[RB] GRADE FLOOR OPENING. A window or other opening located such that the sill height of the opening is not more than 44 inches (1118 mm) above or below the finished ground level adjacent to the opening.
COMMON PATH OF EGRESS TRAVEL. That portion of the exit access travel distance measured from the most remote point within a story to that point where the occupants have separate and distinct access to two exits or exit access doorways.

[BS] PORCELAIN TILE. Tile that conforms to the requirements of ANSI A37.1.3 A137.1 Section 3.0 for ceramic tile having an absorption of 0.5 percent or less in accordance with ANSI A37.4.4–A137.1 Section 4.1 Class Table and ANSI A37.1.6.1 Allowable Properties by Tile Type–Section 6.1 Table 10.

[BS EB] REROOFING. The process of recovering or replacing an existing roof covering. See “Roof recover” and “Roof replacement.”

SMOKEPROOF ENCLOSURE. An exit stairway or ramp designed and constructed so that the movement of the products of combustion produced by a fire occurring in any part of the building into the enclosure is limited.
AMBULATORY CARE FACILITY. Buildings or portions thereof used to provide medical, surgical, psychiatric, nursing or similar care on a less than 24-hour basis to individuals persons who are rendered incapable of self-preservation by the services provided.

[F] AUTOMATIC WATER MIST SYSTEM. A system consisting of a water supply, a pressure source, and a distribution piping system with attached nozzles, which, at or above a minimum operating pressure, defined by its listing, discharges water in fine droplets meeting the requirements of NFPA 750 for the purpose of the control, suppression or extinguishment of a fire. Such systems include wet-pipe, dry-pipe and pre-action types. The systems are designed as engineered, pre-engineered, local-application or total flooding systems.

[BS] EXISTING STRUCTURE. A structure erected prior to the date of adoption of the appropriate code, or one for which a legal building permit has been issued. For application of provisions in flood hazard areas, an existing structure is any building or structure for which the start of construction commenced before the effective date of the community’s first flood plain management code, ordinance or standard.

[BS] FIBER-REINFORCED POLYMER. A polymeric composite material consisting of reinforcement fibers, such as glass, impregnated with a fiber-binding polymer which is then molded and hardened. Fiber-reinforced polymers are permitted to contain cores laminated between fiber-reinforced polymer facings.

FIRE PROTECTION RATING. The period of time that an opening protective will maintain the ability to confine a fire as determined by tests specified in Section 715 716. Ratings are stated in hours or minutes.

[BS] FLOOD HAZARD AREA SUBJECT TO HIGH VELOCITY WAVE ACTION. Area within the flood hazard area that is subject to high-velocity wave action, and shown on a Flood Insurance Rate Map (FIRM) or other flood hazard map as Zone V, VO, VE or V1-30.

[BS] FOLDING AND TELESCOPIC SEATING. Tiered seating having an overall shape and size that is capable of being reduced for purposes of moving or storing and is not a building element.

[BS] GUARD. A building component or a system of building components located at or near the open sides of elevated walking surfaces that minimizes the possibility of a fall from the walking surface to a lower level.

[BS] HANDRAIL. A horizontal or sloping rail intended for grasping by the hand for guidance or support.

[BS] HURRICANE-PRONE REGIONS. Areas vulnerable to hurricanes defined as:
1. The U. S. Atlantic Ocean and Gulf of Mexico coasts where the ultimate design wind speed, $V_{ult}$, for Risk Category II buildings is greater than 115 mph (51.4 m/s);
2. Hawaii, Puerto Rico, Guam, Virgin Islands and American Samoa.

[BS] LOWEST FLOOR. The floor of the lowest enclosed area, including basement, but excluding any unfinished or flood resistant enclosure, usable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the structure in violation of Section 1612.

[BS] PLASTIC LUMBER. A manufactured product made primarily of plastic materials (filled or unfilled) which is generally rectangular in cross section.

[BS] RESTRICTED ENTRANCE. An entrance that is made available for common use on a controlled basis, but not public use, and that is not a service entrance.

[BS EB] ROOF RECOVER. The process of installing an additional roof covering over a prepared existing roof
covering without removing the existing roof covering.

**[BS EB] ROOF REPAIR.** Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

**[BS EB] ROOF REPLACEMENT.** The process of removing the existing roof covering, repairing any damaged substrate and installing a new roof covering.

**[BS] SKYLIGHT, UNIT.** A factory-assembled, glazed fenestration unit, containing one panel of glazing material that allows for natural lighting through an opening in the roof assembly while preserving the weather-resistant barrier of the roof.

**[BS] SKYLIGHTS AND SLOPED GLAZING.** Glass or other transparent or translucent glazing material installed at a slope of 15 degrees (0.26 rad) or more from vertical. Glazing material in skylights, including *unit skylights*, *tubular daylighting devices*, *solariums*, *sunrooms*, roofs and sloped walls, are included in this definition.

**[BS] SPECIAL INSPECTION.** Inspection of construction requiring the expertise of an approved special inspector in order to ensure compliance with this code and the approved construction documents.

- **Continuous special inspection.** Special inspection by the special inspector who is present continuously when and where the work to be inspected is being performed.
- **Periodic special inspection.** Special inspection by the special inspector who is intermittently present where the work to be inspected has been or is being performed.

**[BS] SPLICE.** The result of a factory and/or field method of joining or connecting two or more lengths of a fire-resistant joint system into a continuous entity.

**[BS] START OF CONSTRUCTION.** The date of issuance for new construction and substantial improvements to existing structures, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement is within 180 days after the date of issuance. The actual start of construction means the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns.

Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a basement, footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main building. For a substantial improvement, the actual “start of construction” means the first alteration of any wall, ceiling, floor or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

**[BS] STEEL MEMBER, STRUCTURAL.** Any steel structural member of a building or structure consisting of a rolled steel structural shape other than cold-formed steel, or steel joist members.

**[BS] STORM SHELTER.** A building, structure or portions thereof, constructed in accordance with ICC 500 and designated for use during a severe wind storm event, such as a hurricane or tornado.

- **Community storm shelter.** A storm shelter not defined as a “Residential storm shelter.”
- **Residential storm shelter.** A storm shelter serving occupants of dwelling units and having an occupant load not exceeding 16 persons.

**[BS] SUBSTANTIAL DAMAGE.** Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

**[BS] SUBSTANTIAL IMPROVEMENT.** Any repair, reconstruction, rehabilitation, alteration, addition or other improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. If the structure has sustained substantial damage,
Any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.
2. Any alteration of a historic structure provided that the alteration will not preclude the structure’s continued designation as a historic structure.

**VEHICLE BARRIER.** A component or a system of components, near open sides or walls of a garage floor or ramp ramps or building walls that act as a restraint for vehicles.

**WILDLAND-URBAN INTERFACE AREA.** That geographical area where structures and other human development meets or intermingles with wildland or vegetative fuels.

**[BS] WIND-BORNE DEBRIS REGION.** Areas within hurricane-prone regions located:

1. Within 1 mile (1.61 km) of the coastal mean high water line where the ultimate design wind speed, \( V_{\text{ult}} \), is 130 mph (58 m/s) or greater; or
2. In areas where the ultimate design wind speed is 140 mph (63.6 m/s) or greater; or Hawaii.

For Risk Category II buildings and structures and Risk Category III buildings and structures, except health care facilities, the wind-borne debris region shall be based on Figure 1609.3(1). For Risk Category IV buildings and structures and Risk Category III health care facilities, the windborne debris region shall be based on Figure 1609.3(2).
SECTION 307
HIGH-HAZARD GROUP H

[F] TABLE 307.1(2)
MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING A HEALTH HAZARD \(^{a, c, f, h, i}\)

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>STORAGE(^{b})</th>
<th>USE-CLOSED SYSTEMS(^{b})</th>
<th>USE-OPEN SYSTEMS(^{b})</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Solid pounds(^d, e)</td>
<td>Liquid gallons (pounds)(^d, f)</td>
<td>Gas cubic feet at NTP (pounds)(^d)</td>
</tr>
<tr>
<td>Corrosives</td>
<td>5,000</td>
<td>500</td>
<td>Gaseous 810(^e) Liquefied (150)</td>
</tr>
<tr>
<td>Highly Toxic</td>
<td>10</td>
<td>(10)</td>
<td>Gaseous 20(^g) Liquefied (4)(^g)</td>
</tr>
<tr>
<td>Toxic</td>
<td>500</td>
<td>(500)</td>
<td>Gaseous 810(^e) Liquefied (150)(^e)</td>
</tr>
</tbody>
</table>

[F] 307.7 High-hazard Group H-5. Semiconductor fabrication facilities and comparable research and development areas in which hazardous production materials (HPM) are used and the aggregate quantity of materials is in excess of those listed in Tables 307.1(1) and 307.1(2) shall be classified as Group H-5. Such facilities and areas shall be designed and constructed in accordance with Section 445.10, 405.11.

SECTION 310
RESIDENTIAL GROUP R

310.6 Residential Group R-4. Residential Group R-4 occupancy shall include buildings, structures or portions thereof for more than five but not more than 16 persons, excluding staff, who reside on a 24-hour basis in a supervised residential environment and receive custodial care. Buildings of Group R-4 shall be classified as one of the occupancy conditions specified in Section 310.6.1 or 310.6.2. The persons receiving care are capable of self-preservation. This group shall include, but not be limited to, the following:

- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities
- Group homes
- Halfway houses
- Residential board and care facilities
- Social rehabilitation facilities

Group R-4 occupancies shall meet the requirements for construction as defined for Group R-3, except as otherwise provided for in this code.
CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

[F] 407.8 Automatic fire detection. Corridors in Group I-2, Condition 1, occupancies, long-term care facilities, detoxification facilities and spaces permitted to be open to the corridors by Section 407.2 shall be equipped with an automatic fire detection system.

Group I-2, Condition 2, occupancies shall be equipped with smoke detection as required in Section 407.2.

Exceptions:

1. Corridor smoke detection is not required where sleeping rooms are provided with smoke detectors that comply with UL 268. Such detectors shall provide a visual display on the corridor side of each sleeping room and an audible and visual alarm at the care provider’s station attending each unit.

2. Corridor smoke detection is not required where sleeping room doors are equipped with automatic door-closing devices with integral smoke detectors on the unit sides installed in accordance with their listing, provided that the integral detectors perform the required alerting function.
CHAPTER 4
SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

[F] 403.4.8 Standby and emergency power. A standby power system complying with Section 2702 and Section 3003 shall be provided for the standby power loads specified in Section 403.4.8.3. An emergency power system complying with Section 2702 shall be provided for the emergency power loads specified in Section 403.4.8.4.

403.5.1 Remoteness of interior exit stairways. Required interior exit stairways shall be separated by a distance not less than 30 feet (9144 mm) or not less than one-fourth of the length of the maximum overall diagonal dimension of the building or area to be served, whichever is less. The distance shall be measured in a straight line between the nearest points of the enclosure surrounding the interior exit stairways. In buildings with three or more interior exit stairways, no fewer than two of the interior exit stairways shall comply with this section. Interlocking or scissor stairways shall be counted as one interior exit stairway.

403.5.4 Smokeproof enclosures. Every required interior exit stairway serving floors more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access shall be a smokeproof enclosure in accordance with Sections 909.20 and 1023.11.

405.7.2 Smokeproof enclosure. Every required stairway serving floor levels more than 30 feet (9144 mm) below the finished floor of its level of exit discharge shall comply with the requirements for a smokeproof enclosure as provided in Section 1023.11.

407.2 Corridors continuity and separation. Corridors in occupancies in Group I-2 shall be continuous to the exits and shall be separated from other areas in accordance with Section 407.3 except spaces conforming to Sections 407.2.1 through 407.2.6.

407.4.1 Direct access to a corridor. Habitable rooms in Group I-2 occupancies shall have an exit access door leading directly to a corridor.

Exceptions:
1. Rooms with exit doors opening directly to the outside at ground level.
2. Rooms arranged as care suites complying with Section 407.4.4.

419.9 Plumbing facilities. The nonresidential area of the live/work unit shall be provided with minimum plumbing facilities as specified by Chapter 29, based on the function of the nonresidential area. Where the nonresidential area of the live/work unit is required to be accessible by Section 1107.6.2.1, the plumbing fixtures specified by Chapter 29 shall be accessible.

SECTION 425
HYPERBARIC FACILITIES

425.1 Hyperbaric facilities. Hyperbaric facilities shall meet the requirements contained in Chapter 14 of NFPA 99.
CHAPTER 5
GENERAL BUILDING HEIGHTS AND AREAS

505.3 Equipment platforms. Equipment platforms in buildings shall not be considered as a portion of the floor below. Such equipment platforms shall not contribute to either the building area or the number of stories as regulated by Section 503.1. The area of the equipment platform shall not be included in determining the fire area in accordance with Section 903. Equipment platforms shall not be a part of any mezzanine and such platforms and the walkways, stairways, alternating tread devices and ladders providing access to an equipment platform shall not serve as a part of the means of egress from the building.

507.1.1 Accessory occupancies. Accessory occupancies shall be permitted in unlimited area buildings in accordance with the provisions of Section 508.2, otherwise the requirements of Sections 507.3 through 507.13 shall be applied, where applicable.

507.4 Sprinklered, one-story buildings. The area of a Group A-4 building no more than one story above grade plane of other than Type V construction, or the area of a Group B, F, M or S building no more than one story above grade plane of any construction type, shall not be limited where the building is provided with an automatic sprinkler system throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

Exceptions:

1. Buildings and structures of Type I or II construction for rack storage facilities that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Sections 507.4 and 903.3.1.1 and Chapter 32 of the International Fire Code.
2. The automatic sprinkler system shall not be required in areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities in occupancies in Group A-4, provided that both of the following criteria are met:
   2.1.1 Exit doors directly to the outside are provided for occupants of the participant sports areas.
   2.1.2 The building is equipped with a fire alarm system with manual fire alarm boxes installed in accordance with Section 907.

507.4.1 Mixed occupancy buildings with Groups A-1 and A-2. Group A-1 and A-2 occupancies of other than Type V construction shall be permitted within mixed occupancy buildings of unlimited area complying with Section 507.4, provided all of the following criteria are met:

1. Group A-1 and A-2 occupancies are separated from other occupancies as required for separated occupancies in Section 508.4.4 with no reduction allowed in the fire-resistance rating of the separation based upon the installation of an automatic sprinkler system.
2. Each area of the portions of the building used for Group A-1 or A-2 occupancies shall not exceed the maximum allowable area permitted for such occupancies in Section 503.1.
3. Exit doors from Group A-1 and A-2 occupancies shall discharge directly to the exterior of the building.

507.8 Group H-2, H-3 and H-4 occupancies. Group H-2, H-3 and H-4 occupancies shall be permitted in unlimited area buildings containing Group F or S occupancies in accordance with Sections 507.4 and 507.5 and the provisions of Sections 507.8.1 through 507.8.4.
2015 International Building Code

Errata

(Portions of text and tables not shown are unaffected by the errata)

TABLE 509
INCIDENTAL USES

<table>
<thead>
<tr>
<th>ROOM OR AREA</th>
<th>SEPARATION AND/OR PROTECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furnace room where any piece of equipment is over 400,000 Btu per hour input</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Refrigerant machinery room</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Hydrogen fuel gas rooms, not classified as Group H</td>
<td>1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.</td>
</tr>
<tr>
<td>Incinerator rooms</td>
<td>2 hours and provide automatic sprinkler system</td>
</tr>
<tr>
<td>Paint shops, not classified as Group H, located in occupancies other than Group F</td>
<td>2 hours; or 1 hour and provide automatic sprinkler system</td>
</tr>
<tr>
<td>In Group E occupancies, laboratories and vocational shops not classified as Group H</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>In Group I-2 occupancies, laboratories not classified as Group H</td>
<td>1 hour and provide automatic sprinkler system</td>
</tr>
<tr>
<td>In ambulatory care facilities, laboratories not classified as Group H</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Laundry rooms over 100 square feet</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>In Group I-2, laundry rooms over 100 square feet</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>In Group I-2, physical plant maintenance shops</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cubic feet or greater</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet</td>
<td>1 hour or provide automatic sprinkler system</td>
</tr>
<tr>
<td>Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptable power supplies</td>
<td>1 hour in Group B, F, M, S and U occupancies; 2 hours in Group A, E, I and R occupancies.</td>
</tr>
</tbody>
</table>

For SI: 1 square foot = 0.0929 m², 1 pound per square inch (psi) = 6.9 kPa, 1 British thermal unit (Btu) per hour = 0.293 watts, 1 horsepower = 746 watts, 1 gallon = 3.785 L, 1 cubic foot = 0.0283 m³.

510.7.1 Fire separation. Fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711 between the parking occupancy and the upper occupancy shall correspond to the required fire-resistance rating prescribed in Table 508.4 for the uses involved. The type of construction shall apply to each occupancy individually, except that structural members, including main bracing within the open parking structure, which is necessary to support the upper occupancy, shall be protected with the more restrictive fire-resistance-rated assemblies of the groups involved as shown in Table
601. Means of egress for the upper occupancy shall conform to Chapter 10 and shall be separated from the parking occupancy by fire barriers having not less than a 2-hour fire-resistance rating as required by Section 707 with self-closing doors complying with Section 716 or horizontal assemblies having not less than a 2-hour fire-resistance rating as required by Section 711, with self-closing doors complying with Section 716. Means of egress from the open parking garage shall comply with Section 406.5.
CHAPTER 6
TYPES OF CONSTRUCTION

603.1 Allowable materials. Combustible materials shall be permitted in buildings of Type I or II construction in the following applications and in accordance with Sections 603.1.1 through 603.1.3:

1. through 17. (no change)
18. Nailing or furring strips as permitted by Section 803.11 803.13.
19. through 26. (no change)
### Table 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE a, d, g

<table>
<thead>
<tr>
<th>FIRE SEPARATION DISTANCE = X (feet)</th>
<th>TYPE OF CONSTRUCTION</th>
<th>OCCUPANCY GROUP H*</th>
<th>OCCUPANCY GROUP F-1, M, S-1f</th>
<th>OCCUPANCY GROUP A, B, E, F-2, I, R, S-2, U*</th>
</tr>
</thead>
<tbody>
<tr>
<td>X &lt; 5b</td>
<td>All</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>IA</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>2</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>IA, IB</td>
<td>2</td>
<td>1</td>
<td>1c</td>
</tr>
<tr>
<td></td>
<td>IIB, VB</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>1</td>
<td></td>
<td>1c</td>
</tr>
<tr>
<td>X</td>
<td>All</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.

b. See Section 706.1.1 for party walls.

c. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.

d. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.

e. For special requirements for Group H occupancies, see Section 415.6.

f. For special requirements for Group S aircraft hangars, see Section 412.4.1.

g. Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.

h. For a building containing only a Group U occupancy private garage or carport, the exterior wall shall not be required to have a fire-resistance rating where the fire separation distance is 5 feet (1523 mm) or greater.

### 602.4.3 Columns.
Wood columns shall be sawn or glued laminated and shall be not 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.

Protection in accordance with Section 704.2 is not required.
CHAPTER 7
FIRE AND SMOKE PROTECTION FEATURES

Note for 722.5.1.2: Move 0.75 from inside to outside the brackets.

722.5.1.2 Gypsum wallboard protection. The fire resistance of structural steel columns with weight-to-heated-perimeter ratios ($W/D$) less than or equal to 3.65 and that are protected with Type X gypsum wallboard shall be permitted to be determined from the following expression:

$$ R = 130 \left[ \frac{h}{(W'/D)^{0.75}} \right]^{0.75} $$

(Equation 7-12)

where:

- $R =$Fire resistance (minutes).
- $h =$Total thickness of gypsum wallboard (inches).
- $D =$Heated perimeter of the structural steel column (inches).
- $W'$ = Total weight of the structural steel column and gypsum wallboard protection (pounds per linear foot).
- $W' = W + 50hD/144$. 

716.6.7.1 Where 3/4-hour fire protection window assemblies permitted. Fire-protection-rated glazing requiring 45-minute opening protection in accordance with Table 716.6 shall be limited to fire partitions designed in accordance with Section 708 and fire barriers utilized in the applications set forth in Sections 707.3.6, 707.3.7, and 707.3.8 where the fire-resistance rating does not exceed 1 hour. Fire-resistance-rated glazing assemblies tested in accordance with ASTM E 119 or UL 263 shall not be subject to the limitations of this section.
## TABLE 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION

<table>
<thead>
<tr>
<th>FIRE SEPARATION DISTANCE (feet)</th>
<th>DEGREE OF OPENING PROTECTION</th>
<th>ALLOWABLE AREA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to less than 3(^b), c, k</td>
<td>Unprotected, Nonsprinklered (UP, NS)</td>
<td>Not Permitted(^k)</td>
</tr>
<tr>
<td></td>
<td>Unprotected, Sprinklered (UP, S)</td>
<td>Not Permitted(^k)</td>
</tr>
<tr>
<td></td>
<td>Protected (P)</td>
<td>Not Permitted(^k)</td>
</tr>
<tr>
<td>3 to less than 5(^d), e</td>
<td>Unprotected, Nonsprinklered (UP, NS)</td>
<td>Not Permitted</td>
</tr>
<tr>
<td></td>
<td>Unprotected, Sprinklered (UP, S)</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Protected (P)</td>
<td>15%</td>
</tr>
<tr>
<td>5 to less than 10(^e), f, i</td>
<td>Unprotected, Nonsprinklered (UP, NS)</td>
<td>10%(^h)</td>
</tr>
<tr>
<td></td>
<td>Unprotected, Sprinklered (UP, S)</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Protected (P)</td>
<td>25%</td>
</tr>
<tr>
<td>10 to less than 15(^e), f, g, j</td>
<td>Unprotected, Nonsprinklered (UP, NS)</td>
<td>15%(^h)</td>
</tr>
<tr>
<td></td>
<td>Unprotected, Sprinklered (UP, S)</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td>Protected (P)</td>
<td>45%</td>
</tr>
<tr>
<td>15 to less than 20(^f), g, j</td>
<td>Unprotected, Nonsprinklered (UP, NS)</td>
<td>25%</td>
</tr>
<tr>
<td></td>
<td>Unprotected, Sprinklered (UP, S)</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>Protected (P)</td>
<td>75%</td>
</tr>
<tr>
<td>20 to less than 25(^f), g, j</td>
<td>Unprotected, Nonsprinklered (UP, NS)</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td>Unprotected, Sprinklered (UP, S)</td>
<td>No Limit</td>
</tr>
<tr>
<td></td>
<td>Protected (P)</td>
<td>No Limit</td>
</tr>
<tr>
<td>25 to less than 30(^f), g, j</td>
<td>Unprotected, Nonsprinklered (UP, NS)</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>Unprotected, Sprinklered (UP, S)</td>
<td>No Limit</td>
</tr>
<tr>
<td></td>
<td>Protected (P)</td>
<td>No Limit</td>
</tr>
<tr>
<td>30 or greater</td>
<td>Unprotected, Nonsprinklered (UP, NS)</td>
<td>No Limit</td>
</tr>
<tr>
<td></td>
<td>Unprotected, Sprinklered (UP, S)</td>
<td>No Limit</td>
</tr>
<tr>
<td></td>
<td>Protected (P)</td>
<td>No Limit</td>
</tr>
</tbody>
</table>

For SI: 1 foot = 304.8 mm.

UP, NS = Unprotected openings in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
UP, S = Unprotected openings in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
P = Openings protected with an opening protective assembly in accordance with Section 705.8.2.

a. Values indicated are the percentage of the area of the exterior wall, per story.
b. For the requirements for fire walls of buildings with differing heights, see Section 706.6.1.
c. For openings in a fire wall for buildings on the same lot, see Section 706.8.
d. The maximum percentage of unprotected and protected openings shall be 25 percent for Group R-3 occupancies.
e. Unprotected openings shall not be permitted for openings with a fire separation distance of less than 15 feet for Group H-2 and H-3 occupancies.
f. The area of unprotected and protected openings shall not be limited for Group R-3 occupancies, with a fire separation distance of 5 feet or greater.
g. The area of openings in an open parking structure with a fire separation distance of 10 feet or greater shall not be limited.
722.1 General. The provisions of this section contain procedures by which the fire resistance of specific materials or combinations of materials is established by calculations. These procedures apply only to the information contained in this section and shall not be otherwise used. The calculated fire resistance of concrete, concrete masonry and clay masonry assemblies shall be permitted in accordance with ACI 216.1/TMS 0216. The calculated fire resistance of steel assemblies shall be permitted in accordance with Chapter 5 of ASCE 29. The calculated fire resistance of exposed wood members and wood decking shall be permitted in accordance with Chapter 16 of ANSI/AWC National Design Specification for Wood Construction (NDS).
CHAPTER 8
INTERIOR FINISHES

[F] 806.3 Combustible decorative materials. In other than Group I-3, curtains, draperies, fabric hangings and similar combustible decorative materials suspended from walls or ceilings shall comply with Section 806.4 and shall not exceed 10 percent of the specific wall or ceiling area to which such materials are attached. Fixed or movable walls and partitions, paneling, wall pads and crash pads applied structurally or for decoration, acoustical correction, surface insulation or other purposes shall be considered interior finish shall comply with Section 803 and shall not be considered decorative materials or furnishings.

Exceptions:

1. In auditoriums in Group A, the permissible amount of curtains, draperies, fabric hangings and similar combustible decorative materials suspended from walls or ceilings shall not exceed 75 percent of the aggregate wall area where the building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, and where the material is installed in accordance with Section 803.13 of this code.
2. In Group R-2 dormitories, within sleeping units and dwelling units, the permissible amount of curtains, draperies, fabric hangings and similar decorative materials suspended from walls or ceiling shall not exceed 50 percent of the aggregate wall areas where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.
3. In Group B and M occupancies, the amount of combustible fabric partitions suspended from the ceiling and not supported by the floor shall comply with Section 806.4 and shall not be limited.
CHAPTER 9
FIRE PROTECTION SYSTEMS

[F] 903.2.11.1 Stories without openings. An automatic sprinkler system shall be installed throughout all stories, including basements, of all buildings where the floor area exceeds 1,500 square feet (139.4 m²) and where there is not provided not fewer than one of the following types of exterior wall openings:

1. Openings below grade that lead directly to ground level by an exterior stairway complying with Section 1011 or an outside ramp complying with Section 1012. Openings shall be located in each 50 linear feet (15 240 mm), or fraction thereof, of exterior wall in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm).
2. Openings entirely above the adjoining ground level totaling not less than 20 square feet (1.86 m²) in each 50 linear feet (15 240 mm), or fraction thereof, of exterior wall in the story on at least one side. The required openings shall be distributed such that the lineal distance between adjacent openings does not exceed 50 feet (15 240 mm). The height of the bottom of the clear opening shall not exceed 44 inches (1118 mm) measured from the floor.

[F] 909.5 Smoke barrier construction. Smoke barriers required for passive smoke control and a smoke control system using the pressurization method shall comply with Section 709. The maximum allowable leakage area shall be the aggregate area calculated using the following leakage area ratios:

1. Walls $A/A_w = 0.00100$
2. Interior exit stairways and ramps and exit passageways: $A/A_w = 0.00035$
3. Enclosed exit access stairways and ramps and all other shafts: $A/A_w = 0.00150$
4. Floors and roofs: $A/A_f = 0.00050$

where:

$A =$ Total leakage area, square feet ($m^2$).
$A_f =$ Unit floor or roof area of barrier, square feet ($m^2$).
$A_w =$ Unit wall area of barrier, square feet ($m^2$).

The leakage area ratios shown do not include openings due to gaps around doors and operable windows. The total leakage area of the smoke barrier shall be determined in accordance with Section 909.5.1 and tested in accordance with Section 909.5.2.

909.20.6.1 Ventilation systems. Smokeproof enclosure ventilation systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or connected to the smokeproof enclosure by ductwork enclosed by not less than 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.
2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour fire barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.
3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour fire
barriers constructed in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both.

Exceptions:

1. Control wiring and power wiring utilizing a 2-hour rated cable.
2. Where encased with not less than 2 inches (51 mm) of concrete.
3. Control wiring and power wiring protected by a listed electrical circuit protective system with a fire-resistance rating of not less than 2 hours.
CHAPTER 10
MEANS OF EGRESS

1006.3.2 Single exits. A single exit or access to a single exit shall be permitted from any story or occupied roof where one of the following conditions exists:

1. The occupant load, number of dwelling units and exit access common path of egress travel distance do not exceed the values in Table 1006.3.2(1) or 1006.3.2(2).
2. Rooms, areas and spaces complying with Section 1006.2.1 with exits that discharge directly to the exterior at the level of exit discharge, are permitted to have one exit or access to a single exit.
3. Parking garages where vehicles are mechanically parked shall be permitted to have one exit or access to a single exit.
4. Group R-3 and R-4 occupancies shall be permitted to have one exit or access to a single exit.
5. Individual single-story or multistory dwelling units shall be permitted to have a single exit or access to a single exit from the dwelling unit provided that both of the following criteria are met:
   5.1. The dwelling unit complies with Section 1006.2.1 as a space with one means of egress.
   5.2. Either the exit from the dwelling unit discharges directly to the exterior at the level of exit discharge, or the exit access outside the dwelling unit’s entrance door provides access to not less than two approved independent exits.
CHAPTER 10
MEANS OF EGRESS

1006.3 Egress from stories or occupied roofs. The means of egress system serving any story or occupied roof shall be provided with the number of exits or access to exits based on the aggregate occupant load served in accordance with this section. The path of egress travel to an exit shall not pass through more than one adjacent story.

Each story above the second story of a building shall have a minimum of one interior or exterior exit stairway, or interior or exterior exit ramp. Where not less than three exits or access to exits are required, not less than 50 percent of the required exits shall be interior or exterior exit stairways or ramps.

Exceptions:
1. Interior exit stairways and interior exit ramps are not required in open parking garages where the means of egress serves only the open parking garage.
2. Interior exit stairways and interior exit ramps are not required in outdoor facilities where all portions of the means of egress are essentially open to the outside.

1006.3.1 Egress based on occupant load. Each story and occupied roof shall have the minimum number of independent exits, or access to exits, as specified in Table 1006.3.1. A single exit or access to a single exit shall be permitted in accordance with Section 1006.3.2. The required number of exits, or exit access stairways or ramps providing access to exits, from any story or occupied roof shall be maintained until arrival at the exit discharge or a public way.

1006.3.2.2 Basements. A basement provided with one exit shall not be located more than one story below grade plane.

1010.1.4.1 Revolving doors. Revolving doors shall comply with the following:

1. Revolving doors shall comply with BHMA A156.27 and shall be installed in accordance with the manufacturer’s instructions.
2. Each revolving door shall be capable of breakout in accordance with BHMA A156.27 and shall provide an aggregate width of not less than 36 inches (914 mm).
3. A revolving door shall not be located within 10 feet (3048 mm) of the foot or top of stairways or escalators. A dispersal area shall be provided between the stairways or escalators and the revolving doors.
4. The revolutions per minute (rpm) for a revolving door shall not exceed the maximum rpm as specified in BHMA A156.27. Manual revolving doors shall comply with Table 1010.1.4.1(1). Automatic or power-operated revolving doors shall comply with Table 1010.1.4.1(2).
5. An emergency stop switch shall be provided near each entry point of power or automatic operated revolving doors within 48 inches (1220 mm) of the door and between 24 inches (610 mm) and 48 inches (1220 mm) above the floor. The activation area of the emergency stop switch button shall be not less than 1 inch (25 mm) in diameter and shall be red.
6. Each revolving door shall have a side-hinged swinging door that complies with Section 1010.1 in the same wall and within 10 feet (3048 mm) of the revolving door.
7. Revolving doors shall not be part of an accessible route required by Section 1009 and Chapter 11.

TABLE 4010.1.4(2) 1010.1.4.1(2)
MAXIMUM DOOR SPEED AUTOMATIC OR POWER-OPERATED REVOLVING DOORS
(Portions of table and footnotes not shown remain unchanged)
1010.1.4.3 Special purpose horizontal sliding, accordion or folding doors. In other than Group H occupancies, special purpose horizontal sliding, accordion or folding door assemblies permitted to be a component of a means of egress in accordance with Exception 6 to Section 1010.1.2 shall comply with all of the following criteria:

1. The doors shall be power operated and shall be capable of being operated manually in the event of power failure.
2. The doors shall be openable by a simple method from both sides without special knowledge or effort.
3. The force required to operate the door shall not exceed 30 pounds (133 N) to set the door in motion and 15 pounds (67 N) to close the door or open it to the minimum required width.
4. The door shall be openable with a force not to exceed 15 pounds (67 N) when a force of 250 pounds (1100 N) is applied perpendicular to the door adjacent to the operating device.
5. The door assembly shall comply with the applicable fire protection rating and, where rated, shall be self-closing or automatic closing by smoke detection in accordance with Section 716.5.9.3, shall be installed in accordance with NFPA 80 and shall comply with Section 716.
6. The door assembly shall have an integrated standby power supply.
7. The door assembly power supply shall be electrically supervised.
8. The door shall open to the minimum required width within 10 seconds after activation of the operating device.

1011.14.1 Handrails of alternating tread devices. Handrails shall be provided on both sides of alternating tread devices and shall comply with Section 1014.

1015.1 General. Guards shall comply with the provisions of Sections 1015.2 through 1015.7. Operable windows with sills located more than 72 inches (1.83 m) above finished grade or other surface below shall comply with Section 1015.8.

<table>
<thead>
<tr>
<th>Occupancy</th>
<th>Minimum Width (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any facilities not listed below</td>
<td>44</td>
</tr>
<tr>
<td>Access to and utilization of mechanical, plumbing or electrical systems or equipment</td>
<td>24</td>
</tr>
<tr>
<td>With an occupant load of less than 50</td>
<td>36</td>
</tr>
<tr>
<td>Within a dwelling unit</td>
<td>36</td>
</tr>
<tr>
<td>In Group E with a corridor having an occupant load of 100 or more</td>
<td>72</td>
</tr>
<tr>
<td>In corridors and areas serving stretcher traffic in occupancies where patients receive outpatient medical care, that causes the patient to be incapable of self-preservation</td>
<td>72</td>
</tr>
<tr>
<td>Group I-2 in areas where required for bed movement</td>
<td>96</td>
</tr>
</tbody>
</table>

1029.9.1 Minimum aisle width. The minimum clear width for aisles shall be as shown:

1. Forty-eight inches (1219 mm) for stepped aisles having seating on each side.
   Exception: Thirty-six inches (914 mm) where the stepped aisles serves less than 50 seats.
2. Thirty-six inches (914 mm) for stepped aisles having seating on only one side.
   Exception: Twenty-three inches (584 mm) between a stepped aisle handrail and seating where an stepped aisles does not serve more than five rows on one side.
3. Twenty-three inches (584 mm) between a stepped aisles handrail or guard and seating where the stepped aisles is subdivided by a mid-aisle handrail.

4. Forty-two inches (1067 mm) for level or ramped aisles having seating on both sides.

   **Exceptions:**
   1. Thirty-six inches (914 mm) where the aisle serves less that 50 seats.
   2. Thirty inches (762 mm) where the aisle does not serve more than 14 seats.

5. Thirty-six inches (914 mm) for level or ramped aisles having seating on only one side.

   **Exception:** For other than ramped aisles that serve as part of an accessible route, thirty inches (762 mm) where the ramped aisle does not serve more than 14 seats.

**1029.9.7 Stairways connecting to stepped aisles.** A stairway that connects a stepped aisle to a cross aisle or concourse shall be permitted to comply with the assembly aisle walking surface requirements of Section 1029.13. Transitions between stairways and stepped aisles shall comply with Section 1029.10.

**1029.9.8 Stairways connecting to vomitories.** A stairway that connects a vomitory to a cross aisle or concourse shall be permitted to comply with the assembly aisle walking surface requirements of Section 1029.13. Transitions between stairways and stepped aisles shall comply with Section 1029.10.

**1029.10.1 Transitions and stairways that maintain stepped aisle riser and tread dimensions.**

Stepped aisles, transitions and stairways that maintain riser and tread dimensions shall comply with Section 1029.13 as one exit access component.

**1029.10.2 Transitions to stairways that do not maintain stepped aisle riser and tread dimensions.**

Transitions to stairways from stepped aisles with riser and tread dimensions that differ from the stairways shall comply with Sections 1029.10.2.1 through 1029.10.3.

**1029.13.1.3 Edge protection.** Ramped aisles shall have edge protection in accordance with Section 1012.10 and 1012.10.1.

   **Exception:** In assembly spaces with fixed seating, edge protection is not required on the sides of ramped aisles where the ramped aisles provide access to the adjacent seating and aisle accessways.

**1029.14 Seat stability.** In a building, room or space used for assembly purposes, the seats shall be securely fastened to the floor.

   **Exceptions:**
   1. In a building, room or space used for assembly purposes or portions thereof without ramped or tiered floors for seating and with 200 or fewer seats, the seats shall not be required to be fastened to the floor.
   2. In a building, room or space used for assembly purposes or portions thereof with seating at tables and without ramped or tiered floors for seating, the seats shall not be required to be fastened to the floor.
   3. In a building, room or space used for assembly purposes or portions thereof without ramped or tiered floors for seating and with greater than 200 seats, the seats shall be fastened together in groups of not less than three or the seats shall be securely fastened to the floor.
   4. In a building, room or space used for assembly purposes where flexibility of the seating arrangement is an integral part of the design and function of the space and seating is on tiered levels, not more than 200 seats shall not be required to be fastened to the floor. Plans showing seating, tiers and aisles shall be submitted for approval.
   5. Groups of seats within a building, room or space used for assembly purposes separated from other seating by railings, guards, partial height walls or similar barriers with level floors and having not more than 14 seats per group shall not be required to be fastened to the floor.
   6. Seats intended for musicians or other performers and separated by railings, guards, partial height walls or similar barriers shall not be required to be fastened to the floor.
CHAPTER 11
ACCESSIBILITY

1103.2.2 Employee work areas. Spaces and elements within employee work areas shall only be required to comply with Sections 907.5.2.3.1, 1009 and 1104.3.1 and shall be designed and constructed so that individuals with disabilities can approach, enter and exit the work area. Work areas, or portions of work areas, other than raised courtroom stations in accordance with Section 1108.4.1.4, that are less than 300 square feet (30 m²) in area and located 7 inches (178 mm) or more above or below the ground or finished floor where the change in elevation is essential to the function of the space shall be exempt from all requirements.

1107.6.4 Group R-4. Accessible units and Type B units shall be provided in Group R-4 occupancies in accordance with Sections 1107.6.4.1 and 1107.6.4.2. Bedrooms in Group R-4 facilities shall be counted as sleeping units for the purpose of determining the number of units.

1107.6.4.1 Accessible units. In Group R-4 Condition 1, at least one of the sleeping units shall be an Accessible unit. In Group R-4 Condition 2, at least two of the sleeping units shall be an Accessible unit.

1107.6.4.2 Type B units. In structures with four or more sleeping units intended to be occupied as a residence, every sleeping unit intended to be occupied as a residence shall be a Type B unit.

Exception: The number of Type B units is permitted to be reduced in accordance with Section 1107.7.

1109.13 Controls, operating mechanisms and hardware. Controls, operating mechanisms and hardware intended for operation by the occupant, including switches that control lighting and ventilation and electrical convenience outlets, in accessible spaces, along accessible routes or as parts of accessible elements shall be accessible.

Exceptions:
1. Operable parts that are intended for use only by service or maintenance personnel shall not be required to be accessible.
2. Electrical or communication receptacles serving a dedicated use shall not be required to be accessible.
3. Where two or more outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one outlet shall not be required to be accessible.
4. Floor electrical receptacles shall not be required to be accessible.
5. HVAC diffusers shall not be required to be accessible.
6. Except for light switches, where redundant controls are provided for a single element, one control in each space shall not be required to be accessible.
7. Access doors or gates in barrier walls and fences protecting pools, spas and hot tubs shall be permitted to comply with Section 1010.1.9.2.

1111.1 Signs. Required accessible elements shall be identified by the International Symbol of Accessibility at the following locations.

1. Accessible parking spaces required by Section 1106.1.
   Exception: Where the total number of parking spaces provided is four or less, identification of accessible parking spaces is not required.
2. Accessible parking spaces required by Section 1106.2.
   Exception: In Group I-1, R-2, R-3 and R-4 facilities, where parking spaces are assigned to specific dwelling units or sleeping units, identification of accessible parking spaces is not required.
3. Accessible passenger loading zones.
4. Accessible rooms where multiple single-user toilet or bathing rooms are clustered at a single location.
5. Accessible entrances where not all entrances are accessible.
6. *Accessible* check-out aisles where not all aisles are *accessible*. The sign, where provided, shall be above the check-out aisle in the same location as the checkout aisle number or type of check-out identification.

7. Family or assisted-use toilet and bathing rooms.

8. *Accessible* dressing, fitting and locker rooms where not all such rooms are *accessible*.

9. Accessible areas of refuge in accordance with Section 1009.9.

10. Exterior areas for assisted rescue in accordance with Section 1009.9.

11. In recreational facilities, lockers that are required to be *accessible* in accordance with Section 1109.9.

1111.2 Directional signage. Directional signage indicating the route to the nearest like accessible element shall be provided at the following locations. These directional signs shall include the International Symbol of Accessibility and sign characters shall meet the visual character requirements in accordance with ICC A117.1.

1. Inaccessible building entrances.
2. Inaccessible public toilets and bathing facilities.
3. Elevators not serving an accessible route.
4. At each separate-sex toilet and bathing room indicating the location of the nearest family/assisted use toilet or bathing room where provided in accordance with Section 1109.2.1.
5. At exits and exit stairways serving a required accessible space, but not providing an approved accessible means of egress, signage shall be provided in accordance with Section 1009.10.

Where drinking fountains for persons using wheelchairs and drinking fountains for standing persons are not located adjacent to each other, directional signage shall be provided indicating the location of the other drinking fountains.
CHAPTER 12
INTERIOR ENVIRONMENT

1203.3 Unvented attic and unvented enclosed rafter assemblies....
(Note: No change to main text, items not shown and exceptions)
1. In Climate Zones 5, 6, 7 and 8, any air-impermeable insulation shall be a Class II vapor retarder or shall have a Class III II vapor retarder coating or covering in direct contact with the underside of the insulation.
5.2. Where preformed insulation board is used as the air-permeable air-impermeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.
CHAPTER 12
INTERIOR ENVIRONMENT

1203.3 Unvented attic and unvented enclosed rafter assemblies. Unvented attics and unvented enclosed roof framing assemblies created by ceilings applied directly to the underside of the roof framing members/rafters and the structural roof sheathing at the top of the roof framing members shall be permitted where all the following conditions are met:

1. The unvented attic space is completely within the building thermal envelope.
2. No interior Class I vapor retarders are installed on the ceiling side (attic floor) of the unvented attic assembly or on the ceiling side of the unvented enclosed roof framing assembly.
3. Where wood shingles or shakes are used, a minimum ¼-inch (6.4 mm) vented airspace separates the shingles or shakes and the roofing underlayment above the structural sheathing.
4. In Climate Zones 5, 6, 7 and 8, any air-impermeable insulation shall be a Class II vapor retarder or shall have a Class II vapor retarder coating or covering in direct contact with the underside of the insulation.
5. Insulation shall be located in accordance with the following:
   5.1. Item 5.1.1, 5.1.2, 5.1.3 or 5.1.4 shall be met, depending on the air permeability of the insulation directly under the structural roof sheathing.
      5.1.1. Where only air-impermeable insulation is provided, it shall be applied in direct contact with the underside of the structural roof sheathing.
      5.1.2. Where air-permeable insulation is provided inside the building thermal envelope, it shall be installed in accordance with Item 5.1. In addition to the air-permeable insulation installed directly below the structural sheathing, rigid board or sheet insulation shall be installed directly above the structural roof sheathing in accordance with the R values in Table 1203.3 for condensation control.
      5.1.3. Where both air-impermeable and air-permeable insulation are provided, the air-impermeable insulation shall be applied in direct contact with the underside of the structural roof sheathing in accordance with Item 5.1.1 and shall be in accordance with the R values in Table 1203.3 for condensation control. The air-permeable insulation shall be installed directly under the airimpermeable insulation.
      5.1.4. Alternatively, sufficient rigid board or sheet insulation shall be installed directly above the structural roof sheathing to maintain the monthly average temperature of the underside of the structural roof sheathing above 45°F (7°C). For calculation purposes, an interior air temperature of 68°F (20°C) is assumed and the exterior air temperature is assumed to be the monthly average outside air temperature of the three coldest months.
5.2. Where preformed insulation board is used as the air-permeable insulation layer, it shall be sealed at the perimeter of each individual sheet interior surface to form a continuous layer.

Exceptions:

1. Section 1203.3 does not apply to special use structures or enclosures such as swimming pool enclosures, data processing centers, hospitals or art galleries.
2. Section 1203.3 does not apply to enclosures in Climate Zones 5 through 8 that are humidified beyond 35 percent during the three coldest months.

1205.5 Emergency egress lighting. The means of egress shall be illuminated in accordance with Section 1008.1.
# CHAPTER 14
## EXTERIOR WALLS

### TABLE 1405.2
**MINIMUM THICKNESS OF WEATHER COVERINGS**

<table>
<thead>
<tr>
<th>COVERING TYPE</th>
<th>MINIMUM THICKNESS (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhered masonry veneer</td>
<td>0.25</td>
</tr>
<tr>
<td>Aluminum siding</td>
<td>0.019</td>
</tr>
<tr>
<td>Anchored masonry veneer</td>
<td>2.625</td>
</tr>
<tr>
<td>Asbestos-cement boards</td>
<td>0.125</td>
</tr>
<tr>
<td>Asbestos shingles</td>
<td>0.156</td>
</tr>
<tr>
<td>Cold-rolled copper&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.0216 nominal</td>
</tr>
<tr>
<td>Copper shingles&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.0162 nominal</td>
</tr>
<tr>
<td>Exterior plywood (with sheathing)</td>
<td>0.313</td>
</tr>
<tr>
<td>Exterior plywood (without sheathing)</td>
<td>See Section 2304.6</td>
</tr>
<tr>
<td>Fiber cement lap siding</td>
<td>0.25&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Fiber cement panel siding</td>
<td>0.25&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Fiberboard siding</td>
<td>0.5</td>
</tr>
<tr>
<td>Glass-fiber reinforced concrete panels</td>
<td>0.375</td>
</tr>
<tr>
<td>Hardboard siding&lt;sup&gt;c&lt;/sup&gt;</td>
<td>0.25</td>
</tr>
<tr>
<td>High-yield copper&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.0162 nominal</td>
</tr>
<tr>
<td>Lead-coated copper&lt;sup&gt;d&lt;/sup&gt;</td>
<td>0.0216 nominal</td>
</tr>
<tr>
<td>Lead-coated high-yield copper</td>
<td>0.0162 nominal</td>
</tr>
<tr>
<td>Marble slabs</td>
<td>1</td>
</tr>
<tr>
<td>Particleboard (with sheathing)</td>
<td>See Section 2304.6</td>
</tr>
<tr>
<td>Particleboard (without sheathing)</td>
<td>See Section 2304.6</td>
</tr>
<tr>
<td>Porcelain tile</td>
<td>0.25</td>
</tr>
<tr>
<td>Steel (approved corrosion resistant)</td>
<td>0.0149</td>
</tr>
<tr>
<td>Stone (cast artificial, anchored)</td>
<td>1.5</td>
</tr>
<tr>
<td>Stone (natural)</td>
<td>2</td>
</tr>
<tr>
<td>Structural glass</td>
<td>0.344</td>
</tr>
<tr>
<td>Stucco or exterior cement plaster</td>
<td></td>
</tr>
<tr>
<td>Three-coat work over:</td>
<td></td>
</tr>
<tr>
<td>Metal plaster base</td>
<td>0.875&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Unit masonry</td>
<td>0.625&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Cast-in-place or precast concrete</td>
<td>0.625&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>
### Two-coat work over:

<table>
<thead>
<tr>
<th>Material</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit masonry</td>
<td>0.5$^b$</td>
</tr>
<tr>
<td>Cast-in-place or precast concrete</td>
<td>0.375$^b$</td>
</tr>
<tr>
<td>Terra cotta (anchored)</td>
<td>1</td>
</tr>
<tr>
<td>Terra cotta (adhered)</td>
<td>0.25</td>
</tr>
<tr>
<td>Vinyl siding</td>
<td>0.035</td>
</tr>
<tr>
<td>Wood shingles</td>
<td>0.375</td>
</tr>
<tr>
<td>Wood siding (without sheathing)$^a$</td>
<td>0.5</td>
</tr>
</tbody>
</table>

For SI: 1 inch = 25.4 mm, 1 ounce = 28.35 g, 1 square foot = 0.093 m$^2$.

- a. Wood siding of thicknesses less than 0.5 inch shall be placed over sheathing that conforms to Section 2304.6.
- b. Exclusive of texture.
- c. As measured at the bottom of decorative grooves.
- d. 16 ounces per square foot for cold-rolled copper and lead-coated copper, 12 ounces per square foot for copper shingles, high-yield copper and lead-coated high-yield copper.

### 1405.3 Vapor retarders.

Vapor retarders as described in Section 1405.3.3 shall be provided in accordance with Sections 1405.3.1 and 1405.3.2, or an approved design using accepted engineering practice for hygrothermal analysis.

### [BS] 1405.6 Anchored masonry veneer.

Anchored masonry veneer shall comply with the provisions of Sections 1405.6, 1405.7, 1405.8 and 1405.9 and Sections 12.1 and 12.2 of TMS 402/ACI 530/ASCE 5.

### [BS] 1405.6.2 Seismic requirements.

Anchored masonry veneer located in Seismic Design Category C, D, E or F shall conform to the requirements of Section 12.2.2.10 of TMS 402/ACI 530/ASCE 5.

### [BS] 1405.10 Adhered masonry veneer.

Adhered masonry veneer shall comply with the applicable requirements in this section and Sections 12.1 and 12.3 of TMS 402/ACI 530/ASCE 5.
TABLE 1504.1.1
CLASSIFICATION OF ASPHALT SHINGLES

<table>
<thead>
<tr>
<th>MAXIMUM BASIC WIND SPEED, $V_{ult}$, FROM FIGURE 1609A, B, C 1609.3(1), 1609.3(2), 1609.3(3) OR ASCE 7</th>
<th>MAXIMUM BASIC WIND SPEED, $V_{ash}$ FROM TABLE 1609.3.1</th>
<th>ASTM D 7158a CLASSIFICATION</th>
<th>ASTM D 3161 CLASSIFICATION</th>
</tr>
</thead>
</table>

(Portions of table not shown remain unchanged)

1504.5 Edge securement for low-slope roofs. Low-slope built-up, modified bitumen and single-ply roof system metal edge securement, except gutters, shall be designed and installed for wind loads in accordance with Chapter 16 and tested for resistance in accordance with Test Methods RE-1, RE-2 and RE-3 of ANSI/SPRI ES-1, except $V_{ult}$ wind speed shall be determined from Figure 1609A, 1609B, or 1609C 1609.3(1), 1609.3(2) or 1609.3(3) as applicable.
[BG] **1510.5.1 Noncombustible construction required.** Towers, spires, domes and cupolas greater than 60 feet (18 288 mm) in height above the highest point at which such structure contacts the roof as measured to the highest point on such structure, or that exceeds 200 square feet (18.6 m²) in area at any horizontal section, or which is intended to be used for any purpose other than a belfry or architectural embellishment, or is located on the top of a building greater than 50 feet (1524 mm) in building height shall be constructed of and supported by noncombustible materials and shall be separated from the building below by construction having a fire-resistance rating of not less than 1.5 hours with openings protected in accordance with Section 711. Such structures located on the top of a building greater than 50 feet (15 240 mm) in building height shall be supported by noncombustible construction.

[BG] **1510.6.3 Type V construction.** The height of mechanical equipment screens located on the roof decks of buildings of Type V construction, as measured from grade plane to the highest point on the mechanical equipment screen, shall be permitted to exceed the maximum building height allowed for the building by other provisions of this code where complying with any one of the following limitations, provided the fire separation distance is greater than 5 feet (1524 mm):

1. Where the fire separation distance is not less than 20 feet (6096 mm), the height above grade plane of the mechanical equipment screen shall not exceed 4 feet (1219 mm) more than the maximum building height allowed;
2. The *mechanical equipment screen* shall be constructed of noncombustible materials;
3. The *mechanical equipment screen* shall be constructed of fire-retardant-treated wood complying with Section 2303.2 for exterior installation; or
4. Where the fire separation distance is not less than 20 feet (6096 mm), the *mechanical equipment screen* shall be constructed of materials having a flame spread index of 25 or less when tested in the minimum and maximum thicknesses intended for use with each face tested independently in accordance with ASTM E 84 or UL 723.

[BG] **1510.7 Photovoltaic panels and modules.** Rooftop-mounted *photovoltaic panels* and *modules* shall be designed in accordance with this section.

[BG] **1510.7.1 Wind resistance.** Rooftop-mounted *photovoltaic panels* and *modules* shall be designed for component and cladding wind loads in accordance with Chapter 16 using an effective wind area based on the dimensions of a single unit frame.

[BG] **1510.7.2 Fire classification.** Rooftop-mounted *photovoltaic panels* and *modules* shall have the fire classification in accordance with Section 1505.9.

[BG] **1510.7.3 Installation.** Rooftop-mounted *photovoltaic panels* and *modules* shall be installed in accordance with the manufacturer’s instructions.

[BG] **1510.7.4 Photovoltaic panels and modules.** Rooftop-mounted *photovoltaic panels* and *modules* shall be *listed* and labeled in accordance with UL 1703 and shall be installed in accordance with the manufacturer’s instructions.

[BG] **1510.8 Other rooftop structures.** Rooftop structures not regulated by Sections 1510.2 through 1510.7 shall comply with Sections 1510.8.1 through 1510.8.5, as applicable.

[BG] **1510.8.1 Aerial supports.** Aerial supports shall be constructed of noncombustible materials.
Exception: Aerial supports not greater than 12 feet (3658 mm) in height as measured from the roof deck to the highest point on the aerial supports shall be permitted to be constructed of combustible materials.

[BG] 1510.8.2 Bulkheads. Bulkheads used for the shelter of mechanical or electrical equipment or vertical shaft openings in the roof assembly shall comply with Section 1510.2 as penthouses. Bulkheads used for any other purpose shall be considered as an additional story of the building.

[BG] 1510.8.3 Dormers. Dormers shall be of the same type of construction as required for the roof in which such dormers are located or the exterior walls of the building.

[BG] 1510.8.4 Fences. Fences and similar structures shall comply with Section 1510.6 as mechanical equipment screens.

[BG] 1510.8.5 Flagpoles. Flagpoles and similar structures shall not be required to be constructed of noncombustible materials and shall not be limited in height or number.

[BG] 1510.9 Structural fire resistance. The structural frame and roof construction supporting imposed loads upon the roof by any rooftop structure shall comply with the requirements of Table 601. The fire-resistance reduction permitted by Table 601, Note a, shall not apply to roofs containing rooftop structures.
1612.5 Flood hazard documentation. The following documentation shall be prepared and sealed by a registered design professional and submitted to the building official:

1. For construction in flood hazard areas other than coastal high hazard areas or coastal A zones:
   1.1. The elevation of the lowest floor, including the basement, as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.10.1.
   1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.6.2.1 2.7.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.6.2.2 2.7.2.2 of ASCE 24.
   1.3. For dry flood proofed nonresidential buildings, construction documents shall include a statement that the dry flood proofing is designed in accordance with ASCE 24.

2. For construction in coastal high hazard areas and coastal A zones:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the lowest floor elevation inspection in Section 110.3.3 and for the final inspection in Section 110.3.10.1.
   2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.
   2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m²) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.
CHAPTER 16
STRUCTURAL DESIGN

1604.6 In-situ load tests. The building official is authorized to require an engineering analysis or a load test, or both, of any construction whenever there is reason to question the safety of the construction for the intended occupancy. Engineering analysis and load tests shall be conducted in accordance with Section 1709 1708.

1604.7 Preconstruction load tests. Materials and methods of construction that are not capable of being designed by approved engineering analysis or that do not comply with the applicable referenced standards, or alternative test procedures in accordance with Section 1707, shall be load tested in accordance with Section 1710 1709.
CHAPTER 16
STRUCTURAL DESIGN

TABLE 1604.3
DEFLECTION LIMITS\textsuperscript{a, b, c, h, l}

Note a should read "… exceed \( \frac{l}{60} \)" "… exceed \( \frac{l}{150} \)" And "… exceed \( \frac{l}{90} \)."
Note h should read "… exceed \( \frac{l}{60} \)" "… exceed \( \frac{l}{175} \) for each glass lite or \( \frac{l}{60} \) for …" And "… exceed \( \frac{l}{120} \)."
Note I should read "… members, \( l \) shall be …"

In all cases, that's a lowercase "L" replacing the number 1.

Figure 1608.2
GROUND SNOW LOADS, \( p_g \), FOR THE UNITED STATES (psf)
\textit{(Revise southern California values as indicated in the figure)}
1609.1.2.1 Louvers. Louvers protecting intake and exhaust ventilation ducts not assumed to be open that are located within 30 feet (9144 mm) of grade shall meet the requirements of AMCA 540.

1612.2 Definitions. The following terms are defined in Chapter 2:
BASE FLOOD.
BASE FLOOD ELEVATION.
BASEMENT.
COASTAL A ZONE.
COASTAL HIGH HAZARD AREA.
DESIGN FLOOD.
DESIGN FLOOD ELEVATION.
DRY FLOODPROOFING.
EXISTING CONSTRUCTION.
EXISTING STRUCTURE.
FLOOD or FLOODING.
FLOOD DAMAGE-RESISTANT MATERIALS.
FLOOD HAZARD AREA.
FLOOD INSURANCE RATE MAP (FIRM).
FLOOD INSURANCE STUDY.
FLOODWAY.
LOWEST FLOOR.
SPECIAL FLOOD HAZARD AREA.
START OF CONSTRUCTION.
SUBSTANTIAL DAMAGE.
SUBSTANTIAL IMPROVEMENT.
1809.12 Timber footings. Timber footings shall be permitted for buildings of Type V construction and as otherwise approved by the building official. Such footings shall be treated in accordance with AWPA U1 (Commodity Specification A, Use Category 4B). Treated timbers are not required where placed entirely below permanent water level, or where used as capping for wood piles that project above the water level over submerged or marsh lands. The compressive stresses perpendicular to grain in untreated timber footings supported upon treated piles shall not exceed 70 percent of the allowable stresses for the species and grade of timber as specified in the ANSI/AWC NDS.

1810.3.2.4 Timber. Timber deep foundation elements shall be designed as piles or poles in accordance with ANSI/AWC NDS. Round timber elements shall conform to ASTM D 25. Sawn timber elements shall conform to DOC PS-20.

1810.3.11.2 Seismic Design Categories D through F. For structures assigned to Seismic Design Category D, E or F, deep foundation element resistance to uplift forces or rotational restraint shall be provided by anchorage into the pile cap, designed considering the combined effect of axial forces due to uplift and bending moments due to fixity to the pile cap. Anchorage shall develop a minimum of 25 percent of the strength of the element in tension. Anchorage into the pile cap shall comply with the following:

1. In the case of uplift, the anchorage shall be capable of developing the least of the following:
   1.1. The nominal tensile strength of the longitudinal reinforcement in a concrete element.
   1.2. The nominal tensile strength of a steel element.
   1.3. The frictional force developed between the element and the soil multiplied by 1.3.

   Exception: The anchorage is permitted to be designed to resist the axial tension force resulting from the seismic load effects including overstrength factor in accordance with Section 12.4.3 or 12.14.3.2 of ASCE 7.

2. In the case of rotational restraint, the anchorage shall be designed to resist the axial and shear forces, and moments resulting from the seismic load effects including overstrength factor in accordance with Section 12.4.3 or 12.14.3.2 of ASCE 7 or the anchorage shall be capable of developing the full axial, bending and shear nominal strength of the element.

Where the vertical lateral-force-resisting elements are columns, the pile cap flexural strengths shall exceed the column flexural strength. The connection between batter piles and pile caps shall be designed to resist the nominal strength of the pile acting as a short column. Batter piles and their connection shall be designed to resist forces and moments that result from the application of seismic load effects including over strength factor in accordance with Section 12.4.3 or 12.14.3.2 of ASCE 7.
CHAPTER 23
STRUCTURAL DESIGN

TABLE 2304.8(1)
ALLOWABLE SPANS FOR LUMBER FLOOR AND ROOF SHEATHING a,b
(No change to table)

For SI: 1 inch = 25.4 mm.

a. Installation details shall conform to Sections 2304.8.1 and 2304.8.2 for floor and roof sheathing, respectively.
b. Floor or roof sheathing complying with this table shall be deemed to meet the design criteria of Section 2304.7 2304.8.
c. Maximum 19-percent moisture content.
2308.2.6 Risk Category limitation. The use of the provisions for conventional light-frame construction in this section shall not be permitted for Risk Category IV buildings, as determined by Section 1604.5, assigned to Seismic Design Category B, C, D or E.
CHAPTER 23
STRUCTURAL DESIGN

TABLE 2306.2(1)
ALLOWABLE SHEAR VALUES (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS
UTILIZING STAPLES WITH FRAMING OF DOUGLAS FIR-LARCH, OR SOUTHERN PINE* FOR WIND OR
SEISMIC LOADINGf

Portions of table or footnotes not shown remain unchanged.

a. For framing of other species: (1) Find specific gravity for species of lumber in ANSI/AWC NDS. (2) For staples find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.

f. For shear loads of normal or permanent load duration as defined by the ANSI/AWC NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

TABLE 2306.2(2)
ALLOWABLE SHEAR VALUES (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED
DIAPHRAGMS UTILIZING MULTIPLE ROWS OF STAPLES (HIGH-LOAD DIAPHRAGMS) WITH FRAMING
OF DOUGLAS FIR-LARCH OR SOUTHERN PINE* FOR WIND OR SEISMIC LOADING b, g, h

Portions of table or footnotes not shown remain unchanged.

a. For framing of other species: (1) Find specific gravity for species of framing lumber in ANSI/AWC NDS. (2) For staples, find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.

h. For shear loads of normal or permanent load duration as defined by the ANSI/AWC NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

TABLE 2306.3(1)
ALLOWABLE SHEAR VALUES (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR
WALLS UTILIZING STAPLES WITH FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE* FOR
WIND OR SEISMIC LOADING b, f, g, i

Portions of table or footnotes not shown remain unchanged.

a. For framing of other species: (1) Find specific gravity for species of lumber in ANSI/AWC NDS. (2) For staples find shear value from table above for Structural I panels (regardless of actual grade) and multiply value by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.

g. In Seismic Design Category D, E or F, where shear design values exceed 350 pounds per linear foot, all framing members receiving edge fastening from abutting panels shall be not less than a single 3-inch nominal member, or two 2-inch nominal members fastened together in accordance with Section 2306.1 to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered at all panel edges. See AWC SDPWS for sill plate size and anchorage requirements.

i. For shear loads of normal or permanent load duration as defined by the ANSI/AWC NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

TABLE 2306.3(2)
ALLOWABLE SHEAR VALUES (plf) FOR WIND OR SEISMIC LOADING ON SHEAR WALLS OF
FIBERBOARD SHEATHING BOARD CONSTRUCTION UTILIZING STAPLES FOR TYPE V
CONSTRUCTION ONLY a, b, c, d, e

Portions of table or footnotes not shown remain unchanged.

b. Panel edges shall be backed with 2-inch or wider framing of Douglas Fir-larch or Southern Pine. For framing of other species: (1) Find specific gravity for species of framing lumber in ANSI/AWC NDS. (2) For staples, multiply the shear value from the table above by 0.82 for species with specific gravity of 0.42 or greater, or 0.65 for all other species.
TABLE 2306.3(3)
ALLOWABLE SHEAR VALUES FOR WIND OR SEISMIC FORCES FOR SHEAR WALLS OF LATH AND PLASTER OR GYPSUM BOARD WOOD FRAMED WALL ASSEMBLIES UTILIZING STAPLES
*Portions of table or footnotes not shown remain unchanged.*

a. These shear walls shall not be used to resist loads imposed by masonry or concrete walls (see AWC SDPWS). Values shown are for short-term loading due to wind or seismic loading. Walls resisting seismic loads shall be subject to the limitations in Section 12.2.1 of ASCE 7. Values shown shall be reduced 25 percent for normal loading.
### TABLE 2506.2
**GYPSUM BOARD AND GYPSUM PANEL PRODUCTS MATERIALS AND ACCESSORIES**

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessories for gypsum board</td>
<td>ASTM C1047</td>
</tr>
<tr>
<td>Adhesives for fastening gypsum board</td>
<td>ASTM C557</td>
</tr>
<tr>
<td>Cold-formed steel studs and track, structural</td>
<td>AISI S200 and ASTM C 955, Section 8</td>
</tr>
<tr>
<td>Cold-formed steel studs and track, nonstructural</td>
<td>AISI S220 and ASTM C 645, Section 10</td>
</tr>
<tr>
<td>Elastomeric joint sealants</td>
<td>ASTM C 920</td>
</tr>
<tr>
<td>Fiber-reinforced gypsum panels</td>
<td>ASTM C 1278</td>
</tr>
<tr>
<td>Glass mat gypsum backing panel</td>
<td>ASTM C 1178</td>
</tr>
<tr>
<td>Glass mat gypsum panel 5</td>
<td>ASTM C 1658</td>
</tr>
<tr>
<td>Glass mat gypsum substrate</td>
<td>ASTM C 1177</td>
</tr>
<tr>
<td>Joint reinforcing tape and compound</td>
<td>ASTM C 474; C 475</td>
</tr>
<tr>
<td>Nails for gypsum boards</td>
<td>ASTM C 514, F 547, F 1667</td>
</tr>
<tr>
<td>Steel screws</td>
<td>ASTM C 954; C 1002</td>
</tr>
<tr>
<td>Standard specification for gypsum board</td>
<td>ASTM C 1396</td>
</tr>
<tr>
<td>Testing gypsum and gypsum products</td>
<td>ASTM C 22; C 472; C 473</td>
</tr>
</tbody>
</table>

### TABLE 2507.2
**LATH, PLASTERING MATERIALS AND ACCESSORIES**

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>STANDARD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessories for gypsum veneer base</td>
<td>ASTM C1047</td>
</tr>
<tr>
<td>Blended cement</td>
<td>ASTM C595</td>
</tr>
<tr>
<td>Exterior plaster bonding compounds</td>
<td>ASTM C932</td>
</tr>
<tr>
<td>Cold-formed steel studs and track, structural</td>
<td>AISI S200 and ASTM C 955, Section 8</td>
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<tr>
<td>Cold-formed steel studs and track, nonstructural</td>
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<td>Fiber-reinforced gypsum panels</td>
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</tr>
<tr>
<td>Glass mat gypsum backing panel</td>
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<td>Joint reinforcing tape and compound</td>
<td>ASTM C 474; C 475</td>
</tr>
<tr>
<td>Nails for gypsum boards</td>
<td>ASTM C 514, F 547, F 1667</td>
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<tr>
<td>Steel screws</td>
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<tr>
<td>Standard specification for gypsum board</td>
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</tr>
<tr>
<td>Testing gypsum and gypsum products</td>
<td>ASTM C 22; C 472; C 473</td>
</tr>
</tbody>
</table>
2508.3.1 Floating angles. Fasteners at the top and bottom plates of vertical assemblies, or the edges and ends of horizontal assemblies perpendicular to supports, and at the wall line are permitted to be omitted except on shear resisting elements or fire-resistance-rated assemblies. Fasteners shall be applied in such a manner as not to fracture the face paper with the fastener head.
CHAPTER 26
PLASTIC

Figure 2603.8
TERMITE INFESTATION PROBABILITY MAP
Add state lines in the middle of the map
Change the color indications in California, Michigan and Texas as indicated (same as 2015 IRC Figure R3012.6)

2603.9 Special approval. Foam plastic shall not be required to comply with the requirements of Section 2603.4 or those of Section 2603.6 where specifically approved based on large scale tests such as, but not limited to, NFPA 286 (with the acceptance criteria of Section 803.1.2.1), FM 4880, UL 1040 or UL 1715. Such testing shall be related to the actual end-use configuration and be performed on the finished manufactured foam plastic assembly in the maximum thickness intended for use. Foam plastics that are used as interior finish on the basis of special tests shall also conform to the flame spread and smoke-developed requirements of Chapter 8. Assemblies tested shall include seams, joints and other typical details used in the installation of the assembly and shall be tested in the manner intended for use.
[F] 2702.2.3 Emergency responder radio coverage systems. Standby power shall be provided for emergency responder radio coverage systems required in Section 916 and the International Fire Code. The standby power supply shall be capable of operating the emergency responder radio coverage system for a duration of not less than 24 hours.
CHAPTER 30  
ELEVATORS AND CONVEYING SYSTEMS

3008.8.1 Protection of wiring or cables. Wires or cables that are located outside of the elevator hoistway, machine room, control room and control space and that provide normal or standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to occupant evacuation elevators shall be protected by construction having a fire-resistance rating of not less than 2 hours, shall be circuit integrity cable having a fire-resistance rating of not less than 2 hours or shall be protected by a listed electrical circuit protective system having a fire-resistance rating of not less than 2 hours.

Exception: Wiring and cables to control signals are not required to be protected provided that wiring and cables do not serve Phase II emergency in-car operation.
CHAPTER 31
SPECIAL CONSTRUCTION

SECTION 3109
SWIMMING POOLS, SPAS AND HOT TUBS

3109.1 General. The design and construction of swimming pools, spas and hot tubs shall comply with the International Swimming Pool and Spa Code.

3109.2 Definition. The following term is defined in Chapter 2:
SWIMMING POOLS.

3109.3 Public swimming pools. Public swimming pools shall be completely enclosed by a fence not less than 4 feet (1290 mm) in height or a screen enclosure. Openings in the fence shall not permit the passage of a 4-inch-diameter (102 mm) sphere. The fence or screen enclosure shall be equipped with self-closing and self-latching gates.

3109.4 Residential swimming pools. Residential swimming pools shall be completely enclosed by a barrier complying with Sections 3109.4.1 through 3109.4.3.

Exception: A swimming pool with a power safety cover or a spa with a safety cover complying with ASTM F 1346 need not comply with this section.

3109.4.1 Barrier height and clearances. The top of the barrier shall be not less than 48 inches (1219 mm) above grade measured on the side of the barrier that faces away from the swimming pool. The vertical clearance between grade and the bottom of the barrier shall be not greater than 2 inches (51 mm) measured on the side of the barrier that faces away from the swimming pool. Where the top of the pool structure is above grade, the barrier is authorized to be at ground level or mounted on top of the pool structure, and the vertical clearance between the top of the pool structure and the bottom of the barrier shall be not greater than 4 inches (102 mm).

3109.4.1.1 Openings. Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

3109.4.1.2 Solid barrier surfaces. Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

3109.4.1.3 Closely spaced horizontal members. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall be not greater than 13/4 inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within the cutouts shall be not greater than 13/4 inches (44 mm) in width.

3109.4.1.4 Widely spaced horizontal members. Where the barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall be not greater
than 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within the cutouts shall be not greater than 13/4 inches (44 mm) in width.

3109.4.1.5 Chain link dimensions. Mesh size for chain link fences shall be not greater than a 21/4-inch square (57 mm square) unless the fence is provided with slats fastened at the top or the bottom that reduce the openings to not more than 13/4 inches (44 mm).

3109.4.1.6 Diagonal members. Where the barrier is composed of diagonal members, the opening formed by the diagonal members shall be not greater than 13/4 inches (44 mm).

3109.4.1.7 Gates. Access doors or gates shall comply with the requirements of Sections 3109.4.1.1 through 3109.4.1.6 and shall be equipped to accommodate a locking device. Pedestrian access doors or gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Doors or gates other than pedestrian access doors or gates shall have a self-latching device. Release mechanisms shall be in accordance with Sections 1010.1.9 and 1109.13. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the door or gate, the release mechanism shall be located on the pool side of the door or gate 3 inches (76 mm) or more, below the top of the door or gate, and the door or gate and barrier shall be without openings greater than 1/2 inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

3109.4.1.8 Dwelling wall as a barrier. Where a wall of a dwelling serves as part of the barrier, one of the following shall apply:

1. Doors with direct access to the pool through that wall shall be equipped with an alarm that produces an audible warning when the door or its screen, if present, are opened. The alarm shall be listed and labeled in accordance with UL 2017. In dwellings not required to be Accessible units, Type A units or Type B units, the deactivation switch shall be located 54 inches (1372 mm) or more above the threshold of the door. In dwellings required to be Accessible units, Type A units or Type B units, the deactivation switch shall be located not higher than 54 inches (1372 mm) and not less than 48 inches (1219 mm) above the threshold of the door.

2. The pool shall be equipped with a power safety cover that complies with ASTM F 1346.

3. Other means of protection, such as self-closing doors with self-latching devices, which are approved, shall be accepted so long as the degree of protection afforded is not less than the protection afforded by Item 1 or 2 above.

3109.4.1.9 Pool structure as barrier. Where an above-ground pool structure is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then the ladder or steps either shall be capable of being secured, locked or removed to prevent access, or the ladder or steps shall be surrounded by a barrier that meets the requirements of Sections 3109.4.1.1 through 3109.4.1.8. Where the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inch-diameter (102 mm) sphere.

3109.4.2 Indoor swimming pools. Walls surrounding indoor swimming pools shall not be required to comply with Section 3109.4.1.8.

3109.4.3 Prohibited locations. Barriers shall be located so as to prohibit permanent structures, equipment or similar objects from being used to climb the barriers.

3109.5 Entrapment avoidance. Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.
CHAPTER 33
SAFEGUARDS DURING CONSTRUCTION

3303.7 Fire safety during demolition. Fire safety during demolition shall comply with the applicable requirements of this code and the applicable provisions of Chapter 33 of the International Fire Code.

[F] 3310.2 Maintenance of means of egress. Required means of egress shall be maintained at all times during construction, demolition, remodeling or alterations and additions to any building.

  Exception: Existing means of egress need not be maintained where approved temporary means of egress systems and facilities are provided.
CHAPTER 35
REFERENCE STANDARDS

750—14.15 Standard on Water Mist Fire Protection Systems ............................... 904.12.1.1
CHAPTER 35
REFERENCE STANDARDS

APSP
The Association of Pool & Spa Professionals
2111 Eisenhower Avenue
Alexandria, VA 22314


ASCE
24—14 Flood Resistant Design and Construction ... 1203.4.2, 1612.4, 1612.5, 2702.1.7, 3001.2

ASTM
D5456-13 12 Specification for Evaluation of Structural Composite Lumber Products.... 2303.1.10

AWC
ANSI/AWC NDS—2015 National Design Specification (NDS) for Wood Construction with 2012 2015 NDS Supplement .....202, 722.1, 722.6.3.2, Table 1604.3, 4711.1.1, 1711.1.2.4, 1809.12, 1810.3.2.4, Table 1810.3.2.6, 1905.1.8, 2302.1, 2304.13, 2306.1, 2306.2, Table 2306.2(1), Table 2306.2(2), Table 2306.3(1), Table 2306.3(2), 2307.1

GA
GA 600—09 12 Fire-Resistance Design Manual, 20th Edition ... Table 721.1(1), Table 721.1(2), Table 721.1(3)

NFPA
85—15 15 Boiler and Combustion System Hazards Code.....415.8.1

TMS
403-2013 Direct Design Handbook for Masonry Structures....2101.2
G801.4 Retaining walls, sidewalks and driveways. Retaining walls, sidewalks and driveways shall meet the requirements of Section 1804.4 and 1804.5.
APPENDIX H
SIGNS

User note: Code change proposals to this appendix will be considered by the IBC – Structural Code Development Committee during the 2016 (Group B) Code Development Cycle. See explanation on page iv.
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APPENDIX J
GRADING

Figure J108.1
DRAINAGE DIMENSIONS
(Revise figure as indicated below)