requirements. *Fire door assemblies* shall be installed in the assemblies specified in Table 716.1(2) and shall comply with the *fire protection rating* specified.

716.2.2.1 Door assemblies in corridors and smoke barriers. *Fire door* assemblies required to have a minimum *fire protection rating* of 20 minutes where

located in *corridor* walls or *smoke barrier* walls having a *fire-resistance rating* in accordance with Table 716.1(2) shall be tested in accordance with NFPA 252 or UL 10C without the hose stream test.

Exceptions:

1. Viewports that require a hole not larger than 1 inch (25 mm) in diameter through the door, have not less than a 0.25-inch-thick (6.4 mm) glass disc and the holder is of metal that will not melt out where subject to temperatures of 1,700°F (927°C).
2. *Corridor* door assemblies in occupancies of Group I-2 shall be in accordance with Section 407.3.1.
3. Unprotected openings shall be permitted for *corridors* in multitheater complexes where each motion picture auditorium has not fewer than one-half of its required *exit* or *exit access doorways* opening directly to the exterior or into an *exit passageway*.
4. Horizontal sliding doors in *smoke barriers* that comply with Sections 408.6 and 408.8.4 in occupancies in Group I-3.

716.2.2.1.1 Smoke and draft control. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 m³/s × m²) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. *Terminated stops* shall be prohibited on doors required by Section 405.4.3 to comply with Section 716.2.2.1 and prohibited on doors required by Item 3 of Section 3006.3, or Section 3007.6.3 or 3008.6.3 to comply with this section.

716.2.2.2 Door assemblies in other fire partitions. *Fire door* assemblies required to have a minimum *fire protection rating* of 20 minutes where located in other *fire partitions* having a *fire-resistance rating* of 0.5 hour in accordance with Table 716.1(2) shall be tested in accordance with NFPA 252, UL 10B or UL 10C with the hose stream test.

716.2.2.3 Doors in interior exit stairways and ramps and exit passageways. *Fire door* assemblies in *interior exit stairways* and *ramps* and *exit passageways* shall have a maximum transmitted temperature rise of not more than 450°F (250°C) above ambient at the end of 30 minutes of standard fire test exposure.

Exception: The maximum transmitted temperature rise is not required in buildings equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2.

716.2.2.3.1 Glazing in doors. Fire-protection-rated glazing in excess of 100 square inches (0.065 m²) is not permitted. Fire-resistance-rated glazing in excess of 100 square inches (0.065 m²) shall be permitted in *fire doors*. Listed fire-resistance-rated

glazing in a *fire door* shall have a maximum transmitted temperature rise in accordance with Section 716.2.2.3 when the *fire door* is tested in accordance with NFPA 252, UL 10B or UL 10C.

716.2.3 Fire doors *Fire doors* installed within a *fire door assembly* shall meet the fire rating indicated in Table 716.1(2).

716.2.4 Fire door frames. *Fire door* frames installed as part of a *fire door assembly* shall meet the fire rating indicated in Table 716.1(2).

716.2.5 Glazing in fire door assemblies. *Fire-rated glazing* conforming to the opening protection requirements in Section 716.2.1 shall be permitted in *fire door assemblies*.

716.2.5.1 Size limitations. Fire-resistance-rated glazing shall comply with the size limitations in Section 716.2.5.1.1. Fire-protection-rated glazing shall comply with the size limitations of NFPA 80, and as provided in Section 716.2.5.1.2.

716.2.5.1.1 Fire-resistance-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. Fire-resistance-rated glazing tested to ASTM E119 or UL 263 and NFPA 252, UL 10B or UL 10C shall be permitted in *fire door assemblies* located in *fire walls* and in *fire barriers* in accordance with Table 716.1(2) to the maximum size tested and in accordance with their listings.

716.2.5.1.2 Fire-protection-rated glazing in door assemblies in fire walls and fire barriers rated greater than 1 hour. Fire-protection-rated glazing shall be prohibited in *fire walls* and *fire barriers* except as provided in Sections 716.2.5.1.2.1 and 716.2.5.1.2.2.

716.2.5.1.2.1 Horizontal exits. Fire-protection-rated glazing shall be permitted as vision panels in *self-closing* swinging *fire door assemblies* serving as horizontal exits in *fire walls* where limited to 100 square inches (0.065 m²).

716.2.5.1.2.2 Fire barriers. Fire-protection-rated glazing shall be permitted in *fire doors* having a 1½-hour *fire protection rating* intended for installation in *fire barriers*, where limited to 100 square inches (0.065 m²).

716.2.5.2 Elevator, stairway and ramp protectives. Approved fire-protection-rated glazing used in *fire door assemblies* in elevator, *stairway* and *ramp enclosures* shall be so located as to furnish clear vision of the passageway or approach to the elevator, *stairway* or *ramp*.

716.2.5.3 Glazing in door assemblies in corridors and smoke barriers. In a 20-minute *fire door assembly*, the glazing material in the door itself shall have a minimum fire-protection-rated glazing of 20 minutes and shall be exempt from the hose stream test.

716.2.5.4 Fire door frames with transom lights and sidelights. Fire-protection-rated glazing shall be

permitted in door frames with transom lights, sidelights or both, where a ¾-hour *fire protection rating* or less is required and in 2-hour fire-resistance-rated *exterior walls* in accordance with Table 716.1(2). *Fire door* frames with transom lights, sidelights or both, installed with fire-resistance-rated glazing tested as an assembly in accordance with ASTM E119 or UL 263 shall be permitted where a *fire protection rating* exceeding ¾ hour is required in accordance with Table 716.1(2).

716.2.5.4.1 Energy storage system separation. Fire-protection-rated glazing shall not be permitted in *fire door* frames with transom lights and sidelights in *fire barriers* required by Section 1207 of the *International Fire Code* to enclose energy storage systems.

716.2.6 Fire door hardware and closures. *Fire door* hardware and closures shall be installed on *fire door assemblies* in accordance with the requirements of this section.

716.2.6.1 Door closing. *Fire doors* shall be latching and self- or automatic-closing in accordance with this section.

Exceptions:

1. *Fire doors* located in common walls separating *sleeping units* in Group R-1 shall be permitted without automatic- or *self-closing* devices.
2. The elevator car doors and the associated hoistway enclosure doors at the floor level designated for recall in accordance with Section 3003.2 shall be permitted to remain open during Phase I emergency recall operation.

716.2.6.2 Latch required. Unless otherwise specifically permitted, single side-hinged *swinging fire doors* and both leaves of pairs of side-hinged *swinging fire doors* shall be provided with an active latch bolt that will secure the door when it is closed.

716.2.6.3 Chute intake door latching. Chute intake doors shall be positive latching, remaining latched and closed in the event of latch spring failure during a fire emergency.

716.2.6.4 Automatic-closing fire door assemblies. Automatic-closing *fire door assemblies* shall be *self-closing* in accordance with NFPA 80.

716.2.6.5 Delayed-action closers. Doors required to be *self-closing* and not required to be automatic closing shall be permitted to be equipped with *delayed-action closers*.

716.2.6.6 Smoke-activated doors. Automatic-closing doors installed in the following locations shall be permitted to have hold-open devices. Doors shall automatically close by the actuation of *smoke detectors* installed in accordance with Section 907.3 or by loss of power to the *smoke detector* or hold-open device.