



**LOS ANGELES FIRE DEPARTMENT  
FIRE PROTECTION EQUIPMENT PERFORMANCE CERTIFICATION**

F-340 R-4 (9-03)

HOURS 5  
PAGE 1 OF 2

**RESPONSIBLE PARTY**

NAME (LAST, FIRST, MI) <b>SMITH, JOHN J.</b>		TITLE <b>OWNER</b>	FIRM OR D.B.A. <b>ACME BUILDING</b>	
MAILING ADDRESS: (STREET) <b>123 NORTH MAIN STREET</b>		(CITY) <b>YOUR TOWN</b>	(STATE) <b>YOUR STATE</b>	(ZIP) <b>YOUR ZIP</b>
TEST SITE ADDRESS: (STREET) <b>456 SOUTH TEST SITE STREET</b>		(CITY) <b>YOUR TOWN</b>	(STATE) <b>YOUR STATE</b>	(ZIP) <b>YOUR ZIP</b>
OCCUPANCY TYPE <b>B HIGH RISE OFFICE BLDG.</b>		NUMBER OF STORIES: <b>25</b>	YEAR BUILT: <b>1975</b>	CONSTRUCTION TYPE: <b>I NON COMBUSTIBLE</b>
				PHONE: <b>213-555-1234</b>
				TEST SITE PHONE: <b>323-555-1234</b>
				SQUARE FOOTAGE <b>40,000</b>

**INITIAL TEST**

DATE(S) OF TESTING: <b>JAN. 1, 2000</b>	TESTING AGENCY: <b>ABC TESTING COMPANY</b>	PHONE: <b>310-555-1234</b>
ADDRESS OF TESTING AGENCY: (STREET) <b>123 TESTING CO. STREET</b>		(CITY) <b>TESTING TOWN</b>
		(STATE) <b>TESTING STATE</b>
		(ZIP) <b>TESTING ZIP</b>
EQUIPMENT TESTED AND DESCRIPTION:		
1 <b>FIRE PROTECTION SYSTEM TESTED</b>	CERTIFIED YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	CERTIFIED YES <input type="checkbox"/> NO <input type="checkbox"/>
2 <b>TYPE OF SYSTEM TESTED</b>	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>
3	YES <input type="checkbox"/> NO <input type="checkbox"/>	YES <input type="checkbox"/> NO <input type="checkbox"/>

NOTEWORTHY CHARACTERISTICS, SYSTEM DESCRIPTION, PROCEDURES PERFORMED, AND DEFECTS FOUND IN EQUIPMENT TESTED (IF NONE, SO NOTE):

**A. LAFD NOTIFICATION OF CHIEF'S REGULATION NO.4 TEST WAS MADE VERBALLY OR FAXED TO FPB UNIT OR FIRE STATION (PERSON CONTACTED) AND THE CHIEF'S REGULATION NO. 4 UNIT ON (DATE)**

**B. REFER TO THE FOLLOWING ATTACHED PAGES FOR:  
(INDICATE NUMBER OF PAGES)**

1. BUILDING DESCRIPTION
2. SYSTEM DESCRIPTION
3. TESTING PROCEDURES
4. TEST RESULTS

**SAMPLE COPY**

ADDITIONAL INFORMATION ON ATTACHED SHEET(S)

I HEREBY CERTIFY THAT THE FIRE PROTECTION EQUIPMENT LISTED ABOVE HAS BEEN FULLY TESTED IN ACCORDANCE WITH CHIEF'S REGULATION NO. 4 OF THE LOS ANGELES FIRE CODE AND THAT THE RESULTS ARE ACCURATELY LISTED ABOVE AND THE EQUIPMENT IS FULLY OPERABLE EXCEPT AS NOTED.

TESTER'S NAME & CERTIFICATE # <b>JOE TESTER R4000</b>	EXPIRATION DATE <b>1/31/03</b>	TESTER'S SIGNATURE	FIRE DEPARTMENT WITNESS (SIGNATURE & ASSIGNMENT) <b>INSPECTOR JONES REG-4 UNIT</b>
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REPAIR AND RETEST: IF DEFECTS ARE FOUND IN EQUIPMENT TESTED, CORRECTION ON SUCH DEFECTS SHALL COMMENCE FORTHWITH AND SHALL BE COMPLETED AS SOON AS POSSIBLE, BUT IN EVERY CASE WITHIN 30 DAYS OF INITIAL TEST. AT THE COMPLETION OF REPAIR, THE SYSTEM OR DEVICE SHALL BE RETESTED AS NECESSARY TO DETERMINE THAT IT IS FULLY OPERABLE.

**RETEST IF NEEDED**

DATE OF RETEST:	TESTING AGENCY:	PHONE:
ADDRESS OF TESTING AGENCY:		
EQUIPMENT RETESTED AND DESCRIPTION:		
I HEREBY CERTIFY THAT ALL NECESSARY MAINTENANCE AND REPAIRS HAVE BEEN MADE TO THE EQUIPMENT LISTED ABOVE IN COMPLIANCE WITH THE LOS ANGELES MUNICIPAL CODE AND THE EQUIPMENT IS FULLY OPERABLE.		
TESTER'S NAME & CERTIFICATE #:	EXPIRATION DATE	TESTER'S SIGNATURE
		FIRE DEPARTMENT WITNESS (SIGNATURE AND ASSIGNMENT)

**ACKNOWLEDGEMENTS**

F-340 R-4 IS TO BE RETURNED WITHIN 7 DAYS TO:		FIRE DEPARTMENT NOTIFICATION (2 FULL WORKING DAYS PRIOR TO TESTING):	
<b>INSPECTOR JOHNSON</b> (INSPECTOR)	<b>HIGHRISE UNIT 123-555-1234</b> (ASSIGNMENT) (PHONE)	<b>MS. MARY SUE</b> (NAME)	<b>HIGH RISE UNIT 123-555-1234</b> (ASSIGNMENT) (DATE)

**LOS ANGELES FIRE DEPARTMENT  
FIRE PROTECTION EQUIPMENT PERFORMANCE CERTIFICATION**

THIS PAGE BY ITSELF IS NOT A COMPLETE DOCUMENT

PAGE 2 OF 2

DATE(S) OF TESTING <b>JAN. 1, 2000</b>	TEST SITE ADDRESS: (STREET) <b>456 SOUTH TEST SITE STREET</b>	(CITY) <b>Y.T.</b>	(STATE) <b>Y.S.</b>	(ZIP) <b>Y.Z.</b>	FIRM OR D.B.A.: <b>ACME BUILDING</b>
EQUIPMENT TESTED AND DESCRIPTION: <b>FIRE PROTECTION SYSTEM TESTED AND TYPE</b>					

NOTEWORTHY CHARACTERISTICS, SYSTEM DESCRIPTION, PROCEDURES PERFORMED, AND DEFECTS FOUND IN EQUIPMENT TESTED (IF NONE, SO NOTE):

**1. BUILDING DESCRIPTION****1.1 BUILDING DESCRIPTION: Type, size, use and age of building.****2. SYSTEM DESCRIPTION:****2.1 Type, size, manufacture and any pertinent information about the fire protection system, type of devices associated with system and sequence of operations (auxiliary functions) performed by system or devices.****3. TEST PROCEDURES:****3.1 Procedures used to test fire protection system, devices and auxiliary functions performed.****4. TEST RESULTS:****4.1 List of defects found on fire protection system****4.2 Notation made on fire protection system****4.3 Recommendations made on fire protection system****4.4 End report with "NO OTHER DEFECTS FOUND"****SAMPLE COPY**

TESTERS NAME & CERTIFICATE # <b>JOE TESTER R4000</b>	EXPIRATION DATE <b>1/31/2000</b>	TESTER'S SIGNATURE	TESTING AGENCY <b>ABC TESTING COMPANY</b>
ADDRESS OF TESTING AGENCY: <b>123 TESTING CO. STREET, TESTING TOWN, TESTING STATE, TESTING ZIP.</b>			

## How to Determine Whether an Address belongs to the Fire Prevention Bureau or Fire Station.

**F.P.B. RESPONSIBILITY:** The following occupancies or conditions will normally be inspected by members of the Fire Prevention Bureau. All other occupancies will be inspected by fire station personnel. Occupancy classification definitions are contained in the Manual of Operation, 11/1-30.00 and in the Fire Code, Section 57.02.02.

- A. **Group A Occupancies** with an occupant load of 100 or more persons.  
EXCEPTION: Any church with an occupant load of less than 750 and which is not the same property as a school or day care occupancy will be inspected by fire station personnel.
- B. **Group B Occupancies:**
  - 1. Four stories or more in height.
  - 2. 40,000 square feet or more total area of all floors.
  - 3. Where a Division 4 Permit is required in accordance with Section 57.04.03 of the Fire Code.  
EXCEPTION: Group A Occupancies with an occupant load of 99 or less.
- C. **All Group E Occupancies.**
- D. **All Group H Occupancies** except repair garages.
- E. **All Group I Occupancies**
- F. **Group R, Division 1 Occupancies** six stories or more in height
  - 1. Group R, Occupancies housing more than six (6) persons (day care, small home for people with special needs).

**FIRE STATION RESPONSIBILITY:** The following occupancies or conditions will normally be inspected by fire station personnel. All other occupancies will be inspected by members of the Fire Prevention Bureau. Occupancy classification definition are contained in the Fire Code.

- A. **Group A Occupancies** with an occupant load of less than 100 persons.  
EXCEPTION: Any church with an occupant load of less than 750 and which is not on the same property as a school or day care occupancy will be inspected by fire station personnel.
- B. **Group B Occupancies** with less than four stories in height and less than 40,000 square feet total of all floors.
- C. **Group H Division 4 Occupancies** (Repair garages)
- D. **Group R Occupancies.**
  - 1. Group R, Division 1 Occupancies less than six stories in height.
  - 2. Group R, Division 3 Occupancies.
  - 3. Group R, Occupancies housing 6 or fewer ambulatory persons, on the premises, not including employees or relatives.

**MULTI-OCCUPANCY BUILDINGS:** The inspection responsibility in multi-occupancy building for individual occupancies having separate street addresses may be divided between the Fire Prevention Bureau and fire station personnel.

**Chief's Regulation No. 4**  
**FIRE PREVENTION BUREAU (FPB) INSPECTION UNITS**

Descriptions	Unit	Phone	Fax
All <u>High-Rise</u> buildings are inspected by the High-Rise Unit of FPB.	High-Rise Unit	(213) 978-3600	(213) 978-3518
<p>LARGE, COMPLEX COMMERICAL &amp; INDUSTRIAL occupancies other than high buildings are inspected by the Industrial Commercial Unit of FPB (this includes all commercial buildings 4 or more stories in height and over 40,000 square feet in size).</p> <p style="padding-left: 20px;">In the Metropolitan Area  San Fernando Valley  West L.A. &amp; Westchester Area  Harbor Area</p>	<p>Industrial Commercial Units by location:</p> <p style="padding-left: 20px;">Central Industrial Unit  Valley Industrial Unit  West Industrial Unit  Harbor Industrial Unit</p>	<p>(213) 978-3630  (818) 374-1110  (213) 473-7700  (310) 732-4580</p>	<p>(213) 978-3519  (818) 778-4911  (213) 473-7702  (310) 732-4579</p>
<p>PLACES OF ASSEMBLAGE, HOTELS, APARTMENT HOUSES, RESTAURANTS, THEATRE &amp; OTHER RESIDENTIAL BUILDINGS, which are 6 stories or more <u>BUT</u> are not high-rise buildings.</p> <p style="padding-left: 20px;">Central, West, &amp; Harbor Area   San Fernando Valley</p>	<p style="padding-left: 20px;">Central &amp; West Public Assemblage Unit  Valley Public Safety Unit</p>	<p>(213) 978-3640  (818) 374-1110</p>	<p>(213) 978-3611  (818) 778-4939</p>
<p>HOSPITALS, JAILS, CONVALESCENT HOMES, &amp; OTHER INSTITUTIONAL occupancies.</p> <p style="padding-left: 20px;">Central, West, &amp; Harbor Area  San Fernando Valley</p>	<p style="padding-left: 20px;">Institution Unit  Valley Public Safety Unit</p>	<p>(213) 978-3730  (818) 374-1110</p>	<p>(213) 978-3612  (818) 778-4939</p>
<p>SCHOOLS &amp; CHURCHES with occupancy loads of 750 or more.</p> <p style="padding-left: 20px;">Central, West, &amp; Harbor Area  San Fernando Valley</p>	<p style="padding-left: 20px;">Schools &amp; Churches Unit  Valley Public Safety Unit</p>	<p>(213) 978-3660  (818) 374-1110</p>	<p>(213) 978-3612  (818) 778-4939</p>
<p>SMALLER, LESS COMPLEX buildings, small businesses (3 stories or less and less than 40,000 square feet), apartments (5 stories or less), and repair garages.</p>	<p>Local Fire Station</p>	<p>You can find the local fire station for the address by going to <a href="http://zimas.lacity.org">http://zimas.lacity.org</a> or <a href="http://www.lafd.org/fsloc.html">http://www.lafd.org/fsloc.html</a></p>	



## Construction Types - Definitions

**TYPE I-A**--Fire Resistive Non-combustible (Commonly found in high-rise buildings and Group I occupancies).

- 3 Hr. Exterior Walls\*
- 3 Hr. Structural Frame
- 2 Hr. Floor/Ceiling Assembly
- 1 ½ Hr. Roof Protection

**TYPE I-B**--Fire Resistive Non-Combustible (Commonly found in mid-rise office & Group R buildings).

- 2 Hr. Exterior Walls\*
- 2 Hr. Structural Frame
- 2 Hr. Ceiling/Floor Separation
- 1 Hr. Ceiling/Roof Assembly

**TYPE II-A**--Protected Non-Combustible (Commonly found in newer school buildings).

- 1 Hr. Exterior Walls
- 1 Hr. Structural Frame
- 1 Hr. Floor/Ceiling/Roof Protection

**TYPE II-B**--Unprotected Non-Combustible (Most common type of non-combustible construction used in commercial buildings).

Building constructed of non-combustible materials but these materials have no fire resistance.

**TYPE III-A**--Protected Combustible (Also known as "ordinary" construction with brick or block walls and a wooden roof or floor assembly which is 1 hour fire protected).

- 2 Hr. Exterior Walls\*
- 1 Hr. Structural Frame
- 1 Hr. Floor/Ceiling/Roof Protection

**TYPE III-B**--Unprotected Combustible (Also known as "ordinary" construction; has brick or block walls with a wooden roof or floor assembly which is not protected against fire. These buildings are frequently found in "warehouse" districts of older cities.)

- 2 Hr. Exterior Walls\*
- No fire resistance for structural frame, floors, ceilings, or roofs.

**TYPE IV**--Heavy Timber (also known as "mill" construction; to qualify all wooden members must have a minimum nominal dimension of 8 inches.)

- 2 Hr. Exterior Walls\*
- 1 Hr. Structural Frame or Heavy Timber
- Heavy Timber Floor/Ceiling/Roof Assemblies

**TYPE V-A**--Protected Wood Frame (Commonly used in the construction of newer apartment buildings; there is no exposed wood visible.)

- 1 Hr. Exterior Walls
- 1 Hr. Structural Frame
- 1 Hr. Floor/Ceiling/Roof

**TYPE V-B**--Unprotected Wood Frame (Examples of Type V-N construction are single family homes and garages. They often have exposed wood so there is no fire resistance.)

- Note exceptions in the building code for fire resistance ratings of exterior walls and opening protection.

## CHAPTER 6

# TYPES OF CONSTRUCTION

### SECTION 601 GENERAL

**601.1 Scope.** The provisions of this chapter shall control the classification of buildings as to type of construction.

### SECTION 602 CONSTRUCTION CLASSIFICATION

**602.1 General.** Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire-resistance rating not less than that specified in Table 602.

**602.1.1 Minimum requirements.** A building or portion thereof shall not be required to conform to the details of a type of construction higher than that type, which meets the minimum requirements based on occupancy even though certain features of such a building actually conform to a higher type of construction.

**602.2 Types I and II.** Type I and II construction are those types of construction in which the building elements listed in Table 601 are of noncombustible materials, except as permitted in Section 603 and elsewhere in this code.

**602.3 Type III.** Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies of a 2-hour rating or less.

**602.4 Type IV.** Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of this section. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies with a 2-hour rating or less. Minimum solid sawn nominal dimensions are required for structures built using Type IV construction (HT). For glued-laminated members the equivalent net finished width and depths corresponding to the minimum nominal width and depths of solid sawn lumber are required as specified in Table 602.4.

**602.4.1 Columns.** Wood columns shall be sawn or glued laminated and shall not be less than 8 inches (203 mm), nominal, in any dimension where supporting floor loads and not less than 6 inches (152 mm) nominal in width and not less than 8 inches (203 mm) nominal in depth where supporting roof and ceiling loads only. Columns shall be continuous or superimposed and connected in an approved manner.

**602.4.2 Floor framing.** Wood beams and girders shall be of sawn or glued-laminated timber and shall be not less than 6 inches (152 mm) nominal in width and not less than 10 inches (254 mm) nominal in depth. Framed sawn or glued-laminated timber arches, which spring from the floor line and support floor loads, shall be not less than 8 inches (203 mm) nominal in any dimension. Framed timber trusses supporting floor loads shall have members of not less than 8 inches (203 mm) nominal in any dimension.

**602.4.3 Roof framing.** Wood-frame or glued-laminated arches for roof construction, which spring from the floor line or from grade and do not support floor loads, shall have members not less than 6 inches (152 mm) nominal in width and have less than 8 inches (203 mm) nominal in depth for the lower half of the height and not less than 6 inches (152 mm) nominal in depth for the upper half. Framed or glued-laminated arches for roof construction that spring from the top of walls or wall abutments, framed timber trusses and other roof framing, which do not support floor loads, shall have members not less than 4 inches (102 mm) nominal in width and not less than 6 inches (152 mm) nominal in depth. Spaced members shall be permitted to be composed of two or more pieces not less than 3 inches (76 mm) nominal in thickness where blocked solidly throughout their intervening spaces or where spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) nominal in thickness secured to the underside of the members. Splice plates shall be not less than 3 inches (76 mm) nominal in thickness. Where protected by approved automatic sprinklers under the roof deck, framing members shall be not less than 3 inches (76 mm) nominal in width.

**602.4.4 Floors.** Floors shall be without concealed spaces. Wood floors shall be of sawn or glued-laminated planks, splined or tongue-and-groove, of not less than 3 inches (76 mm) nominal in thickness covered with 1-inch (25 mm) nominal dimension tongue-and-groove flooring, laid cross-wise or diagonally, or 0.5-inch (12.7 mm) particleboard or planks not less than 4 inches (102 mm) nominal in width set on edge close together and well spiked and covered with 1-inch (25 mm) nominal dimension flooring or  $1\frac{1}{32}$ -inch (12 mm) wood structural panel or 0.5-inch (12.7 mm) particleboard. The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than 0.5 inch (12.7 mm) to walls. Such 0.5-inch (12.7 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbeling of masonry walls under the floor shall be permitted to be used in place of molding.

**602.4.5 Roofs.** Roofs shall be without concealed spaces and wood roof decks shall be sawn or glued laminated, splined or tongue-and-groove plank, not less than 2 inches (51 mm) nominal in thickness,  $1\frac{1}{8}$ -inch-thick (32 mm) wood struc-

## Chapter 6 TYPES OF CONSTRUCTION

### SECTION 601 — CLASSIFICATION OF ALL BUILDINGS BY TYPES OF CONSTRUCTION AND GENERAL REQUIREMENTS

**601.1 General.** The requirements of this chapter are for the various types of construction and represent varying degrees of public safety and resistance to fire. Every building shall be classified by the building official into one of the types of construction set forth in Table 6-A. Any building that does not entirely conform to a type of construction set forth in Table 6-A shall be classified by the building official into a type having an equal or lesser degree of fire resistance.

A building or portion thereof shall not be required to conform to the details of a type of construction higher than that type that meets the minimum requirements based on occupancy even though certain features of such building actually conform to a higher type of construction.

When specific materials, types of construction or fire-resistive protection are required, such requirements shall be the minimum requirements, and any materials, types of construction or fire-resistive protection that will afford equal or greater public safety or resistance to fire, as specified in this code, may be used.

For additional limitations or allowances for special uses or occupancies, see the following:

SECTION	SUBJECT
402	Atria
403	High-rise office buildings and Group R, Division 1 Occupancies
404	Malls
405	Open parking structures
307.11	Group H, Division 6 Occupancies
411	Aviation control structures
413	Agricultural buildings
3111	Membrane structures

**601.2 Mixed Types of Construction.** When a building contains more than one distinct type of construction, the area of the entire building shall not exceed the least area permitted for the types of construction involved.

**EXCEPTION:** Each portion of a building separated by one or more area separation walls as specified in Section 504.6 may be considered a separate building for the purpose of classification of types of construction. The fire-resistive time period for such type of construction separation shall not be less than the most restrictive requirement in Section 504.6.2 based on the types of construction involved.

**601.3 Standards of Quality.** The standards listed below labeled a "UBC Standard" are also listed in Chapter 35, Part II, and are part of this code. The other standards listed below are recognized standards. (See Sections 3503 and 3504.)

#### 1. Building paper.

- 1.1 UBC Standard 14-1, Kraft Waterproof Building Paper
- 1.2 Underwriters Laboratories Inc. Standard Specification 55A, Materials for Use in Construction of Built-up Roof Coverings

#### 2. Potential heat of building materials.

- UBC Standard 26-1, Test Method to Determine Potential Heat of Building Materials

#### 3. Foam plastic tests.

- 3.1 UBC Standard 26-2, Test Method for the Evaluation of Thermal Barriers
- 3.2 Factory Mutual Standard Fire Test Standard for Insulated Roof Deck Construction
- 3.3 Underwriters Laboratories Inc. 1256, Fire Test Standard for Insulated Roof Deck Construction
- 3.4 UBC Standard 26-3, Room Fire Test Standard for Interior of Foam Plastic Systems
- 3.5 UBC Standard 26-4, Method of Test for the Evaluation of Flammability Characteristics of Exterior, Nonload-bearing Wall Panel Assemblies Using Foam Plastic Insulation
- 3.6 UBC Standard 26-8, Room Fire Test Standard for Garage Doors Using Foam Plastic Insulation
- 3.7 UBC Standard 26-9, Method of Test for the Evaluation of Flammability Characteristics of Exterior Nonload-bearing Wall Assemblies Containing Combustible Components Using the Intermediate-Scale, Multistory Test Apparatus

#### 4. Roofing.

- 4.1 Underwriters Laboratories Inc. Standard Specification 55A, Materials for Use in Construction of Built-up Roof Coverings
- 4.2 UBC Standard 15-2, Test Method for Determining the Fire Retardancy of Roofing Assemblies

#### 5. Surface-burning characteristics and fire resistance of building materials and assemblies.

- 5.1 UBC Standard 7-1, Fire Test of Building Construction and Materials
- 5.2 UBC Standard 8-1, Test Method for Surface-burning Characteristics of Building Materials

#### 6. Self-ignition properties of plastics.

- UBC Standard 26-6, Ignition Properties of Plastics

#### 7. Fire dampers.

- UL 555, Fire Dampers

**601.4 Structural Frame.** The structural frame shall be considered to be the columns and the girders, beams, trusses, and spandrels having direct connections to the columns and bracing members designed to carry gravity loads. The members of floor or roof panels that have no connection to the columns shall be considered secondary members and not a part of the structural frame.

#### 601.5 Exceptions to Table 6-A.

**601.5.1 General.** The provisions of this section are exceptions to the construction requirements of Table 6-A, Chapter 3 and Sections 602 through 606.

#### 601.5.2 Fixed partitions.

**601.5.2.1 Stores and offices.** Interior nonload-bearing partitions dividing portions of stores, offices or similar places occupied by one tenant only and that do not establish a corridor that is required to be of fire-resistive construction under the provisions of Section 1004.3.4.3.1 may be constructed of:

1. Noncombustible materials.
2. Fire-retardant-treated wood.
3. One-hour fire-resistive construction.
4. Wood panels or similar light construction up to three fourths the height of the room in which placed; when more than three fourths the height of the room, such partitions shall not have less than the upper one fourth of the partition constructed of glass.

**601.5.2.2 Hotels and apartments [For SFM] and Group R, Divisions 2.1.1, 2.2, 2.2.1 and 2.3.1 Occupancies.** Interior non-load-bearing partitions within individual dwelling units in apartment houses [For SFM]; Group R, Divisions 2.1.1, 2.2, 2.2.1, 2.3 and 2.3.1 Occupancies, and guest rooms or suites in hotels when such dwelling units, guest rooms or suites are separated from each other and from corridors by not less than one-hour fire-resistive construction may be constructed of:

1. Noncombustible materials or fire-retardant-treated wood in buildings of any type of construction; or
2. Combustible framing with noncombustible materials applied to the framing in buildings of Type III or V construction.

Openings to such corridors shall be equipped with doors conforming to Section 1004.3.4.3.2 regardless of the occupant load served.

For use of plastics in partitions, see Section 2603.10.

**601.5.3 Folding, portable or movable partitions.** Approved folding, portable or movable partitions need not have a fire-resistive rating, provided:

1. They do not block required exits or exit-access doors (without providing alternative conforming exits or exit-access doors) and they do not establish a corridor.
2. Their location is restricted by means of permanent tracks, guides or other approved methods.
3. Flammability shall be limited to materials having a flame-spread classification as set forth in Table 8-B for rooms or areas.

**601.5.4 Walls fronting on streets or yards.** Regardless of fire-resistive requirements for exterior walls, certain elements of the walls fronting on streets or yards having a width of 40 feet (12 192 mm) may be constructed as follows:

1. Bulkheads below show windows, show-window frames, aprons and showcases may be of combustible materials, provided the height of such construction does not exceed 15 feet (4572 mm) above grade.
2. Wood veneer of boards not less than 1-inch (25 mm) nominal thickness or exterior-type panels not less than  $\frac{3}{8}$ -inch (9.5 mm) nominal thickness may be applied to walls, provided the veneer does not exceed 15 feet (4572 mm) above grade, and further provided such veneer shall be placed either directly against noncombustible surfaces or furred out from such surfaces not to exceed  $\frac{15}{8}$  inches (41 mm) with all concealed spaces fire-blocked as provided in Section 708. Where boards, panels and furring as described above comply with Section 207 as fire-retardant-treated wood suitable for exterior exposure, the height above grade may be increased to 35 feet (10 668 mm).

**601.5.5 Trim.** Trim, picture molds, chair rails, baseboards, handrails and show-window backing may be of wood. Unprotected wood doors and windows may be used except where openings are required to be fire protected.

Foam plastic trim covering not more than 10 percent of the wall or ceiling area may be used, provided such trim (1) has a density of no less than 20 pounds per cubic foot (320.4 kg/m<sup>3</sup>), (2) has a maximum

thickness of  $\frac{1}{2}$  inch (12.7 mm) and a maximum width of 4 inches (102 mm), and (3) has a flame-spread rating no greater than 75.

Materials used for interior finish of walls and ceilings, including wainscoting, shall be as specified in Chapter 8.

**601.5.6 Loading platforms.** Exterior loading platforms may be of noncombustible construction or heavy-timber construction with wood floors not less than 2-inch (51 mm) nominal thickness. Such wood construction shall not be carried through the exterior walls.

**601.5.7 Insulating boards.** Combustible insulating boards may be used under finished flooring.

**601.5.8 Walls within health-care suites.** In health-care suites that comply with Section 1007.5, interior nonload-bearing partitions of noncombustible construction need not be of fire-resistive construction. In buildings of combustible construction, interior nonload-bearing partitions within suites may be of combustible framing covered with noncombustible materials having an approved thermal barrier with an index of 15 in accordance with UBC Standard 26-2.

## SECTION 602 — TYPE I FIRE-RESISTIVE BUILDINGS

**602.1 Definition.** The structural elements in Type I fire-resistive buildings shall be of steel, iron, concrete or masonry.

Walls and permanent partitions shall be of noncombustible fire-resistive construction except that permanent nonbearing partitions of one-hour or two-hour fire-resistive construction, which are not part of a shaft enclosure, may have fire-retardant-treated wood (see Section 207) within the assembly.

Materials of construction and fire-resistive requirements shall be as specified in Section 601 and Chapter 7.

**602.2 Structural Framework.** Structural framework shall be of structural steel or iron as specified in Chapter 22, reinforced concrete as specified in Chapter 19, or reinforced masonry as specified in Chapter 21.

For additional requirements for Group H Occupancies, see Section 307.2.

### 602.3 Exterior Walls and Openings.

**602.3.1 Exterior walls.** Exterior walls and all structural members shall comply with the requirements specified in Section 503 and Table 5-A and the fire-resistive provisions set forth in Table 6-A.

**602.3.2 Openings in walls.** All openings in exterior walls shall conform to the requirements of Section 503.2 and Table 5-A.

**602.4 Stairway Construction.** Stairways shall be constructed of reinforced concrete, iron or steel with treads and risers of concrete, iron or steel. Brick, marble, tile or other hard noncombustible materials may be used for the finish of such treads and risers.

**EXCEPTION:** On stairs not required to be enclosed by Section 1005.3.3, the finish material of treads and risers may be of any material permitted by the code.

Stairways shall comply with the requirements of Chapter 10.

**602.5 Roofs.** Except in retail sales and storage areas classified as Groups M and S, Division 1 Occupancies and in Group H Occupancies, roofs and their members, other than the structural frame, may be of unprotected noncombustible materials when every part of the roof framing, including the structural frame, is 25 feet (7620 mm) or more above the floor, balcony or gallery immediately below. Heavy-timber members in accordance with Section 605.6 may be used for such unprotected members in one-story buildings.

When every part of the structural framework of the roof of a Group A or E Occupancy or of an atrium is not less than 25 feet (7620 mm) above any floor, balcony or gallery, fire protection of all members of the roof construction, including those of the structural frame, may be omitted. Heavy-timber members in accordance with Section 605.6 may be used for such unprotected members in one-story buildings.

Roofs of unprotected noncombustible or heavy-timber construction conforming to Section 605.6.4 may be less than 25 feet (7620 mm) above any floor, balcony or gallery of a Group A, Division 2.1 Occupancy having an occupant load of 10,000 or more when all of the following conditions are met:

1. The building is not more than one story in height, except for multilevel areas located under the roof and used for locker rooms, exiting, concession stands, mechanical rooms and others accessory to the assembly room.
2. The area in which the roof clearance is less than 25 feet (7620 mm) does not exceed 35 percent of the area encompassed by the exterior walls.
3. An approved supervised automatic sprinkler system shall be installed throughout.

Where every part of the structural steel framework of the roof of a Group A or E Occupancy is more than 18 feet (5486 mm) and less than 25 feet (7620 mm) above any floor, balcony or gallery, the roof construction shall be protected by a ceiling of not less than one-hour fire-resistive construction.

Roof coverings shall be as specified in Chapter 15.

### SECTION 603 — TYPE II BUILDINGS

**603.1 Definition.** The structural elements in Type II-F.R. buildings shall be of steel, iron, concrete or masonry.

The structural elements of Type II One-hour or Type II-N buildings shall be of noncombustible materials.

Floor construction of Type II One-hour and Type II-N buildings shall be of noncombustible material, provided, however, that a wood surface or finish may be applied over such noncombustible material.

Walls and permanent partitions of Type II-F.R. buildings shall be of noncombustible fire-resistive construction, except that permanent nonbearing partitions of one-hour or two-hour fire-resistive construction, which are not part of a shaft enclosure, may have fire-retardant-treated wood (see Section 207) within the assembly.

Type II One-hour buildings shall be of noncombustible construction and one-hour fire resistive throughout, except that permanent nonbearing partitions may use fire-retardant-treated wood (see Section 207) within the assembly, provided fire-resistive requirements are maintained.

Walls and permanent partitions of Type II-N buildings shall be of noncombustible materials.

Materials of construction and fire-resistive requirements shall be as specified in Section 601.

For requirements due to occupancy, see Chapter 3.

**603.2 Structural Framework.** Structural framework shall be as specified in Chapter 22 for iron and steel, Chapter 19 for concrete and Chapter 21 for masonry.

### 603.3 Exterior Walls and Openings.

**603.3.1 Exterior walls.** Exterior walls and all structural members shall comply with the requirements specified in Section 503 and Table 5-A and the fire-resistive provisions set forth in Table 6-A.

**603.3.2 Openings in walls.** All openings in exterior walls shall conform to the requirements of Section 503.2 and Table 5-A.

**603.4 Stairway Construction.** Stairways of Type II-F.R. buildings shall be constructed of reinforced concrete, iron or steel with treads and risers of concrete, iron or steel. Brick, marble, tile or other hard noncombustible materials may be used for the finish of such treads and risers. Stairways of Type II, One-hour and Type II-N buildings shall be of noncombustible construction.

**EXCEPTION:** On stairs not required to be enclosed by Section 1005.3.3, the finish material of treads and risers may be of any material permitted by the code.

Stairways shall comply with the requirements of Chapter 10.

**603.5 Roofs.** Roofs shall be of noncombustible construction, except that in Type II-F.R. and Type II One-hour buildings, roofs may be as specified in Section 602.5.

Roof coverings shall be as specified in Chapter 15.

### SECTION 604 — TYPE III BUILDINGS

**604.1 Definition.** Structural elements in Type III buildings may be of any materials permitted by this code.

Type III One-hour buildings shall be of one-hour fire-resistive construction throughout.

**604.2 Structural Framework.** Structural framework shall be of steel or iron as specified in Chapter 22, concrete as specified in Chapter 19, masonry as specified in Chapter 21, or wood as specified in Chapter 23 and this chapter.

### 604.3 Exterior Walls, Openings and Partitions.

**604.3.1 Exterior walls.** Exterior walls shall be constructed of noncombustible materials and shall comply with the fire-resistive requirements set forth in Section 503 and Tables 5-A and 6-A.

**604.3.2 Openings in walls.** Openings in exterior walls shall conform to the requirements of Section 503.2 and Table 5-A.

**604.3.3 Partitions.** Bearing partitions, when constructed of wood, shall comply with Section 2308.

### 604.4 Stairway Construction.

**604.4.1 General.** Stairways shall comply with the requirements of Chapter 10.

**604.4.2 Interior.** Interior stairways serving buildings not exceeding three stories in height may be constructed of any material permitted by this code.

In buildings more than three stories in height, interior stairways shall be constructed as required for Type I buildings.

**604.4.3 Exterior.** Exterior stairways shall be of noncombustible material except that on buildings not exceeding two stories in height, they may be of wood not less than 2 inches (51 mm) in nominal thickness.

**604.5 Roofs.** Roof coverings shall be as specified in Chapter 15.

Except in retail sales and storage areas classified as Group M or S, Division 1 Occupancies and in Group H Occupancies, roofs and their members other than the structural frame may be of unprotected noncombustible materials when every part of the roof fram-

ing, including the structural frame, is 25 feet (7620 mm) or more above the floor, balcony or gallery immediately below. Heavy-timber members in accordance with Section 605.6 may be used for such unprotected members in one-story buildings.

## SECTION 605 — TYPE IV BUILDINGS

**605.1 Definition.** Structural elements of Type IV buildings may be of any materials permitted by this code.

Type IV construction shall conform to Section 605.6, except that permanent partitions and members of the structural frame may be of other materials, provided they have a fire resistance of not less than one hour.

**605.2 Structural Framework.** Structural framework shall be of steel or iron as specified in Chapter 22, concrete as specified in Chapter 19, masonry as specified in Chapter 21, or wood as specified in Chapter 23 and this chapter.

### 605.3 Exterior Walls, Openings and Partitions.

**605.3.1 Exterior walls.** Exterior walls shall be constructed of noncombustible materials and shall comply with the fire-resistive requirements set forth in Section 503 and Tables 5-A and 6-A.

**605.3.2 Openings in walls.** Openings in exterior walls shall conform to the requirements of Section 503.2 and Table 5-A.

**605.3.3 Partitions.** Bearing partitions, when constructed of wood, shall comply with Section 2308.

### 605.4 Stairway Construction.

**605.4.1 General.** Stairways shall comply with the requirements of Chapter 10.

**605.4.2 Interior.** Interior stairways serving buildings not exceeding three stories in height may be constructed of wood or as required for Type I buildings. If constructed of wood, treads and risers shall not be less than 2 inches (51 mm) in thickness, except where built on laminated or plank inclines as required for floors, where they may be of 1-inch (25 mm) thickness. Wood stair stringers shall be a minimum of 3 inches (76 mm) in thickness and not less than 10 inches (254 mm) in depth.

In buildings more than three stories in height, interior stairways shall be constructed as required for Type I buildings.

**605.4.3 Exterior.** Exterior stairways shall be of noncombustible material except that on buildings not exceeding two stories in height they may be of wood not less than 2 inches (51 mm) in nominal thickness.

**605.5 Roofs.** Roof coverings shall be as specified in Chapter 15.

### 605.6 Heavy-timber Construction.

**605.6.1 General.** Details of heavy-timber construction shall be in accordance with the provisions of this section. Unless otherwise specified, all dimensions are nominal as defined in Section 2302.

**605.6.2 Columns.** Wood columns may be of sawn timber or structural glued-laminated timber not less than 8 inches (203 mm) in any dimension when supporting roof or floor loads except as specified in Section 605.6.4.

Columns shall be continuous or superimposed and connected in an approved manner.

**605.6.3 Floor framing.** Beams and girders may be of sawn timber or structural glued-laminated timber and shall not be less than 6 inches (152 mm) in width and not less than 10 inches (254 mm) in depth.

Framed sawn timber or structural glued-laminated timber arches, which spring from the floor line and support floor loads, shall not be less than 8 inches (203 mm) in any dimension.

Framed lumber or structural glued-laminated timber trusses supporting floor loads shall have members of not less than 8 inches (203 mm) in any dimension.

**605.6.4 Roof framing.** Framed sawn timber arches or structural glued-laminated timber arches for roof construction, which spring from the floor line and do not support floor loads, shall have members not less than 6 inches (152 mm) in width and not less than 8 inches (203 mm) in depth for the lower half of the height and not less than 6 inches (152 mm) in depth for the upper half.

Framed sawn timber or structural glued-laminated timber arches for roof construction, which spring from the top of walls or wall abutments, framed lumber or structural glued-laminated timber trusses, and other roof framing that does not support floor loads, shall have members not less than 4 inches (102 mm) in width and not less than 6 inches (152 mm) in depth. Spaced members may be composed of two or more pieces not less than 3 inches (76 mm) in thickness, when blocked solidly throughout their intervening spaces, or when such spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) in thickness, secured to the underside of the members. Splice plates shall not be less than 3 inches (76 mm) in thickness. When protected by an approved automatic sprinkler system under the roof deck, framing members shall not be less than 3 inches (76 mm) in thickness.

**605.6.5 Floors.** Floors shall be without concealed spaces. Floors shall be of planks, splined or tongue and groove, of not less than 3 inches (76 mm) in thickness covered with 1-inch (25 mm) tongue-and-groove flooring laid crosswise or diagonally, or  $1\frac{5}{32}$ -inch (12 mm) wood structural panels, or of plank not less than 4 inches (102 mm) in width set on edge close together and well spiked, and covered with 1-inch (25 mm) flooring or  $1\frac{5}{32}$ -inch (12 mm) wood structural panels. The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than  $\frac{1}{2}$  inch (12.7 mm) to walls. Such  $\frac{1}{2}$ -inch (12.7 mm) space shall be covered by a molding fastened to the wall and arranged so that it will not obstruct the swelling or shrinkage movements of the floor. Corbeling of masonry walls under floors may be used in place of such molding.

**605.6.6 Roof decks.** Roofs shall be without concealed spaces and roof decks shall be of planks, splined or tongue and groove, of not less than 2-inch (51 mm) thickness, or  $1\frac{1}{8}$ -inch (29 mm) tongue-and-groove wood structural panels with exterior glue, or of a double thickness of 1-inch (25 mm) boards with tongue-and-groove joints, or with staggered joints, of lumber not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors.

**605.6.7 Construction details.** Approved wall plate boxes or hangers shall be provided where wood beams, girders or trusses rest on masonry or concrete walls.

Girders and beams shall be closely fitted around columns, and adjoining ends shall be cross tied to each other, or intertied by caps or ties, to transfer horizontal loads across the joints. Wood bolsters may be placed on top of columns which support roof loads only.

Where intermediate beams are used to support a floor, they shall rest on top of the girders, or shall be supported by ledgers or blocks securely fastened to the sides of the girders, or they may be supported by approved metal hangers into which the ends of the beams shall be closely fitted.

In heavy-timber roof construction, every roof girder and at least every alternate roof beam shall be anchored to its supporting

**TABLE 6-A—TYPES OF CONSTRUCTION—FIRE-RESISTIVE REQUIREMENTS (In Hours)**  
 For details, see occupancy section in Chapter 3, type of construction sections in this chapter and sections referenced in this table.

BUILDING ELEMENT	TYPE I	TYPE II			TYPE III		TYPE IV	TYPE V	
	Fire-resistive	Noncombustible			Combustible				
		Fire-resistive	1-Hr.	N	1-Hr.	N	H.T.	1-Hr.	N
1. Bearing walls—exterior	4 Sec. 602.3.1	4 Sec. 603.3.1	1	N	4 Sec. 604.3.1	4 Sec. 604.3.1	4 Sec. 605.3.1	1	N
2. Bearing walls—interior	3	2	1	N	1	N	1	1	N
3. Nonbearing walls—exterior	4 Sec. 602.3.1	4 Sec. 603.3.1	1 Sec. 603.3.1	N	4 Sec. 604.3.1	4 Sec. 604.3.1	4 Sec. 605.3.1	1	N
4. Structural frame <sup>1</sup>	3	2	1	N	1	N	1 or H.T.	1	N
5. Partitions—permanent	1 <sup>2</sup>	1 <sup>2</sup>	1 <sup>2</sup>	N	1	N	1 or H.T.	1	N
6. Shaft enclosures <sup>3</sup>	2	2	1	1	1	1	1	1	1
7. Floors and floor-ceilings	2	2	1	N	1	N	H.T.	1	N
8. Roofs and roof-ceilings	2 Sec. 602.5	1 Sec. 603.5	1 Sec. 603.5	N	1	N	H.T.	1	N
9. Exterior doors and windows	Sec. 602.3.2	Sec. 603.3.2	Sec. 603.3.2	Sec. 603.3.2	Sec. 604.3.2	Sec. 604.3.2	Sec. 605.3.2	Sec. 606.3	Sec. 606.3
10. Stairway construction	Sec. 602.4	Sec. 603.4	Sec. 603.4	Sec. 603.4	Sec. 604.4	Sec. 604.4	Sec. 605.4	Sec. 606.4	Sec. 606.4

N—No general requirements for fire resistance.

H.T.—Heavy timber.

<sup>1</sup>Structural frame elements in an exterior wall that is located where openings are not permitted, or where protection of openings is required, shall be protected against external fire exposure as required for exterior-bearing walls or the structural frame, whichever is greater.

<sup>2</sup>Fire-retardant-treated wood (see Section 207) may be used in the assembly, provided fire-resistance requirements are maintained. See Sections 602 and 603.

<sup>3</sup>For special provisions, see Sections 304.6, 306.6 and 711.

member; roof decks, where supported by a wall, shall be anchored to such wall at intervals not exceeding 20 feet (6096 mm); every monitor and every sawtooth construction shall be anchored to the main roof construction. Such anchors shall consist of steel or iron bolts of sufficient strength to resist vertical uplift of the roof.

**605.6.8 Mechanically laminated floors and roof decks.** Mechanically laminated floors and roof decks conforming to Section 2313 may be used as heavy-timber floors or roof decks, provided the minimum thickness and other applicable requirements of the section are followed.

**605.6.9 Partitions.** Partitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards or laminated construction of 4-inch (102 mm) thickness, or of one-hour fire-resistive construction.

## SECTION 606 — TYPE V BUILDINGS

**606.1 Definition.** Type V buildings may be of any materials allowed by this code.

Type V One-hour buildings shall be of one-hour fire-resistive construction throughout.

Materials of construction and fire-resistive requirements shall be as specified in Section 601.

For requirements due to occupancy, see Chapter 3.

**606.2 Structural Framework.** Structural framework shall be of steel or iron as specified in Chapter 22, concrete as specified in

Chapter 19, masonry as specified in Chapter 21, or wood as specified in Chapter 23 and this chapter.

**606.3 Exterior Walls and Openings.** Exterior walls shall comply with fire-resistive requirements set forth in Section 503 and Tables 5-A and 6-A. Openings in exterior walls shall conform to requirements of Section 503.2 and Table 5-A.

### 606.4 Stairway Construction.

**606.4.1 General.** Stairways shall comply with the requirements of Chapter 10.

**606.4.2 Interior.** Interior stairways may be constructed of any materials permitted by this code.

**606.4.3 Exterior.** Exterior stairways shall be constructed of wood not less than 2 inches (51 mm) in nominal thickness, or may be of noncombustible materials.

**606.5 Roofs.** Roof coverings shall be as specified in Chapter 15.

Except in retail sales and storage areas classified as Group M or S, Division 1 Occupancies and in Group H Occupancies, roofs and their members other than the structural frame may be of unprotected noncombustible materials when every part of the roof framing, including the structural frame, is 25 feet (7620 mm) or more above the floor, balcony or gallery immediately below. Heavy-timber members in accordance with Section 605.6 may be used for such unprotected members in one-story buildings.