dislodge, loosen or otherwise impair its ability to accommodate expected building movements and to retard the passage of fire and hot gases.

**715.5 Spandrel wall.** Height and *fire-resistance* requirements for curtain wall spandrels shall comply with Section 705.8.5. Where Section 705.8.5 does not require a fire-resistance-rated spandrel wall, the requirements of Section 715.4 shall still apply to the intersection between the spandrel wall and the floor.

**715.6 Fire-resistant joint systems in smoke barriers.** *Fire-resistant joint systems* in *smoke barriers*, and joints at the intersection of a horizontal *smoke barrier* and an exterior curtain wall, shall be tested in accordance with the requirements of UL 2079 for air leakage. The *L rating* of the joint system shall not exceed 5 cfm per linear foot (0.00775 $m^3/s$ m) of joint at 0.30 inch (7.47 Pa) of water for both the ambient temperature and elevated temperature tests.

## SECTION 716
## OPENING PROTECTIVES

**716.1 General.** Opening protectives required by other sections of this code shall comply with the provisions of this section and shall be installed in accordance with NFPA 80.

**716.1.1 Alternative methods for determining fire protection ratings.** The application of any of the alternative methods *listed* in this section shall be based on the fire exposure and acceptance criteria specified in NFPA 252, NFPA 257, UL 9, UL 10B or UL 10C. The required *fire resistance* of an opening protective shall be permitted to be established by any of the following methods or procedures:

1. Designs documented in *approved* sources.
2. Calculations performed in an *approved* manner.
3. Engineering analysis based on a comparison of opening protective designs having *fire protection ratings* as determined by the test procedures set forth in NFPA 252, NFPA 257, UL 9, UL 10B or UL 10C.
4. Alternative protection methods as allowed by Section 104.11.

**716.1.2 Glazing.** Glazing used in *fire door assemblies* and fire window assemblies shall comply with this section in addition to the requirements of Sections 716.2 and 716.3, respectively.

**716.1.2.1 Safety glazing.** *Fire-protection-rated* glazing and fire-resistance-rated glazing installed in *fire door* assemblies and fire window assemblies shall comply with the safety glazing requirements of Chapter 24 where applicable.

**716.1.2.2 Marking fire-rated glazing assemblies.** *Fire-rated glazing* assemblies shall be marked in accordance with Tables 716.1(1), 716.1(2) and 716.1(3).

**716.1.2.2.1 Fire-rated glazing identification.** For *fire-rated glazing*, the *label* shall bear the identification required in Tables 716.1(1) and 716.1(2). "D" indicates that the glazing is permitted to be used in *fire door* assemblies and meets the fire protection requirements of NFPA 252, UL 10B or UL 10C. "H" indicates that the glazing meets the hose stream requirements of NFPA 252, UL 10B or UL 10C. "T" indicates that the glazing meets the temperature requirements of Section 716.2.2.3.1. The placeholder "XXX" represents the fire-rating period, in minutes.

**716.1.2.2.2 Fire-protection-rated glazing identification.** For *fire-protection-rated* glazing, the *label* shall bear the following identification required in Tables 716.1(1) and 716.1(3): "OH – XXX." "OH" indicates that the glazing meets both the fire protection and the hose-stream requirements of NFPA 257 or UL 9 and is permitted to be used in fire window openings. The placeholder "XXX" represents the fire-rating period, in minutes.

**716.1.2.2.3 Fire-resistance-rated glazing identification.** For fire-resistance-rated glazing, the label shall bear the identification required in Section 703.6 and Table 716.1.(1).

**716.1.2.2.4 Fire-rated glazing that exceeds the code requirements.** *Fire-rated glazing* assemblies marked as complying with hose stream requirements (H) shall be permitted in applications that do not require compliance with hose stream requirements. *Fire-rated glazing* assemblies marked as complying with temperature rise requirements (T) shall be permitted in applications that do not require compliance with temperature rise requirements. *Fire-rated glazing* assemblies marked with ratings (XXX) that exceed the ratings required by this code shall be permitted.

**716.1.2.3 Fire-resistance-rated glazing.** Fire-resistance-rated glazing tested as part of a fire-resistance-rated wall or floor/ceiling assembly in accordance with ASTM E119 or UL 263 and labeled in accordance with Section 703.6 shall not otherwise be required to comply with this section where used as part of a wall or floor/ceiling assembly.

**716.1.2.3.1 Glazing in fire door and fire window assemblies.** Fire-resistance-rated glazing shall be 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