

5. Alternative protection methods as allowed by Section 104.11.

6. *Fire-resistance* designs certified by an approved agency.

**703.4 Automatic sprinklers.** Under the prescriptive fire-resistance requirements of this code, the *fire-resistance rating* of a building element, component or assembly shall be established without the use of *automatic sprinklers* or any other fire suppression system being incorporated as part of the assembly tested in accordance with the fire exposure, procedures and acceptance criteria specified in ASTM E119 or UL 263. However, this section shall not prohibit or limit the duties and powers of the *building official* allowed by Sections 104.10 and 104.11.

**703.5 Noncombustibility tests.** The tests indicated in Sections 703.5.1 and 703.5.2 shall serve as criteria for acceptance of building materials as set forth in Sections 602.2, 602.3 and 602.4 in Types I, II, III and IV construction. The term “noncombustible” does not apply to the flame spread characteristics of *interior finish* or *trim* materials. A material shall not be classified as a noncombustible building construction material if it is subject to an increase in combustibility or flame spread beyond the limitations herein established through the effects of age, moisture or other atmospheric conditions.

**703.5.1 Elementary materials.** Materials required to be noncombustible shall be tested in accordance with ASTM E136.

**703.5.2 Composite materials.** Materials having a structural base of noncombustible material as determined in accordance with Section 703.5.1 with a surfacing not more than 0.125 inch (3.18 mm) thick that has a *flame spread index* not greater than 50 when tested in accordance with ASTM E84 or UL 723 shall be acceptable as noncombustible materials.

**703.6 Fire-resistance-rated glazing.** Fire-resistance-rated glazing, when tested in accordance with ASTM E119 or UL 263 and complying with the requirements of Section 707, shall be permitted. Fire-resistance-rated glazing shall bear a *label* marked in accordance with Table 716.1(1) issued by an agency and shall be permanently identified on the glazing.

**703.7 Marking and identification.** Where there is an accessible concealed floor, floor-ceiling or *attic* space, *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions or any other wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in the concealed space. Such identification shall:

1. Be located within 15 feet (4572 mm) of the end of each wall and at intervals not exceeding 30 feet (9144 mm) measured horizontally along the wall or partition.
2. Include lettering not less than 3 inches (76 mm) in height with a minimum  $\frac{3}{8}$ -inch (9.5 mm) stroke in a contrasting color incorporating the suggested wording, “FIRE AND/OR SMOKE BARRIER—PROTECT ALL OPENINGS,” or other wording.

## SECTION 704 FIRE-RESISTANCE RATING OF STRUCTURAL MEMBERS

**704.1 Requirements.** The *fire-resistance ratings* of structural members and assemblies shall comply with this section and the requirements for the type of construction as specified in Table 601. The *fire-resistance ratings* shall be not less than the ratings required for the fire-resistance-rated assemblies supported by the structural members.

**Exception:** *Fire barriers*, *fire partitions*, *smoke barriers* and *horizontal assemblies* as provided in Sections 707.5, 708.4, 709.4 and 711.2, respectively.

**704.2 Column protection.** Where columns are required to have protection to achieve a *fire-resistance rating*, the entire column shall be provided individual encasement protection by protecting it on all sides for the full column height, including connections to other structural members, with materials having the required *fire-resistance rating*. Where the column extends through a ceiling, the encasement protection shall be continuous from the top of the foundation or floor/ceiling assembly below through the ceiling space to the top of the column.

**Exception:** Columns that meet the limitations of Section 704.4.1.

**704.3 Protection of the primary structural frame other than columns.** Members of the primary structural frame other than columns that are required to have protection to achieve a *fire-resistance rating* and support more than two floors or one floor and roof, or support a load-bearing wall or a nonload-bearing wall more than two stories high, shall be provided individual encasement protection by protecting them on all sides for the full length, including connections to other structural members, with materials having the required *fire-resistance rating*.

**Exception:** Individual encasement protection on all sides shall be permitted on all exposed sides provided that the extent of protection is in accordance with the required *fire-resistance rating*, as determined in Section 703.

**704.4 Protection of secondary members.** Secondary members that are required to have protection to achieve a *fire-resistance rating* shall be protected by individual encasement protection.

**704.4.1 Light-frame construction.** Studs, columns and boundary elements that are integral elements in *walls* of light-frame construction and are located entirely between the top and bottom plates or tracks shall be permitted to have required *fire-resistance ratings* provided by the membrane protection provided for the *wall*.

**704.4.2 Horizontal assemblies.** *Horizontal assemblies* are permitted to be protected with a membrane or ceiling where the membrane or ceiling provides the required *fire-resistance rating* and is installed in accordance with Section 711.

**704.5 Truss protection.** The required thickness and construction of fire-resistance-rated assemblies enclosing trusses shall be based on the results of full-scale tests or combinations of tests on truss components or on *approved* calcula-