

## BUILDING CONSTRUCTION TYPE AND OCCUPANCY

### 1. What is the building construction type?

#### 2102.1 Definitions & Notations

**Masonry:** A built-up construction or combination of building units or materials of clay, shale, concrete, glass, gypsum, stone or other approved units bonded together with or without mortar or grout or other accepted methods of joining.

**Random Ashlar:** ashlar masonry laid in courses of stone set without continuous joints and laid up without drawn patterns. When composed of material cut into modular heights, discontinuous but aligned horizontal joints are discernible.

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

**TABLE 601  
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)**

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A	B	A	B	HT	A	B
Primary structural frame <sup>e</sup> (see Section 202)	3 <sup>a, h</sup>	2 <sup>a</sup>	1	0	1	0	HT	1	0
Bearing walls Exterior <sup>f, g</sup> Interior	4 4 <sup>a</sup>	3 3 <sup>a</sup>	1 1	0 0	2 1	2 0	2 2 <sup>h</sup> /HT	1 1	0 0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior <sup>e</sup>	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction and secondary members (see Section 202)	3 <sup>h</sup>	2	1 <sup>d</sup>	0 <sup>d, i</sup>	1 <sup>d</sup>	0 <sup>d, i</sup>	HT	1	0 <sup>i</sup>
Roof construction and secondary members (see Section 202)	1 1/2 <sup>h, h</sup>	1 <sup>b, c</sup>	1 <sup>b, c</sup>	0 <sup>c</sup>	1 <sup>b, c</sup>	0	HT	1 <sup>b, c</sup>	0

For SI: 1 foot = 304.8 mm.

a. Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting one floor or one roof only. b. Except in Group F-1, H, I, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members. c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required. d. Group B and M occupancies of Type II or III construction five or more stories in height shall be required to have a minimum 2-hour fire-resistance rating for the floor construction located over the basement. e. Not less than the fire-resistance rating required by other sections of this code. f. Not less than the fire-resistance rating based on fire separation distance (see Table 602). g. Not less than the fire-resistance rating as referenced in Section 704.10. h. For Group A, B, E, F and R occupancies and parking garages, the required fire-resistance ratings for the structural frame, floor and roof construction, including supporting beams and joists, shall be permitted to be reduced by 1-hour where the building is protected throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, but the fire resistance rating shall not be less than 1-hour. i. For un-sprinklered Group E occupancies of Type II-B, III-B, IV or V-B construction, the floor construction located immediately above useable space in basements shall have a fire-resistance rating of not less than 1-hour.

### 2. What is the occupancy classification for the different uses in your program?

**304.1 Business Group B:** use of a building/structure or part of it that will be occupied as an office, professional or service-type transactions, including storage of records and accounts; it might include, and not limited to: Beauty shops in which the SPA project is included.

**Business Occupancy:** A building or part of a building is classified as a Business occupancy if it is used for the transaction of business, such as accounting, record keeping, and other similar functions. It also includes the rendering of professional services. Limited areas that are a natural part of a business setting, such as small storage or supply areas and break rooms, are included as well. The risk factors in a Business occupancy are considered to be relatively low. This is because there is a low concentration

of occupants and they are alert and generally familiar with their environment. It is considered one of the lowest-risk occupancies. This classification can become very broad. For example, a smaller Assembly like occupancy that has a fewer number of occupants can sometimes be classified as a Business occupancy, such as a small restaurant. Conversely, when the function or size of any of the Business building types expands beyond a typical business, the occupancy needs to be reexamined. Examples might include city halls that include assembly areas or doctors' offices that are part of a hospital. These types of buildings may be classified as an Assembly occupancy, an Institutional occupancy, or a mixed occupancy. (See the section on Mixed Occupancies later in this chapter.)

**Sample Building Types:**

Banks	Electronic data processing facilities	Office buildings
Barber shops	Fire stations	Outpatient clinics, ambulatory
Beauty shops	Florists and nurseries	Police stations
Car washes	Government offices	Post offices
City halls	Greenhouses	Print shops
Civic administration buildings	Laboratories (nonhazardous)	Professional offices (architect, attorney, dentist, physician, etc.)
Clinics (outpatient)	Laboratories (testing and research)	Radio and television stations (without audiences)
College and university classrooms	Laundromats	Repair garages (small, nonhazardous)
Dentist's offices	Libraries (can also be classified as Assembly or Business)	Telecommunication equipment buildings
Doctor's offices	Medical offices (separate from Institutional occupancies)	Telephone exchanges
Dry-cleaning facilities (can also be classified as Hazardous)	Motor vehicle showrooms	Travel agencies
Educational facilities (above 12th grade)		

**Assembly:** This type is for the gathering of people for worship, recreation, or amusement. Types of activities that are not classified by other types of Assembly are typically included in this sub-classification. The common characteristics of this sub-classification are clear or defined egress patterns and moderate to low fuel loads. For example, in a church or an auditorium, aisles used for egress are defined by the placement of pews or chairs. Occupants in an A-3 sub-classification are also usually alert and are often more familiar with the space than in other assembly uses.

*Sample Building Types*

**A-4:** This type is for the viewing of indoor sporting events and other activities with spectator seating. The spectator seating can consist of a defined area for seating or fixed seats such as bleachers. Although A-3 and A-4 can have similar activities, if a defined area for viewing the activities is provided, then it is an A-4. For example, an indoor pool can be classified as an A-3 Assembly, but if the pool area also includes seating for viewing swim competitions, it would be considered an A-4. (Similar activities can also occur between A-4 and A-5 Assemblies.)

**Sample Building Types:**

- Gymnasiums
- Indoor skating rinks
- Indoor swimming pools
- Indoor tennis courts

**3. What is the occupancy load per floor for your project?**

$$18,000\text{sqft} \div 100 = 180 \text{ occupants in total}$$

$$180 \div 2 = 90 \text{ occupants per floor}$$

**1004.1 Design occupant load.** In determining means of egress requirements, the number of occupants for whom means of egress facilities shall be provided shall be determined in accordance with this section. Where occupants from accessory areas egress through a primary space, the calculated occupant load for the primary space shall include the total occupant load of the primary space plus the number of occupants egressing through it from the accessory area.

TABLE 1004.1.1 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	FLOOR AREA IN SQ FT PER OCCUPANT
Accessory storage areas, mechanical equipment room	300 gross
Business areas	100 gross
Kitchens, commercial	200 gross
Locker rooms	50 gross
Storage, stock, shipping areas	300 gross
Swimming pool deck	30 gross
Swimming pool water surface	50 gross
Decks	15 gross

4. Is your building equipped with automatic sprinkler system?

No.

5. On what drawing do you show the sprinkler placement?

The sprinkler system is shown in HVAC set of drawings, as well as in the reflected ceiling plan, and the life safety plan.

## EGRESS

6. What is the minimum number of exits required from the different spaces in your project? 2

### NUMBER OF EXITS AND CONTINUITY

**1019.1 Minimum number of exits.** All rooms and spaces within each story shall be provided with and have access to the minimum number of approved independent exits required by Table 1019.1 based on the occupant load of the story, except as modified in Section 1015.1 or 1019.2. For the purposes of this chapter, occupied roofs shall be provided with exits as required for stories. The required number of exits from any story, basement or individual space shall be maintained until arrival at grade or the public way (width 10ft or more).

TABLE 1019.1 MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD

OCCUPANT LOAD (persons per story)	MINIMUM NUMBER OF EXITS (per story)
1-500	2
501-1,000	3
More than 1,000	4

7. The maximum common path of travel distance to exits in a building equipped with automatic sprinklers

**1027.4 Common path of travel.** In Group B buildings which are sprinkled throughout, a common path of travel not exceeding 100 feet (30 480 mm) shall be permitted.

**1014.3 Common path of egress travel.** In occupancies other than Groups H-1, H-2 and H-3, the *common path of egress travel* shall not exceed 75 feet (22 860 mm). In Group H-1, H-2 and H-3 occupancies, the *common path of egress travel* shall not exceed 25 feet (7620 mm). For *common path of egress travel* in Group A occupancies and assembly occupancies accessory to Group E occupancies having fixed seating, see Section 1028.8.

**Exceptions:**

1. The length of a *common path of egress travel* in Group B, F M and S occupancies shall not be more than 100 feet (30 480 mm), provided that the building is equipped throughout with an *automatic sprinkler system* installed in accordance with Section 903.3.1.1.
2. Where a tenant space in Group B, S and U occupancies has an *occupant load* of not more than 30, the length of a *common path of egress travel* shall not be more than 100 feet (30 480 mm).

**1017.2 Aisles in Groups B and M.** In Group B and M occupancies, the minimum clear *aisle width* shall be determined by Section 1005.1 for the *occupant load* served, but shall not be less than 36 inches (914 mm).

8. The maximum travel distance to exits in your building if not equipped with out automatic sprinklers

**TRAVEL DISTANCE**

**1016.1 Travel distance limitations.** Exits shall be so located on each story such that the maximum length of exit access travel, measured from the most remote point within a story to the entrance to an exit along the natural and unobstructed path of egress travel, shall not exceed the distances given in Table 1016.1.

Where the path of exit access includes unenclosed stairways or ramps within the exit access or includes unenclosed exit ramps or stairways as permitted in Section 1020.1, the distance of travel on such means of egress components shall also be included in the travel distance measurement. The measurement along stairways shall be made on a plane parallel and tangent to the stair tread nosings in the center of the stairway.

**TABLE 1016.1 EXIT ACCESS TRAVEL DISTANCE<sup>a</sup>**

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
R <sup>d</sup>	100 <sup>e</sup>	200 <sup>b</sup>
M	150	250 <sup>c</sup>
A, F-1, I-1	200	250 <sup>b</sup>
B	200	300 <sup>c</sup>
S-1	200	400 <sup>c</sup>
F-2, S-2, U	300	400 <sup>c</sup>
H-1	Not Permitted	75 <sup>c</sup>
H-2	Not Permitted	100 <sup>c</sup>
H-3	Not Permitted	150 <sup>c</sup>
H-4	Not Permitted	175 <sup>c</sup>
H-5	Not Permitted	200 <sup>c</sup>
E, D, S-2 <sup>f</sup> I-2, I-3	150	200 <sup>c</sup>

For SI: 1 foot = 304.8 mm.

9. Every floor should have a minimum of 2 exits.

**1019.1 Minimum number of exits.** All rooms and spaces within each story shall be provided with and have access to the minimum number of approved independent exits required by Table 1019.1 based on the occupant load of the story, except as modified in Section 1015.1 or 1019.2. For the purposes of this chapter, occupied roofs shall be provided with exits as required for stories. The required number of exits from any story, basement or individual space shall be maintained until arrival at grade or the public way (width 10ft or more).

**TABLE 1021.1  
MINIMUM NUMBER OF EXITS FOR OCCUPANT LOAD**

OCCUPANT LOAD (persons per story)	MINIMUM NUMBER OF EXITS (per story)
1-500	2
501-1,000	3
More than 1,000	4

10. Use the diagonal rule to find the minimum distance between exits

*"Travel distance: In general, travel distance is the measurement of an exit access. It is the measurement of the distance between the most remote, occupiable point of an area, room or space to the exit that serves it. Two types of travel distance are regulated by the codes. First, the codes limit the length of travel distance from within a single space to the exit access corridor. This is known as a common path of travel... The codes also regulate the length of travel distance from anywhere in a building to the exit of the building or floor" (Harmon & Kennon, p.160-161).*

D=Diagonal or Maximum Distance  
1/2D=Half of Diagonal or Minimum Distance

As per TABLE 1016.1, the EXIT ACCESS TRAVEL DISTANCE for group B-Business is 200ft without sprinklers, and 300ft with sprinklers.

11. The minimum requirement for the wall construction of horizontal exits (exits between buildings or between to separate areas of a floor)

**1021.1 Horizontal exits.**

Horizontal exits serving as an exit in a means of egress system shall comply with the requirements of this section. A horizontal exit shall not serve as the only exit from a portion of a building, and where two or more exits are required, not more than one-half of the total number of exits or total exit width shall be horizontal exits.

**1021.2 Separation.**

The separation between buildings or areas of refuge connected by a horizontal exit shall be provided by a fire wall complying with Section 705 or a fire barrier complying with Section 706 and having a fire resistance rating of not less than 2 hours. Opening protective in horizontal exit walls shall also comply with Section 715. The horizontal exit separation shall extend vertically through all levels of the building unless floor assemblies are of 2-hour fire resistance with no unprotected openings.

**Exception:** A fire-resistance rating is not required at horizontal exits between a building area and an above grade pedestrian walkway constructed in accordance with Section 3104, provided that the distance between connected buildings is more than 20 feet (6096 mm).

Horizontal exit walls constructed as fire barriers shall be continuous from exterior wall to exterior wall so as to divide completely the floor served by the horizontal exit.

12. The minimum opening construction requirement for horizontal exits

**1021.3 Opening protectives.**

Fire doors in horizontal exits shall be self-closing or automatic-closing when activated by a smoke detector installed in accordance with Section 907.10. Opening protectives in horizontal exits shall be consistent with the fire-resistance rating of the wall. Such doors where located in a cross-corridor condition shall be automatic-closing by activation of a smoke detector installed in accordance with Section 907.10.

**706.7 Openings.** Openings in a fire barrier wall shall be protected in accordance with Section 715. Openings shall be limited to a maximum aggregate width of 25 percent of the length of the wall, and a maximum area of any single opening shall not exceed 156 square feet (15 m<sup>2</sup>). Openings in exit enclosures and exit passageways shall also comply with Sections 1020.1.1 and 1021.4, respectively.

**Exceptions:**

1. Openings shall not be limited to 156 square feet (15 m<sup>2</sup>) where adjoining fire areas are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
2. Fire doors serving an exit enclosure.
3. Openings shall not be limited to 156 square feet (15 m<sup>2</sup>) or an aggregate width of 25 percent of the length of the wall where the opening protective assembly has been tested in accordance with ASTM E 119 and has a minimum fire-resistance rating not less than the fire-resistance rating of the wall.
4. Fire windows permitted in atrium separation walls shall not be limited to a maximum aggregate width of 25 percent of length of the wall.

13. The maximum capacity of horizontal exits is 50% of the total exit requirement.

**1021.1 Horizontal exits.**

Horizontal exits serving as an exit in a means of egress system shall comply with the requirements of this section. A horizontal exit shall not serve as the only exit from a portion of a building, and where two or more exits are required, not more than one-half of the total number of exits or total exit width shall be horizontal exits.

14. The capacity of floor area providing horizontal exit per person is 3 square feet.

**1021.4 Capacity of refuge area.**

The refuge area of a horizontal exit shall be spaces occupied by the same tenant or public areas and each such area of refuge shall be adequate to house the original occupant load of the refuge space plus the occupant load anticipated from the adjoining compartment. The anticipated occupant load from the adjoining compartment shall be based on the capacity of the horizontal exit doors entering the area of refuge. **The capacity of areas of refuge shall be computed on a net floor area allowance of 3 square feet (0.2787 m<sup>2</sup>) for each occupant to be accommodated therein, not including areas of stairways, elevators and other shafts or courts.**

15. The minimum width for an exit corridor

**EXIT PASSAGEWAYS**

**1021.1 Exit passageway.** Exit passageways serving as an exit component in a means of egress system shall comply with the requirements of this section. An exit passageway shall not be used for any purpose other than as a means of egress.

**1021.2 Width.** The width of exit passageways shall be determined as specified in Section 1005.1 but such width shall not be less than 44 inches (1118 mm), except that exit passageways serving an occupant load of less than 50 shall not be less than 36 inches (914 mm) in width.

The required width of exit passageways shall be unobstructed.

**Exception:** Doors, when fully opened, and handrails, shall not reduce the required width by more than 7 inches (178 mm). Doors in any position shall not reduce the required width by more than one-half. Other nonstructural projections such as trim and similar decorative features are permitted to project into the required width 1.5 inches (38 mm) on each side.

16. The minimum exit corridor ceiling height

The intention of the "Means of Egress" code make sure that a continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.

**1003.1 Applicability.** The general requirements specified in Sections 1003 through 1013 shall apply to all three elements of the means of egress system, in addition to those specific requirements for the exit access, the exit and the exit discharge.

**1003.2 Ceiling height.** The means of egress shall have a ceiling height of not less than 7 feet 6 inches (2286 mm).

**1004.1 Design occupant load.** In determining means of egress requirements, the number of occupants for whom means of egress facilities shall be provided shall be determined in accordance with this section. Where occupants from accessory areas egress through a primary space, the calculated occupant load for the primary space shall include the total occupant load of the primary space plus the number of occupants exiting through it from the accessory area

17. The maximum length of a dead-end exit corridor

**1017.2 Corridor width.** The minimum corridor width shall be as determined in Section 1005.1, but not less than 44 inches (1118 mm).

**Exceptions:** 1. Twenty-four inches (610 mm)—For access to and utilization of electrical, mechanical or plumbing systems or equipment.

**1017.3 Dead ends.** Where more than one exit or exit access doorway is required, the exit access shall be arranged such that there are no dead ends in corridors more than 20 feet (6096 mm) in length.

**Exceptions:**

2. In occupancies in Groups B and F where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of dead-end corridors shall not exceed 50 feet (15 240 mm).

3. A dead-end corridor shall not be limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.

18. What is the definition of a smoke proof enclosure

**SMOKEPROOF ENCLOSURE.** See Section 902.1.

**902.1 Definitions**

**Smokeproof Enclosure:** An exit stairway 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.

19. Where should you locate emergency lighting in your project?

**1006.1 Means of egress illumination.**

**1006.1.1** Illumination of means of egress shall be provided in accordance with this section for every building and structure. For the purposes of this requirement, **exit access shall include only designated stairs, aisles, corridors, ramps, escalators and passageways**

leading to an exit. For the purposes of this requirement, exit discharge shall include only designated stairs, aisles, corridors, ramps, escalators, walkways and exit passageways leading to a public way.

20. On what drawing do you show emergency light sources?

The emergency light sources are shown on the RCP, Life Safety Plan, and Electrical plans.

## SIGNS

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21. Are Exits signs required?

Yes.

**1006.3 Exit signs.**

**1006.3.1** Exits shall be marked by an approved sign readily visible from any direction of exit access. Every exit sign shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be visible in both normal and emergency lighting.

**Exception:** Main exterior exit doors that obviously and clearly are identifiable as exits.

22. If required, where should they be placed

**EXIT SIGNS**

**1011.1 where required.** See Section 1006.3.

**1006.3.1** Exits shall be marked by an approved sign readily visible from any direction of exit access. Every exit sign shall be suitably illuminated by a reliable light source. Externally and internally illuminated signs shall be visible in both normal and emergency lighting.

**1006.3.2** New sign placement shall be such that no point in an exit access corridor is in excess of the rated viewing distance or 100 feet (30 m) whichever is less, from the nearest sign.

**1006.3.3** Every required sign shall be located and of such size, distinctive color and design as to be readily visible and shall provide contrast with interior finish or other signs. No equipment that impairs visibility of an exit sign shall be permitted, nor shall there be any brightly illuminated sign or object in or near the line of vision of the required exit sign of such a character as to detract attention from the exit sign. Floor proximity signs, where required, shall be in accordance with Section 1006.3.8.2 or 1006.3.8.3.

**1006.3.4 Exit stair door or tactile signage.** Tactile signage stating "EXIT" and complying with ICC/ANSI A117.1, shall be installed adjacent to the latch side of the door 60 inches (1524 mm) above the finished floor to the center line of the sign.

**1006.3.5** Externally illuminated signs shall have the word "EXIT" or other appropriate wording in plainly legible letters not less than 6 inches (152 mm) high with the principal strokes of letters not less than  $\frac{3}{4}$  inches (19 mm) wide. The word "EXIT" shall have letters of a width not less than 2 inches (51 mm), except the letter "I," and the minimum spacing between letters shall be not less than  $\frac{3}{8}$  inches (10 mm). Signs larger than the minimum established in this paragraph shall have letter widths, strokes and spacing in proportion to their height. Externally illuminated signs shall be illuminated by not less than 5 footcandles (50 lux) at the illuminated surface and shall have a contrast ratio of not less than 0.5.

**1006.3.6** Internally illuminated signs shall be listed in accordance with UL 924, *Standard for Safety Emergency Lighting Power Equipment*. The visibility of an internally illuminated sign shall be the equivalent of an externally illuminated sign that complies with Section 1006.3.5.














**1006.3.7** Where emergency lighting facilities are required by Section 1006.2, the exit signs shall be illuminated by the emergency lighting facilities. The level of illumination of the exit sign shall be at the levels provided in accordance with Section 1006.3.5 for the required emergency lighting time duration as specified in Section 1006.2.3.1, but shall be permitted to decline to 60 percent of the illumination level at the end of the emergency lighting time duration.

**1006.3.8** Where the direction of travel to reach the nearest exit is not apparent, a directional sign complying with Sections 1006.3.5 or 1006.3.6 reading "EXIT," or a similar designation with a directional indicator showing the direction of travel shall be placed in every location. Directional signs shall be listed.

**1006.3.8.1** The directional indicator shall be located outside of the "EXIT" legend, not less than  $\frac{3}{8}$  inches (10 mm) from any letter. The directional indicator shall be of a chevron type and shall be identifiable as a directional indicator at a minimum distance of 40 feet (12.2 m). A directional indicator larger than the minimum established in this section shall be proportionately increased in height, width and stroke. The directional indicators shall be located at the end of the sign for the direction indicated.

23. On what drawing do you show the signs and what symbol do you use?

Exit signs are shown on the Life Safety Plan. The symbol used should be identified in the legend. Below are standard symbols that can be used to identify signs.

	FB	Fire Blanket		Fire Resisting (Thick Black)
	S22	Illuminated Exit Sign		Fire Resisting Doors
	S22	Fire Exit Sign		Smoke Detection
		Fire Alarm Call Point		Heat Detection
	IP	Fire Alarm Panel		Fire Instruction Notice
	PB	Push Bar To Open		Fire Alarm Sounder
		Emergency Lighting		

24. The minimum illumination from exit signs at floor level

1006.1.3 The floors and other walking surfaces within an exit and within the portions of the exit access and exit discharge designated in Section 1006.1.1 shall be illuminated to values of at least 1 footcandle (10 lux) measured at the floor. During conditions of stair use, the minimum illumination for new stairs shall be at least 108 lux (10 foot-candle), measured at the walking surface.

**Exception:** In assembly occupancies, the illumination of the floors of exit access shall be at least 0.2 footcandle (2 lux) during periods of performances or projections involving directed light.

1006.3.8.2 Where floor proximity exit signs are required, exit signs shall be placed near the floor level in addition to those signs required for doors or corridors. These signs shall be illuminated in accordance with Section 1006.3. Externally illuminated signs shall be sized in accordance with Section 1006.3.5. The bottom of the sign shall be at least 6 inches (152 mm) and no more than 8 inches (203 mm) above the floor. For exit doors, the sign shall be mounted on the door or adjacent to the door with the nearest edge of the sign within 4 inches (102 mm) of the door frame.

1006.3.8.3 Where floor proximity egress path marking is required, a listed and approved floor proximity egress path marking system that is internally illuminated shall be installed within 18 inches (457 mm) of the floor. The system shall provide a visible delineation of the path of travel along the designated exit access and shall be essentially continuous, except as interrupted by doorways, hallways, corridors or other such architectural features. The system shall operate continuously or at any time the building fire alarm system is activated. The activation, duration and continuity of operation of the system shall be in accordance with Section 1006.2.

1006.3.9 Signs installed as projections from a wall or ceiling within the means of egress shall provide vertical clearance no less than 80 inches (2134 mm) from the walking surface.

## DOORS

25. The minimum width for exit doors

**SECTION 1027 BUSINESS:**

1027.1 **Doors.** Egress doors shall conform to the requirements of Section 1008, except doors serving office areas with an occupant load of 10 or less need not be side-swinging type.

1008.1 **Doors.** Means of egress doors shall meet the requirements of this section. Doors serving a means of egress system shall meet the requirements of this section and Section 1017.2. Doors provided for egress purposes in numbers greater than required by this code shall meet the requirements of this section. For accessibility provisions related to doors, refer to Sections 11-4.1.3, 11-4.3.9 and 11-4.13.

Means of egress doors shall be readily distinguishable from the adjacent construction and finishes such that the doors are easily recognizable as doors. Mirrors or similar reflecting materials shall not be used on means of egress doors. Means of egress doors shall not be concealed by curtains, drapes, decorations or similar materials.

1008.1.1 **Size of doors.** The minimum width of each door opening shall be sufficient for the occupant load thereof and shall provide a clear width of not less than 32 inches (813 mm). Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a clear opening width of 32 inches (813 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. Means of egress doors in a Group I-2 occupancy used for the movement of beds shall provide a clear width not less than 41.5 inches (1054 mm). The height of doors shall not be less than 80 inches (2032 mm).



26. The maximum width for exit doors

1008.1.1 Size of doors. The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal.

27. The minimum height for exit doors

1008.1.1 Size of doors. The height of doors shall not be less than 80 inches (2032 mm).

28. Threshold requirements

1008.1.6 Thresholds. Thresholds at doorways shall not exceed 0.75 inch (19.1 mm) in height for sliding doors serving dwelling units or 0.5 inch (12.7 mm) for other doors. Raised thresholds and floor level changes greater than 0.25 inch (6.4 mm) at doorways shall be beveled with a slope not greater than one unit vertical in two units horizontal (50-percent slope).

29. Door swing requirements

1008.1.2 Door swing. Egress doors shall be side-hinged swinging. Doors shall swing in the direction of egress travel where serving an occupant load of 50 or more persons or a Group H occupancy. The opening force for interior side-swinging doors without closers shall not exceed a 5-pound (22 N) force. For other side-swinging, sliding and folding doors, the door latch shall release when subjected to a 15-pound (67 N) force. The door shall be set in motion when subjected to a 30-pound (133 N) force. The door shall swing to a full-open position when subjected to a 15-pound (67 N) force. Forces shall be applied to the latch side.

30. Minimum protrusion a door can make onto a corridor

**EXIT PASSAGEWAYS**

1021.1 Exit passageway. Exit passageways serving as an exit component in a means of egress system shall comply with the requirements of this section. An exit passageway shall not be used for any purpose other than as a means of egress.

1021.2 Width. The width of exit passageways shall be determined as specified in Section 1005.1 but such width shall not be less than 44 inches (1118 mm), except that exit passageways serving an occupant load of less than 50 shall not be less than 36 inches (914 mm) in width.

The required width of exit passageways shall be unobstructed.

**Exception:** Doors, when fully opened, and handrails, shall not reduce the required width by more than 7 inches (178 mm). Doors in any position shall not reduce the required width by more than one-half. Other nonstructural projections such as trim and similar decorative features are permitted to project into the required width 1.5 inches (38 mm) on each side

1005.2 Door encroachment. Doors opening into the path of egress travel shall not reduce the required width to less than one-half during the course of the swing. When fully open, the door shall not project more than 7 inches (178 mm) into the required width.

## VENTILATION

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31. Concerning window area for light in your building, a minimum of 8% of floor area/room or artificial light is required.

1203.4 Natural ventilation. Natural ventilation of an occupied space shall be through windows, doors, louvers or other openings to the outdoors. The operating mechanism for such openings shall be provided with ready access so that the openings are readily controllable by the building occupants.

1203.4.1 Ventilation area required. The minimum openable area to the outdoors shall be 4 percent of the floor area being ventilated.

1203.4.1.1 Adjoining spaces. Where rooms and spaces without openings to the outdoors are ventilated through an adjoining room, the opening to the adjoining room shall be unobstructed and shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 25 square feet (2.3m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

**Exception:** Exterior openings required for ventilation shall be permitted to open into a *thermally isolated* sunroom addition or patio cover provided that the openable area between the sunroom addition or patio cover and the interior room shall have an area of not less than 8 percent of the floor area of the interior room or space, but not less than 20 square feet (1.86 m<sup>2</sup>). The minimum openable area to the outdoors shall be based on the total floor area being ventilated.

1205.2 Natural light. The minimum net glazed area shall not be less than 8 percent of the floor area of the room served.

**1205.2.1 Adjoining spaces.** For the purpose of natural lighting, any room is permitted to be considered as a portion of an adjoining room where one-half of the area of the common wall is open and unobstructed and provides an opening of not less than one-tenth of the floor area of the interior room or 25 square feet (2.32 m<sup>2</sup>), whichever is greater.

**Exception:** Openings required for natural light shall be permitted to open into a *thermally isolated* sunroom addition or patio cover where the common wall provides a glazed area of not less than one-tenth of the floor area of the interior room or 20 square feet (1.86 m<sup>2</sup>), whichever is greater.

## STAIRS

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### 32. The minimum headroom for a stairway is 80" 6'-8" above the nosing

**1009.2 Headroom.** Stairways shall have a minimum headroom clearance of 80 inches (2032 mm) measured vertically from a line connecting the edge of the nosings. Such headroom shall be continuous above the stairway to the point where the line intersects the landing below, one tread depth beyond the bottom riser. The minimum clearance shall be maintained the full width of the stairway and landing.

**1009.7 Curved stairways.** Curved stairways with winder treads shall have treads and risers in accordance with Section 1009.3 and the smallest radius shall not be less than twice the required width of the stairway.

**1009.8 Spiral stairways.** Where permitted by this section or in specific occupancies in accordance with Sections 1024 and 1026 through 1033, spiral stairs complying with this section shall be permitted as a component in a means of egress.

**1009.12 Interlocking or scissor stairs** shall comply with Sections 1009.12.1 and 1009.12.2.

**1009.12.1** New interlocking or scissor stairs shall be permitted to be considered only as a single exit.

**1009.12.2** Existing interlocking or scissor stairs shall be permitted to be considered separate exits if they meet the following criteria:

1. They are enclosed in accordance with Section 1019.
2. They are separated from each other by 2-hour fire-resistance-rated noncombustible construction.
3. No protected or unprotected penetrations or communicating openings exist between the stair enclosures.

**1009.13 Accessible stairs.** Stairs required to be accessible by Section 11-4.1 shall comply with Section 11-4.9. Floor surfaces of stairs along accessible routes and in accessible rooms and spaces shall comply with Section 11-4.5.

### 33. The minimum width for a stairway (if over 50 occupants)

**1009.1 Stairway width.** The width of stairways shall be determined as specified in Section 1005.1, but such width shall not be less than 44 inches (1118 mm). See Section 1007.1 for accessible means of egress stairways.

**Exceptions:**

1. Stairways serving an occupant load of 50 or less shall have a width of not less than 36 inches (914 mm).
2. Spiral stairways as provided for in Section 1009.9.

### 34. The maximum allowable height between stairway landings

**1009.7 Vertical rise.** A flight of stairs shall not have a vertical rise greater than 12 feet (3658 mm) between floor levels or landings.

**Exceptions:**

1. Aisle stairs complying with Section 1028.
2. Alternating tread devices used as a means of egress shall not have a rise greater than 20 feet (6096 mm) between floor levels or landings.

### 35. The minimum width for a landing

**1009.4 Stairway landings.** There shall be a floor or landing at the top and bottom of each stairway. The width of landings shall not be less than the width of stairways they serve. Every landing shall have a minimum dimension measured in the direction of travel equal to the width of the stairway. Such dimension need not exceed 48 inches (1219 mm) where the stairway has a straight run.

### 36. Stair risers (height of stair) What are the maximum height and Minimum Height

**1009.3 Stair treads and risers.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. Stair tread depths shall be 11 inches (279 mm) minimum. The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).

**1009.3.1 Winder treads.** Winder treads are not permitted in means of egress stairways except within a dwelling unit.

**1009.3.4** Tread slope shall not be more than 1/4 inch per foot (21 mm/m).

**1009.5.1 Stairway walking surface.** The walking surface of treads and landings of a stairway shall not be sloped steeper than one unit vertical in 50 units horizontal (2-percent slope) in any direction. Stairway treads and landings shall have a solid surface. Finish

floor surfaces shall be securely attached.

**1009.5.4 Stair identification.** An approved sign shall be located at each floor level landing in all enclosed stairways of buildings four or more stories in height. The sign shall indicate the floor level and the availability of roof access from that stairway and an identification of the stairway. The sign shall also state the floor level of and direction to exit discharge. The sign shall be located approximately 5 feet (1524 mm) above the floor landing in a position which is readily visible when the door is in the open or closed position. The floor level designation shall also be tactile in accordance with Chapter 11.

37. In public areas, a stair's depth (treads) What are the maximum and Minimum

**1009.3 Stair treads and risers.** Stair riser heights shall be 7 inches (178 mm) maximum and 4 inches (102 mm) minimum. **Stair tread depths shall be 11 inches (279 mm) minimum.** The riser height shall be measured vertically between the leading edges of adjacent treads. The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. **Winder treads shall have a minimum tread depth of 11 inches (279 mm) measured at a right angle to the tread's leading edge at a point 12 inches (305 mm) from the side where the treads are narrower and a minimum tread depth of 10 inches (254 mm).**

**1009.3.1 Winder treads.** Winder treads are not permitted in means of egress stairways except within a dwelling unit.

38. How do you determine the ratio between tread and riser?

$$2(R) + T = 25$$

**1009.3.2 Dimensional uniformity.** Stair treads and risers shall be of uniform size and shape. The tolerance between the largest and smallest riser height or between the largest and smallest tread depth shall not exceed 0.375 inch (9.5 mm) in any flight of stairs. The greatest winder tread depth at the 12-inch (305 mm) walk line within any flight of stairs shall not exceed the smallest by more than 0.375 inch (9.5 mm) measured at a right angle to the tread's leading edge.

## HANDRAILS

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39. Handrails extend distance at top and bottom

**1009.11.5 Handrail extensions.** Handrails shall return to a wall, guard or the walking surface or shall be continuous to the handrail of an adjacent stair flight. Where handrails are not continuous between flights, the handrails shall extend horizontally at least 12 inches (305 mm) beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser.

40. Railing height

**1009.11.1 Height.** Handrail height, measured above stair tread nosings, or finish surface of ramp slope shall be uniform, not less than 34 inches (864 mm) and not more than 38 inches (965 mm).

**Exception:** Handrails for stairs not required to be accessible that form part of a guardrail may be 42 inches (1067 mm) high.

41. Space between the handrail and the wall.

**1009.11.6 Clearance.** Clear space between a handrail and a wall or other surface shall be a minimum of 1.5 inches (38 mm). A handrail and a wall or other surface adjacent to the handrail shall be free of any sharp or abrasive elements.

42. Width for a ramp

**1010.5 Minimum dimensions.** The minimum dimensions of means of egress ramps shall comply with Sections 1010.5.1 through 1010.5.3.

**1010.5.1 Width.** The minimum width of a means of egress ramp shall not be less than that required for corridors by Section 1016.2. The clear width of a ramp and the clear width between handrails, if provided, shall be 36 inches (914 mm) minimum.

**Exception:** Ramps that are part of a required means of egress shall not be less than 44 inches (1118 mm) wide.

**1010.5.2 Headroom.** The minimum headroom in all parts of the means of egress ramp shall not be less than 80 inches (2032 mm).

43. A ramp landing – requirements

**1010.6 Landings.** Ramps shall have landings at the bottom and top of each ramp, points of turning, entrance, exits and at doors and in accordance with Section 11- 4.8.4. Landings shall comply with Sections 1010.6.1 through 1010.6.5.

44. Ramp landing dimensions

**1010.6.1 Slope.** Landings shall have a slope not steeper than one unit vertical in 50 units horizontal (2-percent slope) in any direction. Changes in level are not permitted.

**1010.6.2 Width.** The landing shall be at least as wide as the widest ramp run adjoining the landing.

**1010.6.3 Length.** The landing length shall be 60 inches (1525 mm) minimum.

**Exception:** Landings in non accessible Group R-2 and R-3 individual dwelling units, as applicable in Section 101.2, are permitted to be 36 inches (914 mm) minimum.

**1010.6.4 Change in direction.** Where changes in direction of travel occur at landings provided between ramp runs, the landing shall be 60 inches by 60 inches (1524 mm by 1524 mm) minimum.

**Exception:** Landings in non accessible Group R-2 and R-3 individual dwelling units, as applicable in Section 101.2, are permitted to be 36 inches by 36 inches (914 mm by 914 mm) minimum.

**1010.6.5 Doorways.** Where doorways are located adjacent to a ramp landing, maneuvering clearances required by ICC A117.1 are permitted to overlap the required landing area.

FINISHES

45. In a building equipped with sprinklers, the interior finish maximum flame spread index for enclosed vertical exits is B for Group B-Business

Class B: Flame spread index 26-75; smoke-developed index 0-450.

**803.1.1 Interior wall and ceiling finish materials.** Interior wall and ceiling finish materials shall be classified in accordance with ASTM E 84 or UL 723. Such *interior finish* materials shall be grouped in the following classes in accordance with their flame spread and *smoke-developed indexes*.

Class A: Flame spread index 0-25; smoke-developed index 0-450.

Class B: Flame spread index 26-75; smoke-developed index 0-450.

Class C: Flame spread index 76-200; smoke-developed index 0-450.

TABLE 803.9  
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY\*

GROUP	SPRINKLERED <sup>f</sup>			NONSPRINKLERED		
	Exit enclosures and exit passageways <sup>a, b</sup>	Corridors	Rooms and enclosed spaces <sup>c</sup>	Exit enclosures and exit passageways <sup>a, b</sup>	Corridors	Rooms and enclosed spaces <sup>c</sup>
A-1 & A-2	B	B	C	A	A <sup>d</sup>	B <sup>e</sup>
A-3 <sup>f</sup> , A-4, A-5	B	B	C	A	A <sup>d</sup>	C
B, D, E, M, R-1	B	C	C	A	B	C
R-4	B	C	C	A	B	B
F	C	C	C	B	C	C
H	B	B	C <sup>g</sup>	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B <sup>h, i</sup>	A	A	B
I-3	A	A <sup>j</sup>	C	A	A	B
R-2	C	C	C	B	B	C
R-3	C	C	C	C	C	C
S	C	C	C	B	B	C
U	No restrictions			No restrictions		

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929m<sup>2</sup>.

a. Class C interior finish materials shall be permitted forwainscoting or paneling of not more than 1,000 square feet of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.11.1.

b. In exit enclosures of buildings less than three stories above grade plane of other than Group I-3, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted.

c. Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or

spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the

governing factor regardless of the group classification of the building or structure.

d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.

e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.

f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.

g. Class B material is required where the building exceeds two stories.

h. Class C interior finish materials shall be permitted in administrative spaces.

i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.

j. Class B materials shall be permitted as wainscotting extending not more than 48 inches above the finished floor in corridors.

k. Finish materials as provided for in other sections of this code.

l. Applies when the exit enclosures, exit passageways, corridors or rooms and enclosed spaces are protected by an automatic sprinkler system installed in accordance

with Section 903.3.1.1 or 903.3.1.2.

46. In a building equipped with sprinklers, the interior finish maximum flame spread index for other exit ways is C for Group B-Business

Class C: Flame spread index 76-200; smoke-developed index 0-450.

47. The interior finish maximum flame spread index for other areas is

C for Group B-Business

Class C: Flame spread index 76-200; smoke-developed index 0-450.

48. List the material classes AND testing requirements for the finishes in different areas of the project. (Very Important – will be utilized in material selections)

#### Wall and Ceiling Finishes

**803.2 Interior wall or ceiling finishes other than textiles.** Interior wall or ceiling finishes, other than textiles, shall be permitted to be tested in accordance with NFPA 286. Finishes tested in accordance with NFPA 286 shall comply with Section 803.2.1.

**803.6.1 Textile wall coverings.** Textile wall coverings shall have a Class A flame spread index in accordance with ASTM E 84 and be protected by automatic sprinklers installed in accordance with Section 903.3.1.1 or 903.3.1.2 or the covering shall meet the criteria of Section 803.6.1.1 or 803.6.1.2 when tested in the manner intended for use in accordance with NFPA 265 using the product mounting system, including adhesive.

**803.6.2 Textile ceiling finish.** Where used as a ceiling finish, carpet and similar textile materials shall have a Class A flame spread index in accordance with ASTM E 84 and be protected by automatic sprinklers.

**803.7 Expanded vinyl wall coverings.** Expanded vinyl wall coverings shall comply with the requirements for textile wall and ceiling materials and their use shall comply with Section 803.5.

**Exception:** Expanded vinyl wall or ceiling coverings complying with Section 803.2 shall not be required to comply with Section 803.1 or 803.5.

**803.8 Insulation.** Thermal and acoustical insulation shall comply with Section 719.

**803.9 Acoustical ceiling systems.** The quality, design, fabrication and erection of metal suspension systems for acoustical tile and lay-in panel ceilings in buildings or structures shall conform with generally accepted engineering practice, the provisions of this chapter and other applicable requirements of this code.

**803.9.1 Materials and installation.** Acoustical materials complying with the interior finish requirements of Section 803 shall be installed in accordance with the manufacturer's recommendations and applicable provisions for applying interior finish.

**803.9.1.1 Suspended acoustical ceilings.** Suspended acoustical ceiling systems shall be installed in accordance with the provisions of ASTM C 635 and ASTM C 636.

**803.9.1.2 Fire-resistance-rated construction.** Acoustical ceiling systems that are part of fire resistance-rated construction shall be installed in the same manner used in the assembly tested and shall comply with the provisions of Chapter 7.

#### Interior Floor Finishes

**804.1 General.** Interior floor finish and floor covering materials shall comply with this section.

**Exception:** Floors and floor coverings of a traditional type, such as wood, vinyl, linoleum or terrazo, and resilient floor covering materials which are not comprised of fibers.

**804.2 Classification.** Interior floor finish and floor covering materials required by Section 804.5.1 to be of Class I or II materials shall be classified in accordance with NFPA 253. The classification referred to herein corresponds to the classifications determined by NFPA 253 as follows: Class I, 0.45 watts/cm<sup>2</sup> or greater; Class II, 0.22 watts/cm<sup>2</sup> or greater.

**804.3 Testing and identification.** Floor covering materials shall be tested by an approved agency in accordance with NFPA 253 and identified by a hang tag or other suitable method so as to identify the manufacturer or supplier and style, and shall indicate the interior floor finish or floor covering classification according to Section 804.2. Carpet-type floor coverings shall be tested as proposed

for use, including underlayment. Test reports confirming the information provided in the manufacturer's product identification shall be furnished to the building official upon request.

**804.4 Application.** Combustible materials installed in or on floors of buildings of Type I or II construction shall conform with the requirements of this section.

**Exception:** Stages and platforms constructed in accordance with Sections 410.3 and 410.4, respectively.

**804.4.1 Subfloor construction.** Floor sleepers, bucks and nailing blocks shall not be constructed of combustible materials, unless the space between the fire-resistance-rated floor construction and the flooring is either solidly filled with approved noncombustible materials or fire blocked in accordance with Section 717, and provided that such open spaces shall not extend under or through permanent partitions or walls.

**804.4.2 Wood finish flooring.** Wood finish flooring is permitted to be attached directly to the embedded or fire blocked wood sleepers and shall be permitted where cemented directly to the top surface of approved fire-resistance-rated construction or directly to a wood subfloor attached to sleepers as provided for in Section 804.4.1.

**804.4.3 Insulating boards.** Combustible insulating boards not more than 0.5-inch (12.7 mm) thick and covered with approved finish flooring are permitted, where attached directly to a noncombustible floor assembly or to wood subflooring attached to sleepers as provided for in Section 804.4.1.

**804.5 Interior floor finish requirements.** In all occupancies, interior floor finish in vertical exits, exit passageways, exit access corridors and rooms or spaces not separated from exit access corridors by full-height partitions extending from the floor to the underside of the ceiling shall withstand a minimum critical radiant flux as specified in Section 804.5.1.

**804.5.1 Minimum critical radiant flux.** Interior floor finish in vertical exits, exit passageways and exit access corridors shall not be less than Class I in Groups I-2 and I-3 and not less than Class II in Groups A, B, E, H, I-4, M, R-1, R-2 and S. In all other areas, the interior floor finish shall comply with the DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630).

**Exception:** Where a building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, Class II materials are permitted in any area where Class I materials are required and materials complying with DOC FF-1 "pill test" (CPSC 16 CFR, Part 1630) are permitted in any area where Class II materials are required.

#### Decorations and Trim

**805.1 General.** In occupancies of Groups A, E, I, R-1 and dormitories in Group R-2, curtains, draperies, hangings and other decorative materials suspended from walls or ceilings shall be flame resistant in accordance with Section 805.2 and NFPA 701 or noncombustible. In Groups I-1 and I-2, combustible decorations shall be flame retardant unless the decorations, such as photographs and paintings, are of such limited quantities that a hazard of fire development or spread is not present. In Group I-3, combustible decorations are prohibited.

**805.1.1 Noncombustible materials.** The permissible amount of noncombustible decorative material shall not be limited.

**805.1.2 Flame-resistant materials.** The permissible amount of flame-resistant decorative materials shall not exceed 10 percent of the aggregate area of walls and ceilings.

**Exception:** In auditoriums of Group A, the permissible amount of flame-resistant decorative material shall not exceed 50 percent of the aggregate area of walls and ceiling where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and the material is installed in accordance with Section 803.3.

**805.2 Acceptance criteria and reports.** Where required to be flame resistant, decorative materials shall be tested by an approved agency and pass Test 1 or 2, as appropriate, described in NFPA 701 or such materials shall be noncombustible. Reports of test results shall be prepared in accordance with NFPA 701 and furnished to the code official upon request.

**805.3 Foam plastic.** Foam plastic used as trim in any occupancy shall comply with Section 2604.2.

**805.4 Pyroxylin plastic.** Imitation leather or other material consisting of or coated with a pyroxylin or similarly hazardous base shall not be used in Group A occupancies.

**805.5 Trim.** Material used as interior trim shall have a minimum Class C flame spread index and smoke-developed index.

Combustible trim, excluding handrails and guardrails, shall not exceed 10 percent of the aggregate wall or ceiling area in which it is located.

49. What areas of your program will need to be compartmentalized (look up *compartmentation* in the codes Guidebook) what are the fire rated assemblies that should separate them.

*"The overall concept of a passive fire-protection system is compartmentation. Compartmentation is the separation of areas in a building to control fire and smoke by the use of wall, floor, and ceiling assemblies" (Harmon & Kenon, p.182).*



## ELEVATORS

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**3001.2 Referenced standards.** Except as otherwise provided for in this code, the design, construction, installation, *alteration*, repair and maintenance of elevators and conveying systems and their components shall conform to ASME A17.1/CSA B44, ASME A17.3, ASME A18.1, ASME A90.1, ASME B20.1, ALI ALCTV, and ASCE 24-05 for construction in flood hazard areas. The Division of Hotels and Restaurants may grant exceptions, variances and waivers to the *Elevator Safety Code* as authorized by the *Safety Code for Elevators and Escalators* (ASME A17.1, Section 1.2) and *Florida Statutes* (Chapter 120).

**3001.3 Accessibility.** Passenger elevators are required to be *accessible* by the *Florida Building Code, Accessibility*.

**3002.6 Prohibited doors.** Doors, other than hoistway doors and the elevator car door, shall be prohibited at the point of access to an elevator car unless such doors are readily openable from the car side without a key, tool, special knowledge or effort.

**3002.7 Common enclosure with stairway.** Elevators shall not be in a common shaft enclosure with a *stairway*.

**3002.8 Glass in elevator enclosures.** Glass in elevator enclosures shall comply with Section 2409.1.

### SECTION 2409 GLASS IN ELEVATOR HOISTWAY

**2409.1 Glass in elevator enclosures.** Glass in elevator enclosures shall be laminated glass conforming to [ANSI Z97.1](#) or [16 CFR Part 1201](#). Markings as specified in the applicable standard shall be on each separate piece of glass and shall remain visible after installation.

**3008.11 Occupant evacuation elevator lobby.** The occupant evacuation elevators shall open into an elevator lobby in accordance with Sections 3008.11.1 through 3008.11.5.

**3008.11.1 Access.** The occupant evacuation elevator lobby shall have direct access to an *exit enclosure*.

**3008.11.2 Lobby enclosure.** The occupant evacuation elevator lobby shall be enclosed with a *smoke barrier* having a minimum 1-hour *fire-resistance rating*, except that lobby doorways shall comply with Section 3008.11.3.

**Exception:** Enclosed occupant evacuation elevator lobbies are not required at the level(s) of *exit discharge*.

**3008.11.3 Lobby doorways.** Each occupant evacuation elevator lobby shall be provided with a doorway that is protected with a  $\frac{3}{4}$

### ELEVATOR ACCESSIBILITY REQUIREMENTS FOR THE PHYSICALLY HANDICAPPED

**3009.1** In a building having any elevators that do not provide access to every floor level, elevator hallway call buttons on all main levels of ingress and on any floor that is commonly served by more than one group of elevators must be marked with Arabic and braille symbols that indicate floor levels to which access is provided. The symbols must be placed directly above each call button.

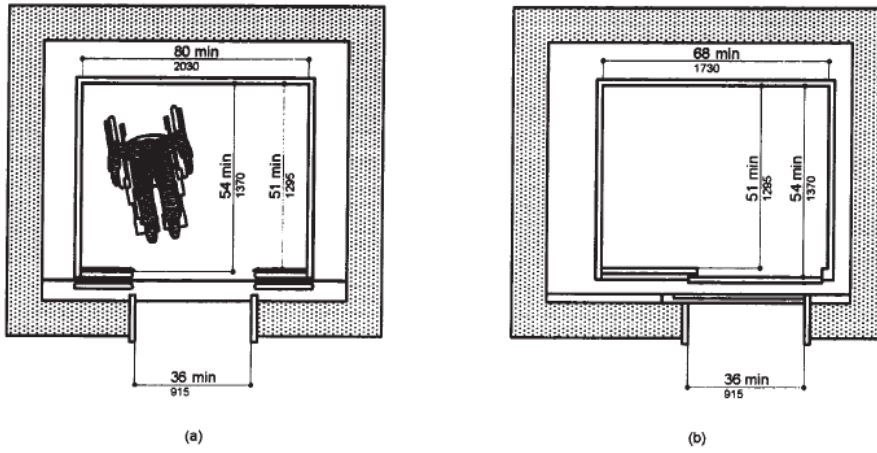
**3009.2** Each elevator car interior must have a support rail on at least one wall. All support rails must be smooth and have no sharp edges and must not be more than 1-1/2 inches (38 mm) thick or 2-1/2 inches (63 mm) in diameter. Support rails must be continuous and a minimum length of 42 inches (1067 mm) overall. The inside surface of support rails must be 1-1/2 inches (38 mm) clear of the car wall. The distance from the top of the support rail to the finished car floor must be at least 31 inches (787 mm) and not more than 33 inches (838 mm). Padded or tufted material or decorative materials such as wallpaper, vinyl, cloth or the like may be not be used on support rails.

**3009.3** A bench or seat may be installed on the rear wall of the elevator car enclosure, if the bench or seat does not protrude beyond the vertical plane of the elevator car enclosure wall when folded into a recess provided for the bench or seat and, when not in use, the bench or seat automatically folds into the recess. The bench or seat must be capable of supporting a live load of at least 250 pounds (113.4 kg) on any 12-inch by 12-inch (305 mm by 305 mm) area. A padded, tufted or other decorative material may not be used to cover the bench or seat; nor may the bench or seat encroach on the minimum clear inside-car dimensions specified in this section. This section applies only to elevators available for the transportation of the public. This section does not apply to elevators restricted by key or similar device to a limited number of persons in a building that has an elevator that otherwise meets the requirements of this section or to elevators used only for the transportation of freight. However, elevators that are used as freight and passenger elevators for the public and employees must comply with this section. This section does not apply to dumbwaiters or escalators. This section supersedes all other state regulations and local ordinances and rules affecting the accessibility of passenger elevators to the physically handicapped, and the standards established by this section may not be modified by municipal or county ordinance.

50. **Elevator requirement for your project is...** There is a need for elevators to transport users from the first to the second and third levels of the building.
51. **Elevator location should be...** Located in a place that is accessible by all users and that allows serving all the spaces in three levels of the building.
52. **The minimum elevator door width is 36"**  
As per figure 22 bellow

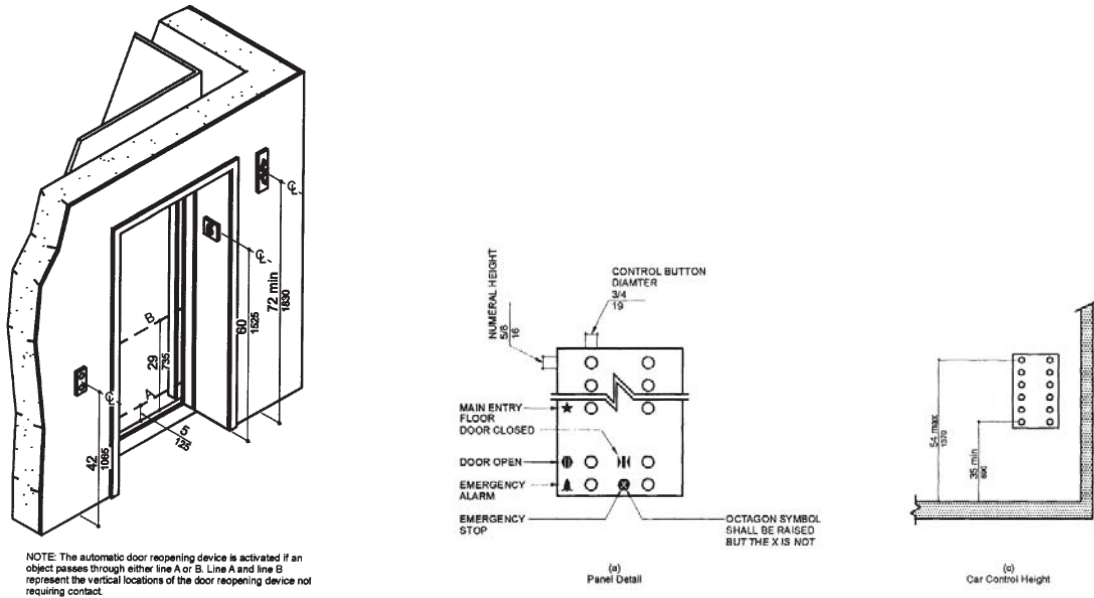
53. The minimum inside dimensions for an elevator

Chapter 11: FIGURE 22 MINIMUM DIMENSIONS OF ELEVATOR CARS



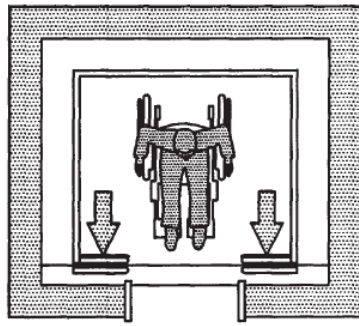
54. The maximum height for elevator buttons

Chapter 11: FIGURE 20 HOISTWAY AND ELEVATOR ENTRANCES

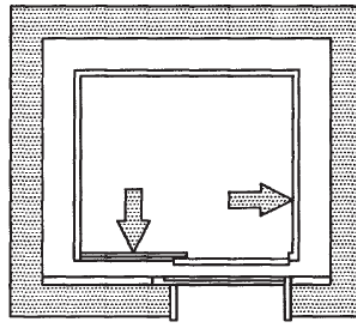




Chapter 11: FIGURE 23 CAR CONTROLS



(b)  
Alternate Locations  
of Panel with  
Center Opening Door



(d)  
Alternate Locations  
of Panel with Side Opening Door

TOILET ROOMS

55. The numbers of stalls required for the project are? How many accessible?

Plumbing Code: Chapter 4: TABLE 403.1—continued MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES<sup>a</sup> (See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/SHOWERS	DRINKING FOUNTAIN (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
2	Business (see Sections 403.2, 403.4 and 403.4.1)	B	Buildings for the transaction of business, professional services, other services involving merchandise, office buildings, banks, light industrial and similar uses	1 per 25 for the first 50 and 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80 and 1 per 80 for the remainder exceeding 80		—	1 per 100	—

**403.2 Separate facilities.** Where plumbing fixtures are required, separate facilities shall be provided for each sex. **Exceptions:** 1. Separate facilities shall not be required for dwelling units and sleeping units 2. Separate facilities shall not be required for food service establishments which seat 10 persons or less. 3. Separate facilities shall not be required in business and mercantile occupancies with a total floor area of 3,000 square feet (279 m<sup>2</sup>) or less.

**403.4 Required public toilet facilities.** Customers, patrons and visitors shall be provided with public toilet facilities in structures and tenant spaces intended for public utilization. The accessible route to public facilities shall not pass through kitchens, storage rooms, closets or similar spaces. Employees shall be provided with toilet facilities in all occupancies. Employee toilet facilities shall be either separate or combined employee and public toilet facilities.

**403.4.1 Location of toilet facilities in occupancies other than covered malls.** In occupancies other than covered malls, the required public and employee toilet facilities shall be located not more than one story above or below the space required to be provided with toilet facilities, and the path of travel to such facilities shall not exceed a distance of 500 feet (152 m).

**Exception:** The location and maximum travel distances to required employee facilities in factory and industrial occupancies are permitted to exceed that required by this section, provided that the location and maximum travel distance are approved.

**403.8 Sanitary facilities for public swimming pools.** Swimming pools with a bathing load of 20 persons or less may utilize a unisex restroom. Pools with bathing loads of 40 persons or less may utilize two unisex restrooms or meet the requirement of Table 403.8. Unisex restrooms shall meet all the requirements for materials, drainage and signage as indicated in Sections 424.1.6.1.1 through 424.1.6.1.4 of the *Florida Building Code, Building*. Each shall include a water closet, a diaper change table, a urinal and a lavatory. Pools with a bathing load larger than 40 persons shall provide separate sanitary facilities labeled for each sex. The entry doors of all restrooms shall be located within a 200-foot radius (60 960 mm) walking distance of the nearest water's edge of each pool served by the facilities.

**Exception:** Where a swimming pool serves only a designated group of residential dwelling units and not the general public, poolside sanitary facilities are not required if all living units are within a 200-foot (60 960 mm) horizontal radius of the nearest water's edge, are not over three stories in height and are each equipped with private sanitary facilities.

**TABLE 403.8 PUBLIC SWIMMING POOL—REQUIRED FIXTURE COUNT**

SIZE	MEN'S RESTROOMS			WOMEN'S RESTROOMS	
	Urinals	WC	Lavatory	WC	Lavatory
0 - 2500 sq ft	1	1	1	1	1
2501 - 5000 sq ft	2	1	1	5	1
5001 - 7500 sq ft	2	2	2	6	2
7501 - 10,000 sq ft	3	2	3	8	3

56. The minimum width for the area in front of a toilet stall is from 36" to 60" inches.

57. Entry doors for toilet stalls must be at least 32" inches wide.

58. The minimum toilet stall width is 36" inches.

59. A toilet seat must be between 17" inches and 19" inches from the floor.

60. The minimum height for a grab bar is 33"inches.

51. The minimum wheelchair turning space (unobstructed) is 60" inches in diameter.

52. What are the lavatory requirements for accessibility?

**11-4.19 Lavatories and mirrors.**

**11-4.19.1 General.** The requirements of Section 11-4.19 shall apply to lavatory fixtures, vanities, and built-in lavatories.

**11-4.19.2 Height and clearances.** Lavatories shall be mounted with the rim or counter surface no higher than 34 inches (865 mm) above the finish floor. Provide a clearance of at least 29 inches (735 mm) above the finish floor to the bottom of the apron. Knee and toe clearance shall comply with Figure 31.

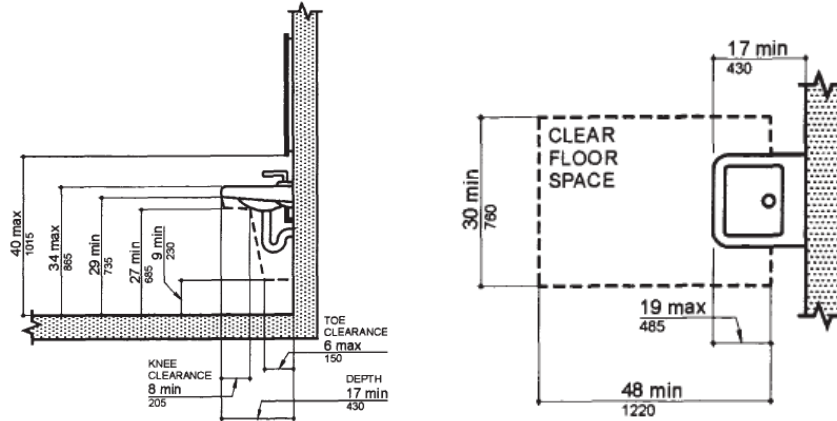
**11-4.19.3 Clear floor space.** A clear floor space 30 inches by 48 inches (760 mm by 1219 mm) complying with Section 11-4.2.4 shall be provided in front of a lavatory to allow forward approach. Such clear floor space shall adjoin or overlap an accessible route and shall extend a maximum of 19 inches (485 mm) underneath the lavatory (see Figure 32).

**11-4.19.4 Exposed pipes and surfaces.** Hot water and drain pipes under lavatories shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under lavatories.

**11-4.19.5 Faucets.** Faucets shall comply with Section 11-4.27.4. Lever-operated, push-type, and electronically controller mechanisms are examples of acceptable designs. If self-closing valves are used the faucet shall remain open for at least 10 seconds.

**11-4.19.6 Mirrors.** Mirrors shall be mounted with the bottom edge of the reflecting surface no higher than 40 inches (1015 mm) above the finish floor (see Figure 31).

FIGURE 31 LAVATORY CLEARANCES  
 FIGURE 32 CLEAR FLOOR SPACE AT LAVATORIES



## ADAAG: American with Disabilities Act Standards

### Accessibility

**11-2.1 Provisions for adults.** The specifications in this code are based upon adult dimensions and anthropometrics.

**11-2.2 Equivalent facilitation.** Departures from particular technical and scoping requirements of this code by the use of other designs and technologies are permitted where the alternative designs and technologies used will provide substantially equivalent or greater access to and usability of the facility.

Departure from the explicit technical and scoping requirements of this code for any element voids any otherwise applicable presumption of rebuttable evidence that the element has been constructed or altered in accordance with the minimum accessibility requirements of the ADA.

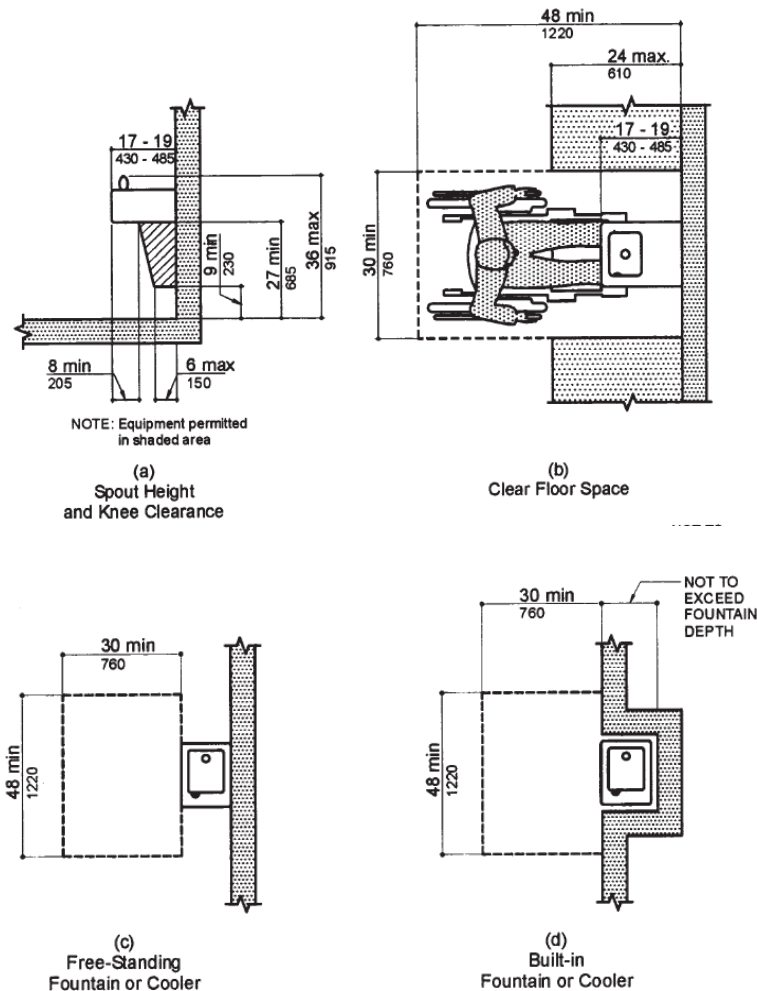
### **Drinking fountains.**

**(a)** Where only one drinking fountain is provided on a floor, there shall be a drinking fountain which is accessible to individuals who use wheelchairs in accordance with Section 11-4.15 and one accessible to those who have difficulty bending or stooping. (This can be accommodated by the use of a "hi-lo" fountain; by providing one fountain accessible to those who use wheelchairs and one fountain at a standard height convenient for those who have difficulty bending; by providing a fountain accessible under Section 11-4.15 and a water cooler; or by such other means as would achieve the required accessibility for each group on each floor.)

**(b)** Where more than one drinking fountain or water cooler is provided on a floor, at least 50 percent of those provided shall comply with Section 11-4.15 and shall be on an accessible route.

**(11) Toilet facilities.** If toilet rooms are provided, then each public and common use toilet room shall comply with Section 11-4.22. Other toilet rooms provided for the use of occupants of specific spaces (i.e., a private toilet room for the occupant of a private office) shall be adaptable. If bathing rooms are provided, then each public and common use bathroom shall comply with Section 11-4.23. Accessible toilet rooms and bathing facilities shall be on an accessible route.

FIGURE 27 DRINKING FOUNTAINS AND WATER COOLERS



**Building signage.**

- (a) Signs which designate permanent rooms and spaces shall comply with Sections 11-4.30.1, 11-4.30.4, 11-4.30.5 and 11-4.30.6.
- (b) Other signs which provide direction to or information about functional spaces of the building shall comply with Sections 11-4.30.1, 11-4.30.2, 11-4.30.3, and 11-4.30.5.

Exception: Building directories, menus, and all other signs which are temporary are not required to comply.

**Space allowance and reach ranges.**

11-4.2.1 **Wheelchair passage width.** The minimum clear width for single wheelchair passage shall be 32 inches (815 mm) at a point and 36 inches (915 mm) continuously [see Figure 1 and Figure 24(e)].

11-4.2.2 **Width for wheelchair passing.** The minimum width for two wheelchairs to pass is 60 inches (1525 mm) (see Figure 2).

11-4.2.3 **Wheelchair turning space.** The space required for a wheelchair to make a 180-degree turn is a clear space of 60 inches (1525 mm) diameter [see Figure 3(a)] or a T-shaped space [see Figure 3(b)].

**11-4.2.4 Clear floor or ground space for wheelchairs.**

11-4.2.4.1 **Size and approach.** The minimum clear floor or ground space required to accommodate a single, stationary wheelchair and occupant is 30 inches by 48 inches (760 mm by 1220 mm) [see Figure 4(a)]. The minimum clear floor or ground space for wheelchairs may be positioned for forward or parallel approach to an object [see Figure 4(b) and Figure 4(c)]. Clear floor or ground space for wheelchairs may be part of the knee space required under some objects.

11-4.2.4.2 **Relationship of maneuvering clearance to wheelchair spaces.** One full unobstructed side of the clear floor or ground space for a wheelchair shall adjoin or overlap an accessible route or adjoin another wheelchair clear floor space. If a clear floor space is located in an alcove or otherwise confined on all or part of three sides, additional maneuvering clearances shall be provided as shown in Figure 4(d) and Figure 4(e).

11-4.2.4.3 **Surfaces for wheelchair spaces.** Clear floor or ground spaces for wheelchairs shall comply with Section 11-4.5.

**11-4.2.5 Forward reach.** If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48 inches (1220 mm). The minimum low forward reach is 15 inches (380 mm) [see Figure 5(a)]. If the high forward reach is over an obstruction, reach and clearances shall be as shown in Figure 5(b).

**11-4.2.6 Side reach.** If the clear floor space allows parallel approach by a person in a wheelchair, the maximum high side reach allowed shall be 54 inches (1370 mm) and the low side reach shall be no less than 9 inches (230 mm) above the floor [see Figure 6(a) and Figure 6(b)]. If the side reach is over an obstruction, the reach and clearances shall be as shown in Figure 6(c).

#### **11-4.3 Accessible route.**

**11-4.3.1 General.** All walks, halls, corridors, aisles, skywalks, tunnels, and other spaces that are part of an accessible route shall comply with Section 11-4.3.

**11-4.3.2 Location.** (1) At least one accessible route within the boundary of the site shall be provided from public transportation stops, accessible parking, and accessible passenger loading zones, and public streets or sidewalks to the accessible building entrance they serve. The accessible route shall, to the maximum extent feasible, coincide with the route for the general public. (2) At least one accessible route shall connect accessible buildings, facilities, elements, and spaces that are on the same site. (3) At least one accessible route shall connect accessible building or facility entrances with all accessible spaces and elements and with all accessible dwelling units within the building or facility. (4) An accessible route shall connect at least one accessible entrance of each accessible dwelling unit with those exterior and interior spaces and facilities that serve the accessible dwelling unit.

**11-4.3.3 Width.** The minimum clear width of an accessible route shall be 36 inches (915 mm) except at doors (see Section 11-4.13.5 and 11-4.13.6). If a person in a wheelchair must make a turn around an obstruction, the minimum clear width of the accessible route shall be as shown in Figure 7(a) and Figure 7(b).

#### **11-4.5 Ground and floor surfaces.**

**11-4.5.1 General.** Ground and floor surfaces along accessible routes and in accessible rooms and spaces including floors, walks, ramps, stairs, and curb ramps, shall be stable, firm, slipresistant, and shall comply with Section 11-4.5.

**11-4.5.2 Changes in level.** Changes in level up to  $\frac{1}{4}$  inches (6 mm) may be vertical and without edge treatment [see Figure 7(c)]. Changes in level between  $\frac{1}{4}$  inch and  $\frac{1}{2}$  inch (6 mm and 13 mm) shall be beveled with a slope no greater than 1:2 [see Figure 7(d)]. Changes in level greater than  $\frac{1}{2}$  inch (13 mm) shall be accomplished by means of a ramp that complies with Section 11-4.7 or 11-4.8.

**11-4.5.3 Carpet.** If carpet or carpet tile is used on a ground or floor surface, then it shall be securely attached; have a firm cushion, pad, or backing, or no cushion or pad; and have a level loop, textured loop, level cut pile, or level cut/uncut pile texture. The maximum pile thickness shall be  $\frac{1}{2}$  inch (13 mm) [see Figure 8(f)]. Exposed edges of carpet shall be fastened to floor surfaces and have trim along the entire length of the exposed edge. Carpet edge trim shall comply with Section 11-4.5.2.

**11-4.5.4 Gratings.** If gratings are located in walking surfaces, then they shall have spaces no greater than  $\frac{1}{2}$  inch (13 mm) wide in one direction [see Figure 8(g)]. If gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominant direction of travel [see Figure 8(h)].

#### **11-4.10 Elevators.**

**11-4.10.1 General.** Accessible elevators shall be on an accessible route and shall comply with Section 11-4.10 and with the [ASME A17.1-1990, Safety Code for Elevators and Escalators](#). Freight elevators shall not be considered as meeting the requirements of this section unless the only elevators provided are used as combination passenger and freight elevators for the public and employees.

**11-4.10.2 Automatic operation.** Elevator operation shall be automatic. Each car shall be equipped with a self-leveling feature that will automatically bring the car to floor landings within a tolerance of  $\frac{1}{2}$  inch (12.7 mm) under rated loading to zero loading conditions. This self-leveling feature shall be automatic and independent of the operating device and shall correct the overtravel or under travel.

#### **11-4.23 Bathrooms, bathing facilities and shower rooms.**

**11-4.23.1 Minimum number.** Bathrooms, bathing facilities, or shower rooms required to be accessible by Section 11-4.1 shall comply with Section 11-4.23 and shall be on an accessible route.

**11-4.23.2 Doors.** Doors to accessible bathrooms shall comply with Section 11-4.13. Doors shall not swing into the floor space required for any fixture.

**Exception:** All new single-family houses, duplexes, triplexes, condominiums, and townhouses shall provide at least one bathroom, located with maximum possible privacy, where bathrooms are provided on habitable grade levels, with a door that has a 29-inch (737 mm) clear opening. However, if only a toilet room is provided at grade level, such toilet room shall have a clear opening of not less than 29 inches (737 mm).

**11-4.23.3 Clear floor space.** The accessible fixtures and controls required in Sections 11-4.23.4, 11-4.23.5, 11-4.23.6, 11-4.23.7, 11-4.23.8 and 11-4.23.9 shall be on an accessible route. An unobstructed turning space complying with Section 11-4.2.3 shall be provided within an accessible bathroom. The clear floor spaces at fixtures and controls, the accessible route, and the turning space may overlap.

**11-4.23.4 Water closets.** If toilet stalls are provided, then at least one shall be a standard toilet stall complying with Section 11-4.17; where six or more stalls are provided, in addition to the stall complying with Section 11-4.17.3, at least one stall 36 inches (915 mm) wide with an outward swinging, self-closing door and parallel grab bars complying with Figure 30(d) and Section 11-4.26 shall be provided. Water closets in such stalls shall comply with Section 11-4.16. If water closets are not in stalls, then at least one shall

comply with Section 11-4.16.

11-4.23.5 Urinals. If urinals are provided, then at least one shall comply with Section 11-4.18.

11-4.23.6 Lavatories and mirrors. If lavatories and mirrors are provided, then at least one of each shall comply with Section 11-4.19.

11-4.23.7 Controls and dispensers. If controls, dispensers, receptacles, or other equipment are provided, then at least one of each shall be on an accessible route and shall comply with Section 11-4.27.

11-4.23.8 Bathing and shower facilities. If tubs or showers are provided, then at least one accessible tub that complies with Section 11-4.20 or at least one accessible shower that complies with Section 11-4.21 shall be provided.

FIGURE 28 CLEAR FLOOR SPACE AT WATER CLOSETS (NOT IN STALL)

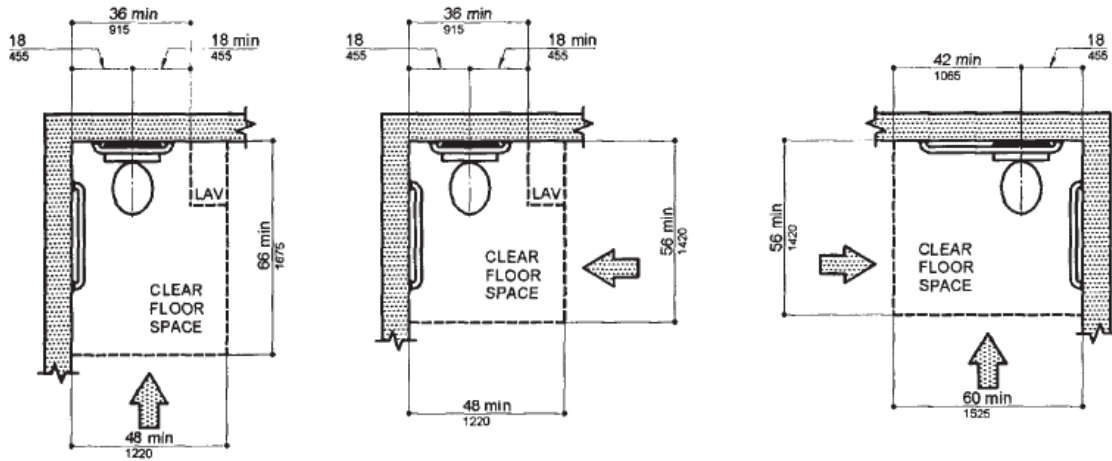


FIGURE 29 GRAB BARS AT WATER CLOSETS

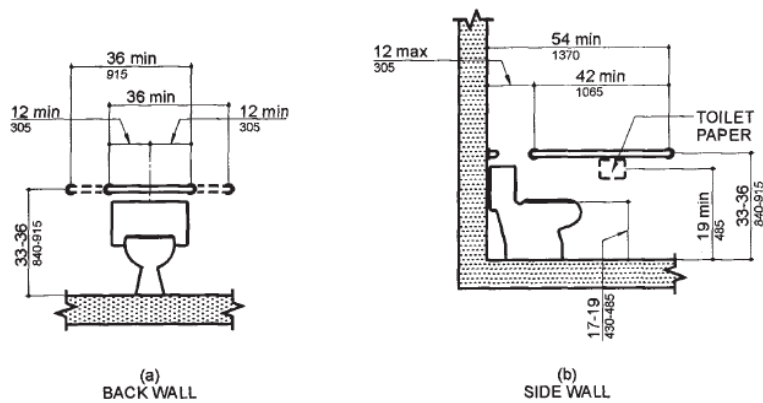
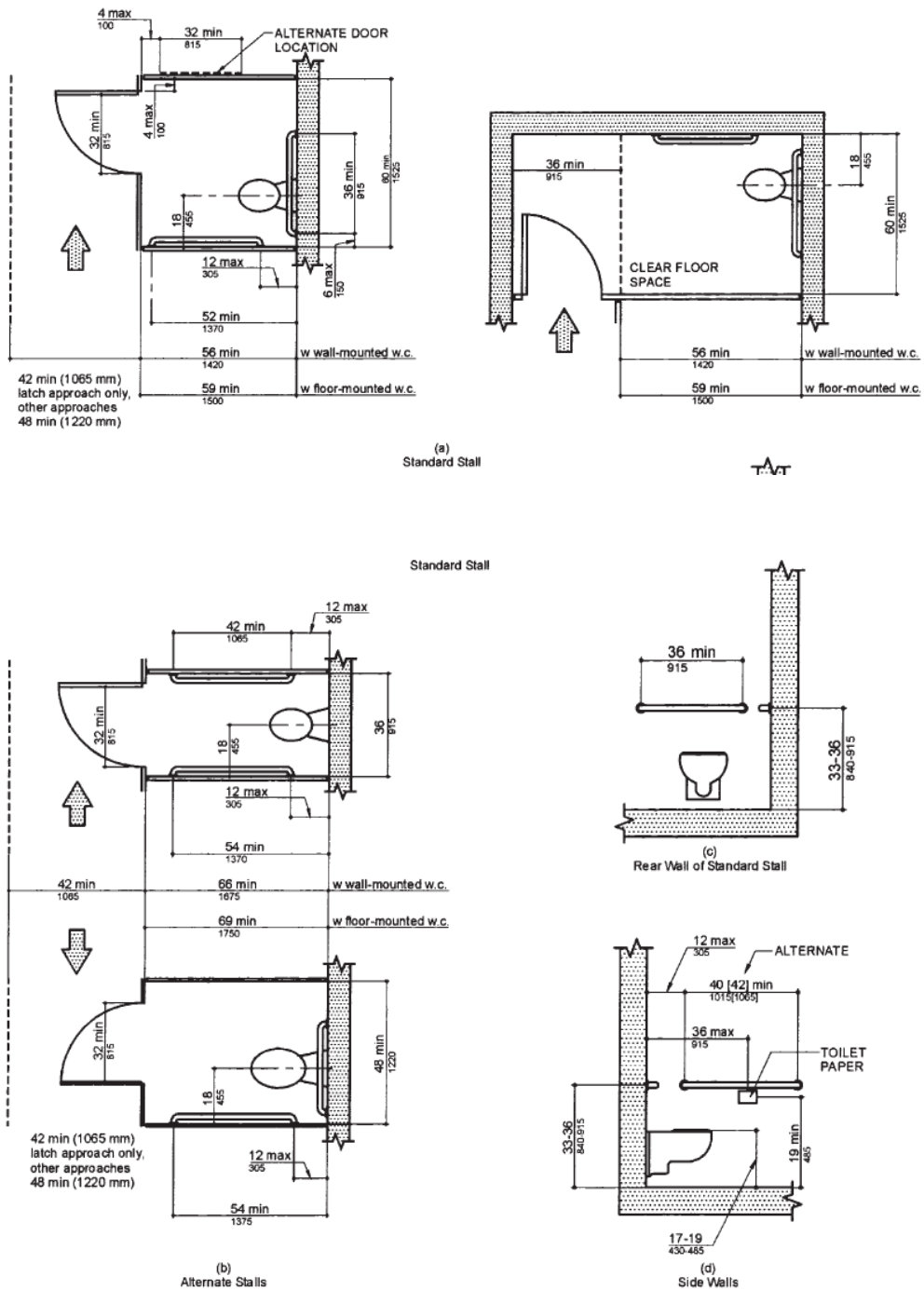


FIGURE 30 TOILET STALLS



11-4.26 Handrails, grab bars, and tub and shower seats.

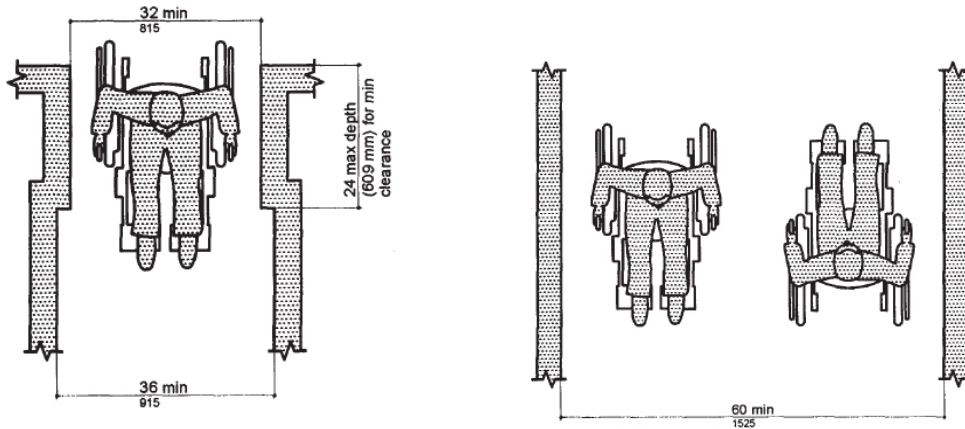
11-4.26.1 General. All handrails, grab bars, and tub and shower seats required to be accessible by Section 11-4.1, 11-4.8, 11-4.9, 11-4.16, 11-4.17, 11-4.20 or 11-4.21 shall comply with Section 11-4.26.

11-4.26.2 Size and spacing of grab bars and handrails. The diameter or width of the gripping surfaces of a handrail or grab bar shall be 1¼ inches to 1½ inches (32 mm to 38 mm), or the shape shall provide an equivalent gripping surface. If handrails or grab bars are mounted adjacent to a wall, the space between the wall and the grab bar shall be 1½ inches (38 mm) [see Figure 39(a),



Figure 39(b), Figure 39(c), and Figure 39(e)]. Handrails may be located in a recess if the recess is a maximum of 3 inches (76 mm) deep and extends at least 18 inches (455 mm) above the top of the rail [see Figure 39(d)].

**FIGURE 1 MINIMUM CLEAR WIDTH FOR SINGLE WHEELCHAIR**  
**FIGURE 2 MINIMUM CLEAR WIDTH FOR TWO WHEELCHAIRS**



**FIGURE 3 WHEELCHAIR TURNING SPACE**

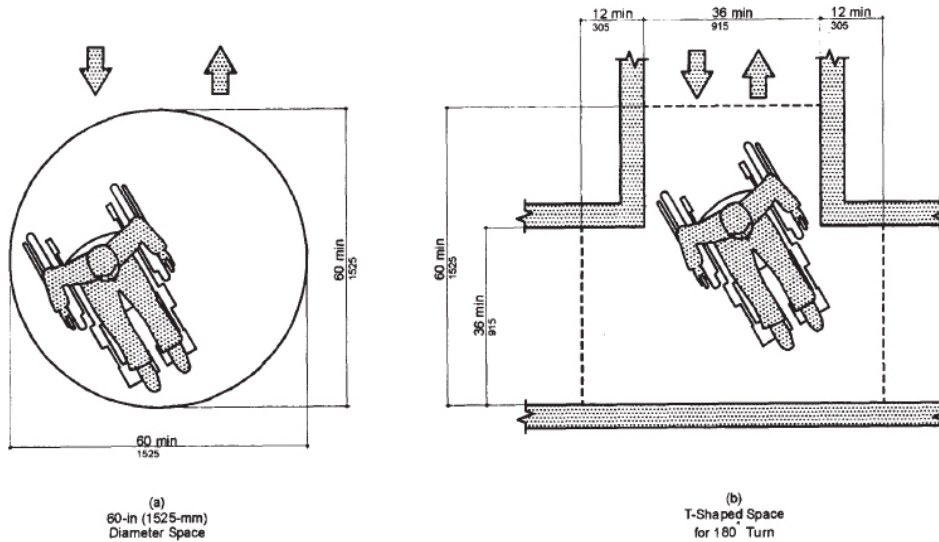




FIGURE 6 SIDE REACH

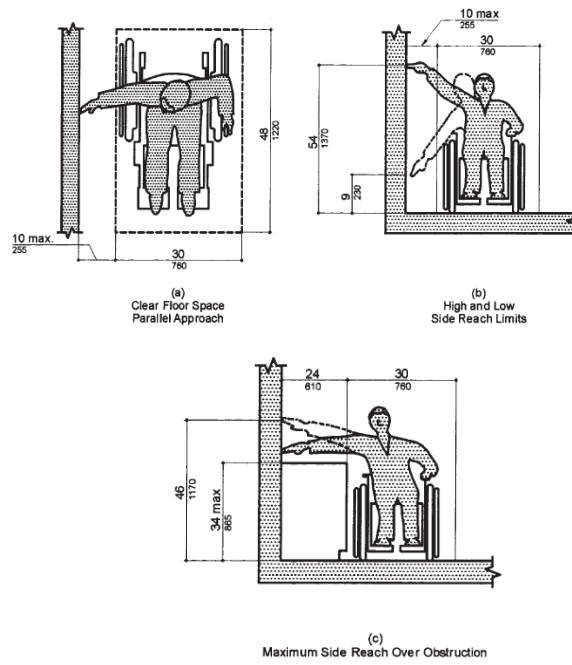


FIGURE 5 FORWARD REACH

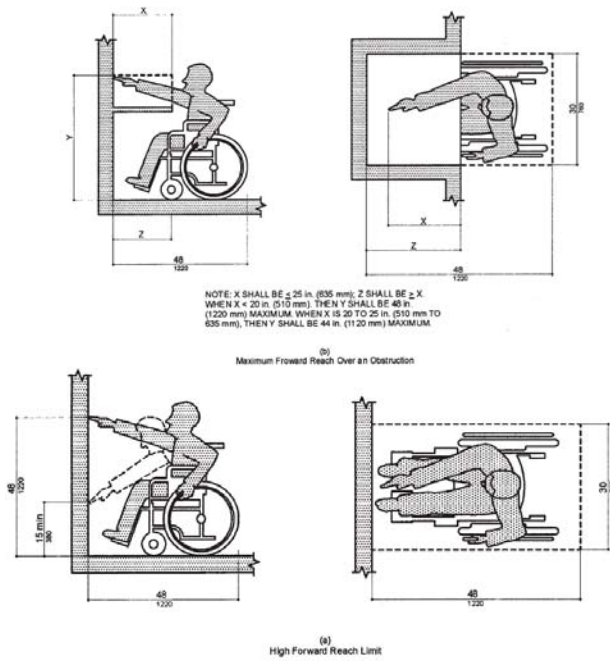
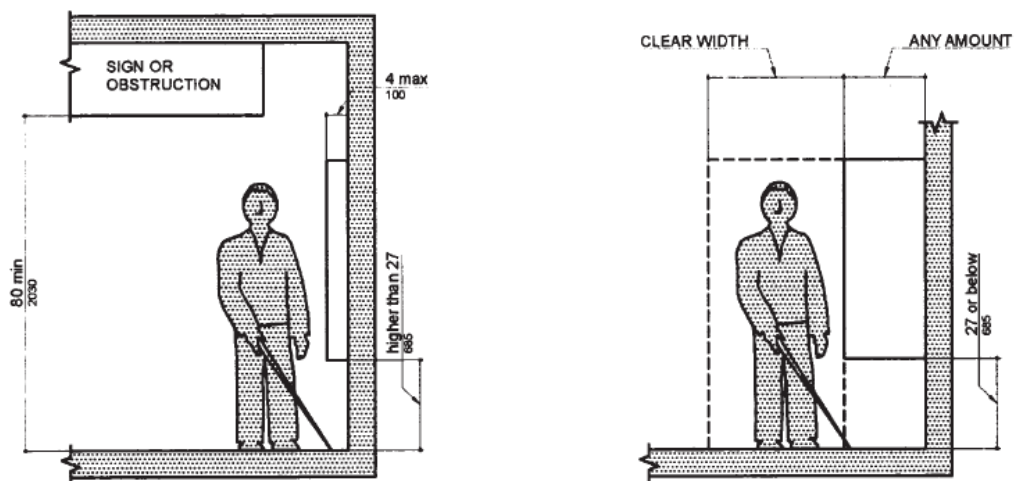
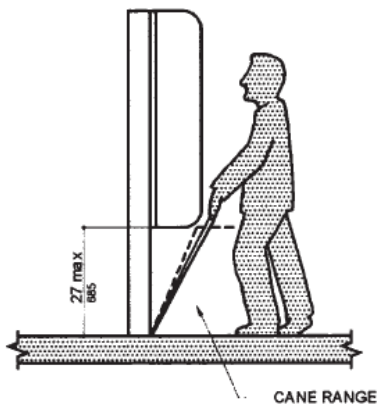


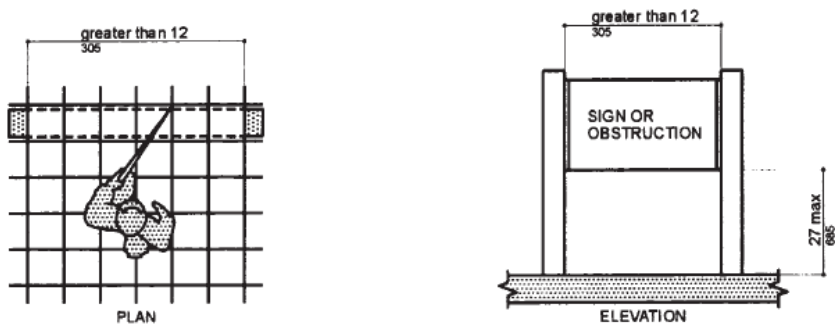
FIGURE 8 PROTRUDING OBJECTS



(a) Walking Parallel to a Wall



(b) Walking Perpendicular to a Wall



(c) Free-Standing Overhanging Objects

FIGURE 16 COMPONENTS OF A SINGLE RAMP RUN AND SAMPLE RAMP DIMENSIONS

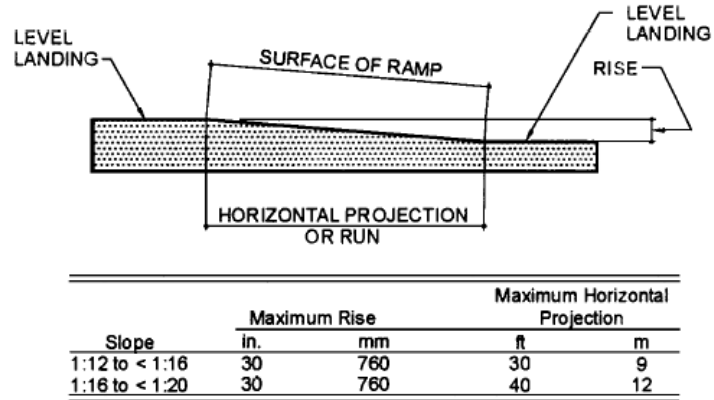
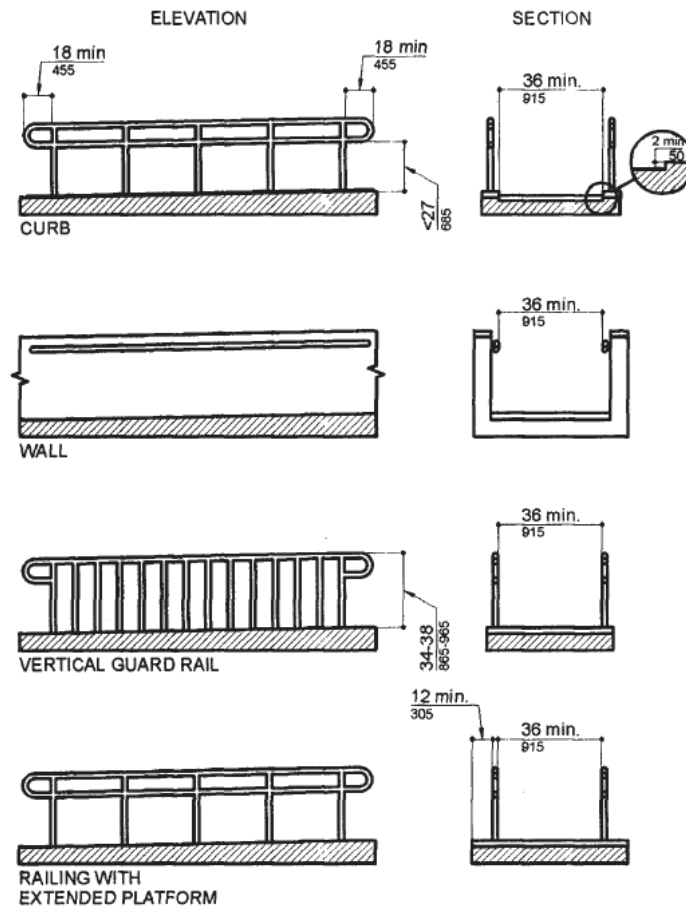


FIGURE 17 EXAMPLES OF EDGE PROTECTION AND HANDRAIL EXTENSIONS



## Special Features (MOST important to your particular project)

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Identify any feature that is unique to your project. Make sure you include ADAAG requirements for reception desks, cash wrap counters, additional corridor requirements for healthcare facilities, and room requirements for hospitality etc.

### Section 424: Swimming pools and bathing places

#### SECTION 424

#### SWIMMING POOLS AND BATHING PLACES

#### (PUBLIC AND PRIVATE)

**424.1 Public swimming pools and bathing places.** Public swimming pools and bathing places shall comply with the design and construction standards of this section.

**424.1.1 Flood hazard areas.** Public swimming pools installed in flood hazard areas established in Section 1612.3 shall comply with Section 1612.

**NOTE:** Other administrative and programmatic provisions may apply. See Department of Health (DOH) Rule 64E-9, *Florida Administrative Code* and Chapter 514, *Florida Statutes*.

**"Bathing load"** means the maximum number of persons allowed in the pool or bathing place at one time.

**"Collector tank"** means a reservoir, with a minimum of 2.25 square feet water (0.2 m<sup>2</sup>) surface area open to the atmosphere, from which the recirculation or feature pump takes suction, which receives the gravity flow from the main drain line and surface overflow system or feature water source line, and that is cleanable.

**"Department"** means Department of Health.

**"Effective barrier"** A barrier which consists of a building, or equivalent structure, plus a 48-inch (1219 mm) minimum height fence on the remaining sides or a continuous 48-inch (1219 mm) minimum height fence. All access through the barrier must have one or more of the following safety features: alarm, key lock or self-locking doors and gates. Safety covers that comply with the American Society for Test Materials standard F1346-91 (2003) may also be considered as an effective barrier.

**"D.E."** is the Diatomaceous Earth that is used as a filter aid in D.E.-type filters. For the purpose of this rule, it also includes alternative filter aids that have been approved under NSF/ANSI Standard 50-2007, and accepted by the filter manufacturer.

**"Interactive water features"** means a structure designed to allow for recreational activities with recirculated, filtered, and treated water; but having minimal standing water. Water from the interactive fountain type features is collected by gravity below grade in a collector tank or sump. The water is filtered, disinfected and then pumped to the feature spray discharge heads.

**"Modification"** means any act which changes or alters the original characteristics of the pool as approved. For example, changes in the recirculation systems, decking, treatment systems, disinfection system and pool shape are modifications.

**"Marking"** or **"Markings"** refers to the placement and installation of visual marking cues to help patrons identify step, bench and swimout outlines, slope break location, depth designations and NO ENTRY and NO DIVING warnings. When markings are specified by code to be dark the term "dark" shall mean a Munsell Color Value from zero to four.

**"Perimeter overflow gutter"** means a level trough or ledge around the inside perimeter of the pool containing drains to clean the pool water surface.

**"Plunge pool"** means the receiving body of water located at the terminus of a recreational water slide.

**"Pool floor"** means the interior pool bottom surface which consists of that area from a horizontal plane up to a maximum of a 45-degree slope.

**"Pool wall"** means the interior pool side surfaces which consist of that area from a vertical plane to a 45-degree slope.

**"Pool turnover"** means the circulation of the entire pool volume through the filter system. Pool volume shall be determined from the design water level which is the normal operating water level; for gutter-type pools it is the horizontal plane of the upper lip of the gutter and for skimmer pools it is the centerline of the skimmer opening.

**"Precoat pot"** means a container with a valved connection to the suction side of the recirculation pump of a pressure diatomaceous earth (D.E.) type filter system used for coating the filter with D. E. powder or NSF/ANSI Standard 50-2007 and manufacturer approved substitute filter aid.

A **"public swimming pool"** or **"public pool"** means a watertight structure of concrete, masonry, or other approved materials which is located either indoors or outdoors, used for bathing or swimming by humans, and filled with a filtered and disinfected water supply, together with buildings, appurtenances, and equipment used in connection therewith. A public swimming pool or public pool shall mean a conventional pool, spa-type pool, wading pool, special purpose pool, or water recreation attraction, to which admission may be gained with or without payment of a fee and includes, but is not limited to, pools operated by or serving camps, churches, cities, counties, day care centers, group home facilities for eight or more clients, health spas, institutions, parks, state agencies, schools, subdivisions, or the cooperative living-type projects of five or more living units, such as apartments, boardinghouses, hotels, mobile home parks, motels, recreational vehicle parks, and townhouses. The term does not include a swimming pool located on the grounds of a private residence.

**"Recirculation system"** means the system of piping and mechanics designed to remove the water from the pool then filter, disinfect and return it to the pool.

**"Slip resistant"** means having a textured surface which is not conducive to slipping under contact of bare feet unlike glazed tile or masonry terrazzo and non-textured plastic materials. Manufactured surface products shall be designated by the manufacturer as suitable for walking surfaces in wet areas.

**"Spa pool"** means a pool used in conjunction with high-velocity air or water.

**"Special purpose pool"** means a public pool used exclusively for a specific, supervised purpose, including springboard or platform

diving training, SCUBA diving instruction, and aquatic programs for persons with disabilities, preschool or kindergarten children.

“Swimming pool slide” is a slide designed by its manufacturer to discharge over the sidewall of a swimming pool.

“Swim spa” is a pool used in conjunction with a directional flow of water against which one swims.

“Wading pool” means a shallow pool designed to be used by children.

“Water recreation attraction” means a facility with design and operational features that provide patron recreational activity and purposefully involves immersion of the body partially or totally in the water. Water recreation attractions include water slides, river rides, water course rides, water activity pools, interactive water features, wave pools and any additional pool within the boundaries of the attraction.

“Water activity pool” means a water recreation attraction which has water-related activities such as rope ladders, rope swings, cargo nets and other similar activities.

“Water slides” means a water recreation attraction ride which is characterized by having trough-like or tubular flumes or chutes.

“Water theme park” means a complex with controlled access, a fenced and gated attraction where guests enter through a limited number of entrances upon purchase of a ticket. These facilities are permanent and consist of multiple water recreation attractions. Lifeguards are present during all operating hours.

“Water therapy facilities,” as that term is used in Section 514.0115, Item 1, *Florida Statutes*, are pools used exclusively for water therapy to treat a diagnosed injury, illness or medical condition, wherein the therapy is provided under the direct supervision of a Florida licensed physical therapist, occupational therapist or athletic trainer; pursuant to prescription by a physician or a physician's assistant (PA) licensed pursuant to Chapters 458 or 459, *Florida Statutes*, a podiatrist licensed pursuant to Chapter 461, *Florida Statutes*, or an advanced registered nurse practitioner (ARNP) licensed pursuant to Chapter 464, *Florida Statutes*; and the prescribing physician, PA, podiatrist or ARNP authorizes a plan of treatment justifying use of the pool for health care purposes.

“Wade pool” means a water recreation attraction ride which is characterized by having trough-like or tubular flumes or chutes.

“Wave pool” means a water recreation attraction that is characterized by wave action.

“Wet deck area” means the 4-foot-wide (1219 mm) unobstructed pool deck area around the outside of the poolwater perimeter, curb, ladders, handrails, diving boards, diving towers, or pool slides, waterfalls, water features, starting blocks, planters or lifeguard chairs.

“Zero depth entry pool” means a pool where the pool floor continues to slope upward to a point where it meets the surface of the water and the pool deck.

**424.1.1 Sizing.** The bathing load for conventional swimming pools, wading pools, interactive water features, water activity pools less than 24 inches (610 mm) deep and special purpose pools shall be computed on the basis of one person per 5 gpm (.32 L/s) of recirculation flow. The bathing load for spa type pools shall be based on one person per each 10 square feet (.9 m<sup>2</sup>) of surface area. The filtration system for swimming pools shall be capable of meeting all other requirements of these rules while providing a flow rate of at least 1 gpm (.06 L/s) for each living unit at transient facilities and 3/4 gpm (.04 L/s) at nontransient facilities. Recreational vehicle sites, campsites and boat slips designated for live-aboards shall be considered a transient living unit. For properties with multiple pools, this requirement includes the cumulative total gpm of all swimming pools, excluding spas, wading pools and interactive water features. All other types of projects shall be sized according to the anticipated bathing load and proposed uses. For the purpose of determining minimum pool size only, the pool turnover period used cannot be less than 3 hours.

#### **424.1.2 Swimming pool construction standards.**

**424.1.2.1 Pool structure.** Pools shall be constructed of concrete or other impervious and structurally rigid material. All pools shall be watertight, free from structural cracks and shall have a nontoxic smooth and slip-resistant finish. All materials shall be installed in accordance with manufacturer's specifications unless such specifications violate Chapter 64E-9, *Florida Administrative Code*, rule requirements or the approval criteria of NSF/ANSI Standard 50 or NSF/ANSI Standard 60. (a) Floors and walls shall be white or pastel in color and shall have the characteristics of reflecting rather than absorbing light. Tile used in less than 5 feet (1524 mm) of water must be slip resistant. A minimum 4-inch (102 mm) tile line, each tile a minimum size of 1 inch (25 mm) on all sides, shall be installed at the water line, but shall not exceed 12 inches (305 mm) in height if a dark color is used. Gutter type pools may substitute 2-inch (51 mm) tile, each a minimum size of 1 inch (25 mm) on all sides, along the pool wall edge of the gutter lip. (b) One-inch (25 mm) square tile may be used if the licensed contractor provides a signed written certification to the approving department engineer that the adhesive used on the one-inch (25 mm) square tile has a manufacturer's tested shear strength of at least 250 psi (1724 kPa) and the manufacturer has specified the adhesive for use underwater to adhere the type of tile used [vitreous (glass) or ceramic]. Tiles shall not have sharp edges exposed that could cause bather injury.

#### **424.1.2.2 Dimensions.**

##### **SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY**

**424.1.2.2.1 Dimensional standards.** Dimensional standards for competition type pools shall be those published by the National Collegiate Athletic Association, 1990; Federation Internationale de Natation Amateur (FINA), 1998-2000 Handbook; 1998-1999 Official Rules of Diving & Code Regulation of United States Diving Inc.; 1998 United States Swimming Rules and Regulations, and National Federation of State High School Associations, 1997-1998, which are incorporated by reference in this code.

**424.1.2.2.2 Walls and corners.** All poolwalls shall have a clearance of 15 feet (4572 mm) perpendicular to the wall (as measured at design water level from gutter lip to gutter lip, or on skimmer pools, from vertical wall to vertical wall). Offset steps spa coves, spa pools and wading pools are exempt from this clearance requirement. Where interior steps protrude into the pool resulting in less than 15 feet (4572 mm) of clearance from any wall, such protrusion shall not exceed 6 feet (1828mm) on any perpendicular line from a tangent to any pool wall from which the steps emanate. The upper part of pool walls in areas 5 feet deep or less shall be within 5 degrees (4572 mm) vertical for a minimum depth of 21/2 feet (762 mm) from which point the wall may join the floor with a maximum radius equal to the difference between the pool depth and 21/2 feet. The upper part of pool walls in areas over 5 feet deep shall be

within 5 degrees vertical for a minimum depth equal to the pool water depth minus 21/2 feet (762 mm) from which point the wall may join the floor with a maximum radius of 21/2 feet (762 mm). Corners shall be a minimum 90-degree angle. The corner intersections of walls which protrude or angle into the pool water area shall be rounded with a minimum radius of 2 inches (51 mm). This radius shall be continued through the top of the gutter edge; chamfering is allowed, pool coping shall not overhang into the pool more than 1 1/2 inches (38 mm).

**424.1.2.2.3 Pool floor slope and slope transition.** The radius of curvature between the floor and walls is excluded from these requirements. Multiple floor levels in pools are prohibited.

**424.1.2.2.3.1** Floor slope shall be uniform. The floor slope shall be a maximum 1 unit vertical in 10 units horizontal and a minimum of 1 unit vertical in 40 units horizontal in areas 5 feet (1524 mm) deep or less. The floor slope shall be a maximum 1 unit vertical in 3 units horizontal in areas more than 5 feet (1524 mm) deep.

**424.1.2.2.3.2** Any transition in floor slope shall occur at a minimum of 5 feet (1524 mm) of water depth. A slope transition must have a 2 to 6 inch (51 to 152 mm) wide dark contrasting tile marking across the bottom and must extend up both sides of the pool at the transition point. The marking shall be continuous except for recessing grouting. A slope transition must have a safety line mounted by use of recessed cup anchors, 2 feet (610 mm) before the contrasting marking, towards the shallow end. The safety line shall have visible floats at maximum 7-foot (2134 mm) intervals.

**424.1.2.2.4 Pool depths.** The minimum water depth shall be 3 feet (914 mm) in shallow areas and 4 feet (1219 mm) in deep areas.

#### **424.1.2.3 Markings.**

**424.1.2.3.1 Depth and markings.** Depth and markings shall meet the following criteria: 1. The minimum water depth shall be 3 feet (914 mm) in shallow areas and 4 feet (1219 mm) in deep areas. 2. Permanent depth markings followed by the appropriate full or abbreviated words "FEET," "FT," or "INCHES," "IN," shall be installed in minimum 4-inch-high (102 mm) numbers and letters on a contrasting background. Depth markers shall indicate the actual pool depth, within 3 inches (76 mm), at normal operating water level when measured 3 feet (914 mm) from the pool wall. Symmetrical pool designs with the deep point at the center may be allowed provided a dual marking system is used which indicates the depth at the wall and at the deep point. 3. At a minimum, the markings shall be located on both sides of the pool at the shallow end, slope break, deep end wall and deep point (if located more than five feet from the deep end wall). Depth markings shall be legible from inside the pool and also from the pool deck. The maximum perimeter distance between depth markings is 25 feet (7620 mm). Pool size and geometry may necessitate additional depth marking placements about all sides of the pool to meet this requirement. 4. When a curb is provided, the depth markings shall be installed on the inside and outside or top of the pool curb. When a pool curb is not provided, the depth markings shall be located on the inside vertical wall at or above the water level and on the edge of the deck within 2 feet (610 mm) of the pool water. When open type gutter designs are utilized, depth markers shall be located on the back of the gutter wall. 5. When deck level perimeter overflow systems are utilized, additional depth marking signs shall be posted nearby or placed on adjacent fencing or walls and the size shall be increased so they are recognizable from inside the swimming pool. Alternatively, tile depth markers may be placed at the top of the pool wall just under the water level. Depth markers placed on the pool deck shall be within 3 feet (914 mm) of the water. 6. Those areas of the pool that are not part of an approved diving bowl shall have dark contrasting tile, 4-inch-high (102 mm) "NO DIVING" markings installed along the perimeter of the pool on the top of the pool curb or deck within 2 feet (610 mm) of the pool water with a maximum perimeter distance of 25 feet (7620 mm) between markings. A 6-inch (152 mm) tile with a 4-inch (102 mm) or larger red, international "NO DIVING" symbol may be substituted for the "NO DIVING" markings. 7. All markings shall be tile, except that pools constructed of fiberglass, thermoplastic or stainless steel may substitute other type markings when it can be shown that said markings are permanent and will not fade over time. This exemption does not extend to concrete pools that are coated with fiberglass. Tile alternative examples include stone or manufactured plaques with engraved or sandblasted numbers and characters with permanent paint. Permanent appliqués may be used for fiberglass, thermoplastics or stainless steel pools. All markings installed on horizontal surfaces shall have a slip-resistant finish. Markings shall be flush with the surrounding area where placed and recessed if necessary to provide a smooth finish that will avoid creation of an injury hazard to bathers. Pools that are not conducive to tile can employ other equivalent markings as stated above.

**424.1.2.3.2 Designs or logos.** Any design or logo on the pool floor or walls shall be such that it will not hinder the detection of a human in distress, algae, sediment, or other objects in the pool.

**424.1.2.3.3 Lane markings.** Pools that are not intended to be utilized for officially sanctioned competition may install lap lane markings provided they meet the following criteria: the markings must be 2 to 6 inches (51 to 152 mm) wide, they must terminate 5 feet (1524 mm) from the end wall in a "T" with the "T" bar at least 18 inches (1524 mm) long, they must be placed at 7-foot (2134 mm) intervals on center and be no closer than 4 feet (1219 mm) from any side wall, steps or other obstructions. Floating rope lines associated with lap lanes must not obstruct the entrance or exit from the pool and are prohibited when the pool is open for general use.

**424.1.2.3.4 Targets.** Pools that are not intended for officially sanctioned competition may have a 2 to 6 inch (51 to 152 mm) wide 18-inch by 18-inch (457 mm by 457 mm) targets (+) installed on the pool wall.

**424.1.2.4 Color.** Pool floors and walls shall be white or light pastel in color and shall have the characteristic of reflecting rather than absorbing light.

**Exception:** A dark color may be used if (1) a tile line [minimum 4 inches (102 mm), maximum 12 inches (305 mm)] is installed at the water line or (2) if 2-inch (51 mm) tile is installed along the pool wall edge of the gutter lip for gutter type pools.

**424.1.2.5 Access.** All pools shall have a means of access every 75 feet (22 860 mm) of pool perimeter with a minimum of two, located so as to serve both ends of the pool. In addition, an access point shall be provided at the deep portion, if the deep portion is not at one end of the pool. When the deep portion of the pool is over 30 feet (9144 mm) wide both sides of this area shall have a



means of access. Access shall consist of ladders, stairs, recessed treads or swimouts and may be used in combination. All treads shall have a slip-resistant surface.

**424.1.2.5.1 Ladders.** Ladders shall be of the cross-braced type and shall be constructed of corrosion-resistant materials and be securely anchored into the pool deck. Clearance between the ladder and pool wall shall be between 3 to 6 inches (76 mm to 152 mm). Ladders shall extend at least 28 inches (711 mm) and no more than 40 inches (1016 mm) above the pool deck. Ladder bottom braces shall have intact end caps or bumpers that rest firmly against the pool wall. The top rung of the ladder shall be at or below the water level on open gutter pools and not more than 12 inches (305 mm) below the deck or curb top on all other type pools.

**424.1.2.5.2 Recessed treads.** Recessed treads shall be installed flush with the wall and shall be a minimum five inches wide, 10 inches (254mm) long, with a maximum vertical distance of 12 inches (305 mm) between treads.

**424.1.2.5.3 Stairs.** Stairs shall have a minimum tread width of 10 inches (254 mm) and a maximum width of 48 inches (1219 mm) for a minimum tread length of 24 inches (610 mm) and a maximum riser height of 10 inches (254 mm). Treads and risers between the top and bottom treads shall be uniform to within 1/2 inch (12.7 mm) in width and height. The riser heights shall be measured at the marked step edges and the differences in elevation shall be considered the riser heights. The front 3/4 to 2 inches (19.1 to 51 mm) of the tread and the top 2 inches (51mm) of the riser shall be tile, dark in color, contrasting with the interior of the pool. Tile shall be slip resistant. Bullnose tile that is slip resistant may be used when the 3/4 inch (19 mm) segment is placed on the tread or horizontal surface and the 2-inch (51 mm) segment is placed on the riser or vertical surface. Where the gutter is used as the top step, the tile on the gutter for the width of the steps shall be slip resistant. Vinyl liner and fiberglass pools may use other material for the step edge marking, provided the material is permanent, permanently secured, dark in color, nonfading and slip resistant.

**424.1.2.5.4 Swimouts.** Swimouts shall extend 18 to 24 inches (610 mm) back from the pool wall, shall be 4 to 5 feet (1219 mm to 1524 mm) wide, shall be a maximum of 12 inches (305 mm) below the deck, unless stairs are provided in the swimout, and shall be located only in areas of the pool greater than 5 feet (1524 mm) deep. Pools that do not utilize a continuous perimeter overflow system must provide a wall return inlet in the swimout for circulation. A permanent dark contrasting colored band of tile shall be installed at the intersection of the pool wall and the swimout and must extend 2 inches (51 mm) on the horizontal and vertical surfaces. Tile must be slip resistant. Bullnose tile may be substituted and installed in accordance with Section 424.1.2.5.3 above.

**424.1.2.5.5 Handrails and grabrails.** Handrails shall be provided for all stairs, shall be anchored in the bottom step and the deck. Where "figure 4" deckmounted type handrails are used, they shall be anchored in the deck and extend laterally to any point vertically above the bottom step. Grabrails must be mounted in the pool deck at each side of recessed steps. Handrails and grabrails shall extend between 28 and 40 inches (711mm and 1016mm) above the step edge and deck.

**424.1.2.5.6 Disabled access.** Permanent or portable steps, ramps, handrails, lifts or other devices designed to accommodate handicapped individuals in swimming pools may be provided. Lifts mounted into the pool deck shall have a minimum four-foot-wide (1219 mm) deck behind the lift mount.

**424.1.2.6 Obstructions.** The pool water area shall be unobstructed by any type structure unless justified by engineering design as a part of the recirculation system. Engineering design and material specifications shall show that such structures will not endanger the pool patron, can be maintained in a sanitary condition and will not create a problem for sanitary maintenance of any part of the pool, pool water, or pool facilities. Structures in accord with the above shall not be located in a diving bowl area or within 15 feet (4572 mm) of any pool wall.

**Exceptions:** 1. Stairs, ladders and ramps, necessary for entrance/exit from the pool are not considered obstructions. 2. Underwater seat benches may be installed in areas less than five feet (1524 mm) deep. Bench seats must be 14 to 18 inches (356 to 457 mm) wide and must have a dark contrasting tile marking on the seat edge extending two inches (51 mm) on the horizontal and vertical surface. Tile shall be slip resistant. Bullnose tile may be substituted and installed in accordance with Section 424.1.2.5.3. Vinyl liner, stainless steel and fiberglass pools may use other material for the bench edge marking as detailed in Section 424.1.2.3.1, Item 7, above, provided the material is permanently secured, dark in color, nonfading and slip resistant. Benches shall not protrude into the 15-foot (4572 mm) clearance requirement of Section 424.1.2.6.

**424.1.2.7 Diving areas.** Diving facilities shall meet the minimum requirements of the FINA dimensions for diving facilities in accordance with the 2005-2009 FINA Handbook and include the following 1. Diving boards or platforms with heights of less than the established standard shall meet the dimensional requirements of the next greater height. 2 Diving boards, platforms and ladders shall have a nonabsorbent, slip-resistant finish and be of sufficient strength to safely carry the anticipated loads. Diving equipment one meter and greater shall have guard rails which extend to the edge of the pool wall. All diving boards over 21 inches (533 mm) from the deck shall be provided with a ladder. Diving boards or platforms shall not be installed on curved walls where the wall enters into the defined rectangular diving area specified in this section. Adjacent platform and diving boards shall be parallel. 3. The location of pool ladders shall be such that the distance from the ladder to any point on a diving board or platform centerline is not less than the plummet to side wall dimension (b) indicated in the FINA standards. Trampoline-type diving facilities are prohibited. 4. Diving targets may be installed in accordance with FINA standards.

#### **424.1.3 Pool appurtenances.**

##### **424.1.3.1 Decks and walkways.**

**424.1.3.1.1 Pool wet decks** shall be constructed of concrete or other nonabsorbent material having a smooth slip-resistant finish. Wet deck area finishes shall be designed for such use and shall be installed in accordance with the manufacturer's specifications. Wooden decks and walkways are prohibited.

**424.1.3.1.2 Pool wet decks** shall be uniformly sloped at a minimum of 2 percent to a maximum of 4 percent away from the pool or to deck drains to prevent standing water. Textured deck finishes that provide pitting and crevices of more than 3/16 inch (4.8 mm)

deep that accumulate soil are prohibited. If settling or weathering occurs that would cause standing water, the original slopes shall be restored or corrective drains installed. When a curb is provided, the deck shall not be more than 10 inches (254 mm) below the top of the curb.

**424.1.3.1.3** Pool wet decks shall have a minimum unobstructed width of four feet (1219mm) around the perimeter of the pool, pool curb, ladders, handrails, diving boards, diving towers and slides.

**424.1.3.1.4** Traffic barriers shall be provided as needed so that parked vehicles do not extend over the deck area.

**424.1.3.1.5** Walkways shall be provided between the pool and the sanitary facilities, and shall be constructed of concrete or other nonabsorbent material having a smooth slip-resistant finish for the first 15 feet (4572 mm) of the walkway measured from the nearest pool water's edge. A hose bibb with a vacuum breaker shall be provided to allow the deck to be washed down with potable water.

**424.1.3.1.6** Ten percent of the deck along the pool perimeter may be obstructed. Obstructions shall have a wet deck area behind or through them, with the near edge of the walk within 15 feet (4572 mm) of the water except approved slide obstructions shall have the near edge of the walk within 35 feet (10 668 mm) of the water. These obstructions must be protected by a barrier or must be designed to discourage patron access. When an obstruction exists in multiple areas around the pool the minimum distance between obstructions shall be 4 feet (1219 mm).

**424.1.3.1.7** Food or drink service facilities shall not be located within 12 feet (3658mm) of the water's edge.

**424.1.3.1.8** The vertical clearance above the pool deck shall be at least 7 feet (2137 mm).

**424.1.3.1.9** All public pools shall be surrounded by a minimum 48 inch (1219 mm) high fence or other approved substantial barrier. The fence shall be continuous around the perimeter of the pool area that is not otherwise blocked or obstructed by adjacent buildings or structures and shall adjoin with itself or abut to the adjacent members. Access through the barrier or fence from dwelling units, such as homes, apartments, motel rooms and hotel rooms, shall be through self-closing, self-latching lockable gates of 48 inch (1219 mm) minimal height from the floor or ground with the latch located a minimum of 54 inches (1372 mm) from the bottom of the gate or at least 3 inches (76mm) below the top of the gate on the pool side. If the self-closing, self-latching gate is also self-locking and is operated by a key lock, electronic opener or integral combination lock, then the operable parts of such locks or openers shall be 34 inches minimum (864 mm) and 48 inches maximum (1219 mm) above the finished floor or ground. Gates shall open outward away from the pool area. A latched, lockable gate shall be placed in the fence within ten feet (3048 mm) of the closest point between the pool and the equipment area for service access. Instead of a fence, permanent natural or man-made features such as bulkheads, canals, lakes, navigable waterways, etc., adjacent to a pool may be permitted as a barrier when approved. When evaluating such barrier features, the applicable governing body may perform onsite inspections, and review evidence, such as surveys, aerial photographs, water management agency standards and specifications, and any other similar documentation to verify at minimum, the following: the barrier feature is not subject to natural changes, deviations or alterations and is capable of providing an equivalent level of protection as that provided by a structure, and the barrier feature clearly impedes, prohibits or restricts access to the pool. Screened pool enclosures must be hardened on the bottom three feet (914 mm). Fencing consideration shall be given to the U.S. Consumer Product Safety Commission (CPSC) Publication, No. 362, March 2005, guidelines available from CPSC.gov; or Sections 424.2.17.1.1 through 424.2.17.1.8. Safety covers that comply with ASTM F 1346-91 (Reapproved 2003), titled *Safety Covers and Labeling Requirements for All Covers for Swimming Pools, Spas and Hot Tubs*, and available from ASTM.org, do not satisfy this requirement.

**424.1.3.2 Bridges and overhead obstructions.** Bridges and overhead obstructions over the pool shall be designed so they will not introduce any contamination to the pool water. The minimum height of the bridge or obstruction shall be at least 8 feet (2438 mm) from the bottom of the pool and at least 4 feet (1219 mm) above the surface of the pool. Minimum 42-inch-high (1067 mm) handrails shall be provided along each side of the bridge. The walking surfaces shall be constructed of concrete or other nonabsorbent material having a smooth slip-resistant finish. Pool coping shall not overhang into the pool more than 1½ inches (38 mm).

#### **423.13 Doors and windows.**

**423.13.1 Doors.** All spaces with an occupant load of six or more students, regardless of use, shall have a door opening directly to the exterior, or as required in the *Florida Fire Prevention Code* as adopted by the State Fire Marshal, in buildings of three stories or less shall have a rescue window opening directly to the exterior, or shall be fully sprinklered. All doors and gates from spaces with an occupant load of six or more students, regardless of use or location, shall swing in the direction of exit travel, shall be of the side hinged type, and shall always be operable from the inside by a single operation and without a key.

**423.13.1.1** Doors for steam rooms, locker rooms, shower rooms and group toilet rooms shall swing in the direction of exit travel, and shall always be operable for exiting from the inside.

**423.13.1.2** No mirrors, draperies, curtains, equipment, furnishings, decorations, or other objects which may confuse, obstruct, or conceal the exit or the direction of exit shall be placed to obstruct a means of egress.

**423.17.6 Sauna and steam rooms.** A "panic" switch to deactivate power to heating equipment shall be provided inside sauna and steam rooms. The panic switch shall also be tied into an alarm or other approved warning device in a supervised space in the area of the sauna and/or steam room. The operation of the switch shall be labeled to indicate the intended function.

#### **423.18 Assembly occupancies in public educational facilities.**

**423.18.1** Occupant capacity for egress shall be in accordance with Table 1004.1.1, except as follows:

**423.18.1.1 Dressing rooms.** Dressing rooms at 20 net square feet (2 m<sup>2</sup>) per person.



## Dressing, Fitting and Locker Rooms ADA Standards 2010

**222.1 General.** Where dressing rooms, fitting rooms, or locker rooms are provided, at least 5 percent, but no fewer than one, of each type of use in each cluster provided shall comply with 803.

**EXCEPTION:** In *alterations*, where it is *technically infeasible* to provide rooms in accordance with 222.1, one room for each sex on each level shall comply with 803. Where only unisex rooms are provided, unisex rooms shall be permitted.

**222.2 Coat Hooks and Shelves.** Where coat hooks or shelves are provided in dressing, fitting or locker rooms without individual compartments, at least one of each type shall comply with 803.5. Where coat hooks or shelves are provided in individual compartments at least one of each type complying with 803.5 shall be provided in individual compartments in dressing, fitting, or locker rooms required to comply with 222.1.

## Sustainability and Industry-Specific Regulations

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(As they pertain to materials, systems, and occupants of your specific *project typology*)

### 1. Energy Efficiency

- Fluorescent and LED lightings as much as possible.
- Floor heating to be used in winter season as needed, more energy efficient than conventional heating systems.
- Natural lighting to be used as much as possible during day hours
- The thick stone of the building naturally insulated the interior from the exterior weather. It keeps the building cool during the summer season and warm during the winter.

### 2. Site & Water

- The building is equipped with a rainwater collection system and cistern that redistributes the collected water through piping into the building for use in flushing toilets, and irrigation of the surrounding landscape, and for the use of the heating and cooling system.
- Excess storm water will be absorbed by the flora and ground surrounding the building.

### 3. Indoor Environmental Quality

- Cross ventilation through operable windows will allow fresh air to circulate inside the building.
- Air conditioning should only be used when extreme heat is experienced inside for the comfort of guests and employees.
- Low VOCs will be considered when selecting interior finishes such as paint, fabrics, carpets, upholstery, sealants, and adhesives.
- The interior spaces will provide the users a safe and comfortable environment.
- The design of interior spaces will allow all sorts of users with different disabilities to travel with ease throughout the facility as well as to enjoy the amenities provided in a comfortable and safe manner.
- The interior environmental quality of the facility will address the aspects of attention restoration theory in order to provide a high quality restorative space for all dimensions of wellness.

### 4. Materials

- Low VOCs will be considered when selecting interior finishes such as paint, fabrics, carpets, upholstery, sealants, and adhesives.
- The great majority of materials will be locally harvested and produced not only to reduce the carbon footprint of transportation, but also to stimulate the local markets.
- The use of local artisans and artists to work the materials and translate them into the intended design, as well as salvage old artifacts, materials and repurpose them to be incorporated into the design of the space.
- The woods used will be selected from sustainable harvested lumberyards, produced in Croatia, and or neighboring countries such as Slovenia.

### 5. Operation & Maintenance

- Operation and maintenance of the facility will be provided by the local work force.
- The facility will not only provide work for the local population, but also provide services for the local consumer.
- The facility should be and feel of the Istrian community, not imported to serve a foreign clientele.

## Universal Design

### PRINCIPLE ONE: Equitable Use

*The design is useful and marketable to people with diverse abilities.*

The facility's aromatic surroundings can be marketed to the blind community as they would be stimulated in response to their senses; smell, touch, hearing. The facility is also marketable to physically disabled populations, because the design has addressed accessibility concerns. The design of the facility is socially equitable because it provides a comfortable and productive environment for the employees of the spa, as well as comfortable, rejuvenating, and relaxing environments for the guests.

### PRINCIPLE TWO: Flexibility in Use

*The design accommodates a wide range of individual preferences and abilities.*

The environment provides a variety of settings ranging in degrees of privacy. In the spa setting, people may feel vulnerable and may prefer to stay to themselves, others may want to socialize. By providing moments of reservation and moments of interaction, the environment becomes flexible to the needs and desires of a variety of guests. Another aspect to consider regarding privacy deals with the level of comfort between genders, when sharing co-ed spaces such as sauna and steam room where people wear limited attire. Responding to the Istrian culture, appropriate attire is required in semi-public spaces at all times, this might come in conflict with foreign visitors where nudity in such facilities is expected.

The spa should also be able to adjust activities depending on the weather and seasons. For example an interior hot pool and exterior cold pool in the summer months could be alternated in winter.

### PRINCIPLE THREE: Simple and Intuitive Use

*Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.*

- Attention Restoration Theory: proposes that people that suffer from mental & emotional fatigue will become restored and regain the ability to pay attention when exposed to nature.
- Kaplan & Kaplan identified a series of factors that afford similar results found in the built environment.
  - Getting away: The use of adaptive re-use allows the users to transport themselves to different time as they experience the historic architecture in modern day comfort.
  - Fascination: The design, the concept, the service, the experience, the surroundings, the ambiance, all work together to create a fascinating journey for the visitor and the employee.
  - Complete involvement: guests and employees should optimally achieve complete involvement in the present moment of the service received or provided. An environment that facilitates providing and receiving services is ideal.
  - Balance of interests & affordances: The environment should provide a balance of stimuli that address a variety of senses and a variety of services to complement the total outcome in a holistic approach to wellness.
  - Natural content: a visual and physical connection to the natural exterior views is fundamental for restoration, relaxation.
  - Moderate complexity: the design should stimulate the user but not confuse them. Easy way-finding and understanding of the surroundings are key elements that allows people to restore their minds and relax physically
  - Presence of focal points: opportunity to display local art of different media in unusual ways to stimulate the visitor and potentially provide a moment for reflection.

### PRINCIPLE FOUR: Perceptible Information

*The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.*

- Material changes will subtly communicate the user of a activity changes, temperature changes, public vs private areas within the facility.

### PRINCIPLE FIVE: Tolerance for Error

*The design minimizes hazards and the adverse consequences of accidental or unintended actions.*

- The design of the space provides an open an airy environment that naturally minimizes hazards.
- By providing handy grab bars in places where users may find the need to hold on
- Providing seating in transition spaces to allow people to rest, reincorporate, or simple relax.
- Adequate material selection throughout the facility in order to prevent slipping, tripping.

**PRINCIPLE SIX: Low Physical Effort**

*The design can be used efficiently and comfortably and with a minimum of fatigue.*

Because of its adjacencies, the user flows through the space participating in the series of intended activities with ease. Different seating arrangements throughout the space allow people to sit and rest when needed or desired. Elevators are available to travel from level to level with ease and minimum fatigue.

**PRINCIPLE SEVEN: Size and Space for Approach and Use**

*Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.*

The design of the spaces take into consideration various body issues regarding size, posture, limited mobility, as well as for mobility aiding devices such as canes, wheelchairs, crutches, etc. Complying with ADA requirements, as well as exceeding them when seen fit to better address the overall command of the environment.

*Please note that the Principles of Universal Design address only universally usable design, while the practice of design involves more than consideration for usability. Designers must also incorporate other considerations such as economic, engineering, cultural, gender, and environmental concerns in their design processes. These Principles offer designers guidance to better integrate features that meet the needs of as many users as possible.*