

2001 California Building Code

California Code of Regulations, Title 24, Part 2, Volume 1

California Building Standards Commission

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SACRAMENTO, CA 95833-2936

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2001 California Building Code

California Code of Regulations
Title 24, Part 2, Volume 1

California Building
Standards Commission

Based on 1997 Uniform
Building Code™



EFFECTIVE
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(For errata and supplements, see History Note Appendix)

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Preface

This document is Part 2 of the official 2001 triennial compilation and publication of the adoptions, amendments, and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part is known as the California Building Code and incorporates by adoption the 1997 edition of the Uniform Building Code® of the International Conference of Building Officials with necessary California amendments.

The California Building Standards Code is published in its entirety every three years by order of the California legislature, with supplements published in intervening years. The California legislature delegated authority to various state agencies, boards, commissions, and departments to create building regulations to implement the state's statutes. These building standards have the same force of law, and take effect 180 days after publication, unless otherwise stipulated. The California Building Standards Code applies to all occupancies throughout the State of California as annotated.

A city, county, or city and county may establish more restrictive building standards reasonably necessary because of local climatic, geological, or topographical conditions. Findings of the local condition(s) and the adopted local building standard(s) must be filed with the California Building Standards Commission to become effective and may not be effective sooner than the effective date of this edition of the California Building Standards Code. Local building standards adopted to be applicable to previous editions of the California Building Standards Code do not apply to this edition without appropriate adoption and the required filing.

To familiarize yourself with the format of this code, it is suggested that users review the following pages:

- *How to Distinguish Model Code Language from California Amendments*
- *Matrix Adoption Tables*

Should you have any questions regarding this code or wish to offer comments toward improving the format, please address your questions and comments to:

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Uniform Building Code Preface

This preface is not adopted by the State of California.

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The *Uniform Building Code*® is dedicated to the development of better building construction and greater safety to the public by uniformity in building laws. The code is founded on broad-based principles that make possible the use of new materials and new construction systems.

The *Uniform Building Code* was first enacted by the International Conference of Building Officials at the Sixth Annual Business Meeting held in Phoenix, Arizona, October 18-21, 1927. Revised editions of this code have been published since that time at approximate three-year intervals. New editions incorporate changes approved since the last edition.

The *Uniform Building Code* is designed to be compatible with related publications to provide a complete set of documents for regulatory use. See the publications list following this preface for a listing of the complete family of Uniform Codes and related publications.

Code Changes. The ICBO code development process has been suspended by the Board of Directors and, because of this action, changes to the *Uniform Building Code* will not be processed. For more information, write to the International Conference of Building Officials, 5360 Workman Mill Road, Whittier, California 90601-2298. An analysis of changes between editions is published in the *Analysis of Revisions to the Uniform Codes*.

Marginal Markings. Solid vertical lines in the margins within the body of the code indicate a change from the requirements of the 1994 edition except where an entire chapter was revised, a new chapter was added or a change was minor. Where an entire chapter was revised or a new chapter was added, a notation appears at the beginning of that chapter. The letter **F** repeating in line vertically in the margin indicates that the provision is maintained under the code change procedures of the International Fire Code Institute. Deletion indicators (◆) are provided in the margin where a paragraph or item listing has been deleted if the deletion resulted in a change of requirements.

Three-Volume Set. Provisions of the *Uniform Building Code* have been divided into a three-volume set. Volume 1 accommodates administrative, fire- and life-safety, and field inspection provisions. Chapters 1 through 15 and Chapters 24 through 35 are printed in Volume 1 in their entirety. Any appendix chapters associated with these chapters are printed in their entirety at the end of Volume 1. Excerpts of certain chapters from Volume 2 are reprinted in Volume 1 to provide greater usability.

Volume 2 accommodates structural engineering design provisions, and specifically contains Chapters 16 through 23 printed in their entirety. Included in this volume are design standards that have been added to their respective chapters as divisions of the chapters. Any appendix chapters associated with these chapters are printed in their entirety at the end of Volume 2. Excerpts of certain chapters from Volume 1 are reprinted in Volume 2 to provide greater usability.

Volume 3 contains material, testing and installation standards.

Metrication. The *Uniform Building Code* was metricated in the 1994 edition. The metric conversions are provided in parenthesis following the English units. Where industry has made metric conversions available, the conversions conform to current industry standards.

Formulas are also provided with metric equivalents. Metric equivalent formulas immediately follow the English formula and are denoted by "For SI:" preceding the metric equivalent. Some formulas do not use dimensions and, thus, are not provided with a metric equivalent. Multiplying conversion factors have been provided for formulas where metric forms were unavailable. Tables are provided with multiplying conversion factors in subheadings for each tabulated unit of measurement.

Chapter 11A HOUSING ACCESSIBILITY

SECTION 1101A [FOR HCD 1/AC] — SCOPE

The application of authority and scope of this chapter are referenced in Section 101.17.9. The provisions of Chapter 11A, applied through HCD 1/AC, are applicable to all covered multifamily dwellings except public use area, public accommodations and other areas that are subject to DSA/AC.

1101A.1 General. Buildings or portions of buildings shall be accessible to persons with disabilities as required by this chapter.

[For DSA/AC] Regulations adopting building standards necessary to implement, interpret or make specific the provisions of Government Code Section 12955.1 (d) shall be developed by the State Architect for public housing. See Section 101.17.11 for application of DSA/AC adopted provisions.

SECTION 1102A [FOR HCD 1/AC & DSA/AC] — DEFINITIONS

For the purpose of this chapter, certain terms are defined as follows:

1102A.1-A ACCESSIBLE for covered multifamily dwellings is the public- or common-use areas of the building that can be approached, entered and used by individuals with physical disabilities. The phrase “readily accessible to and usable by” is synonymous with accessible.

ACCESSIBLE ROUTE OF TRAVEL is a continuous unobstructed path connecting all accessible elements and spaces in an accessible building or facility that can be negotiated by a person with a severe disability using a wheelchair, and that is also safe for and usable by persons with other disabilities.

ACCESSIBILITY is the combination of various elements in a building or area which allows access, circulation and the full use of the building and facilities by persons with physical disabilities.

ADAPTABLE DWELLING UNIT is an accessible dwelling unit within a covered multifamily building as designed with elements and spaces allowing the dwelling unit to be adapted or adjusted to accommodate the user. See Sections 1109A and 1112A.

ASSISTIVE DEVICE is an aid, tool or instrument used by persons with disabilities to assist in activities of daily living. Examples of assistive devices include tongs, knob-turners and oven-rack pusher/pullers.

AUTOMATIC DOOR is a door equipped with a power-operated mechanism and controls that open and close the door automatically upon receipt of a momentary actuating signal. The switch that begins the automatic cycle may be a photoelectric device, floor mat or manual switch.

1102A.2-B BATHROOM is, for the purposes of this chapter, a room which includes a water closet (toilet), lavatory (sink), and/or a bathtub and/or a shower. It does not include single-fixture facilities or those with only a water closet and lavatory. It does include a compartmented bathroom. A compartmented bathroom is one in which the fixtures are distributed among interconnected rooms. A compartmented bathroom is considered a single unit and is subject to the requirements for bathrooms for disabled persons.

BUILDING ENTRANCE ON AN ACCESSIBLE ROUTE is an accessible entrance to a building that is connected by an accessible route to public transportation stops, to parking or passenger loading zones, or to public streets or sidewalks, if available.

1102A.3-C COMMON-USE AREAS are private use areas within multifamily residential facilities where the uses of these areas are limited exclusively to owners, residents and their guests. The areas may be defined as rooms or spaces or elements inside or outside of a building.

COVERED MULTIFAMILY DWELLINGS are all dwelling units in buildings consisting of three or more dwelling units or four or more condominium units. Covered Multifamily Dwellings include dwelling units listed in Section 101.17.9. Dwelling units within a single structure separated by firewalls do not constitute separate buildings.

[For DSA/AC] NOTE: For buildings and complexes containing publicly funded dwelling units, see Section 1111B.5

CROSS SLOPE is the slope that is perpendicular to the direction of travel.

CURB CUT is an interruption of a curb at a pedestrian way, which separates surfaces that are substantially at the same elevation.

CURB RAMP is a sloping pedestrian way, intended for pedestrian traffic, which provides access between a walk or sidewalk to a surface located above or below an adjacent curb face.

DETECTABLE WARNING is a standardized surface or feature built into or applied to walking surfaces or other elements to warn visually impaired persons of hazards in the path of travel. Only approved DSA/AC detectable warning products and directional surfaces shall be installed as provided in the California Code of Regulations (CCR), Title 24, Part 1, Articles 2, 3 and 4. Refer to CCR Title 24, Part 12, Chapter 12-11A and B, for building and facility access specifications for product approval for detectable warning products and directional surfaces.

[For DSA/AC] NOTE: Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect-Access Compliance, for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are for use in residential housing, evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

1102A.4-D DWELLING UNIT is a single unit of residence for a family of one or more persons. Examples of dwelling units covered by this chapter include condominiums, an apartment unit within an apartment building, and other types of dwellings in which sleeping accommodations are provided but toileting or cooking facilities are shared by occupants of more than one room or portion of the dwelling. Examples of the latter include dormitory rooms and sleeping accommodations in shelters intended for occupancy as residences for homeless persons.

1102A.5-E EQUIVALENT FACILITATION is an alternate means of complying with the literal requirements of these standards and specifications that provides access in terms of the purpose of these standards and specifications.

NOTE: 1. See Section 101.2, Purpose.

2. In determining equivalent facilitation, consideration shall be given to means that provide for the maximum independence of persons with disabilities while presenting the least risk of harm, injury or other hazard to such persons or others.

1102A.6-F FACILITY (or FACILITIES) is a building, structure, room, site, complex or any portion thereof, that is built, altered, improved or developed to serve a particular purpose.

1102A.7-G GRAB BAR is a bar for the purpose of being grasped by the hand for support.

1112A.4 [For HCD 1/AC & DSA/AC] Countertops. A minimum linear length of 30 inches (762 mm) of countertop shall be provided for the kitchen sink, and a minimum linear length of 30 inches (762 mm) of countertop shall be provided for a work surface, both of which shall be designed to enable repositioning to a minimum height of 28 inches (711 mm). The sink and work surface may be a single integral unit, or be separate components. The base cabinets directly under sink and work surface counter areas which are designed for repositioning shall be removable to provide clearance for a wheelchair.

EXCEPTIONS: 1. Only 5 percent of the covered multifamily apartment house dwelling units that are required to be accessible are required to comply with the requirements for repositionable countertops. All other covered multifamily dwelling units are exempt.

2. Stone, cultured stone and tiled countertops may be used without meeting the repositioning requirements.

3. In covered multifamily apartment house dwelling units, two 15-inch (381 mm) minimum width breadboards may be provided in lieu of the required 30 inches (762 mm) of countertop work surface.

The sides and back of adjacent cabinets, which may become exposed to moisture or food handling when a countertop is lowered, shall be constructed of durable, nonabsorbent materials appropriate for such uses. Finished flooring shall be installed on the floor beneath such countertop.

1112A.5 [For HCD 1/AC & DSA/AC] Lower Shelving. Lower shelving and/or drawer space shall be provided in the kitchen at a height of no more than 48 inches (1219 mm).

1112A.6 [For HCD 1/AC & DSA/AC] Base Cabinets. In covered multifamily dwelling units required to be accessible, base cabinets directly under kitchen sink counter area, including toeboard and shelving, shall be removable without the use of specialized tools or specialized knowledge to provide clearance for a wheelchair. Finished flooring shall be provided on the floor beneath the countertop.

SECTION 1113A [FOR HCD 1/AC & DSA/AC] — SWIMMING POOLS/DRINKING FOUNTAINS

1113A.1 [For HCD 1/AC & DSA/AC] Swimming Pools. Swimming pools required to be accessible to persons with physical disabilities shall comply with the provisions of Chapters 11B and 31B.

1113A.2 [For HCD 1/AC] Drinking Fountains.

1113A.2.1 Accessible route. If provided in covered multifamily buildings, drinking fountains and water coolers shall be on an accessible route. Wall-mounted and post-mounted cantilevered drinking fountains and water coolers shall have a clear knee space a minimum of 30 inches (762 mm) in width and shall also have a minimum clear floor space 30 inches by 48 inches (762 mm by 1219 mm) to allow a person in a wheelchair to approach the unit facing forward.

1113A.2.2 Water flow. The spout shall provide a flow of water at least 4 inches (102 mm) high so as to allow the insertion of a cup or glass under the flow of water. The force required to activate controls shall be no greater than 5 pound force (lbf) (22.2 N).

SECTION 1114A [FOR HCD 1/AC & DSA/AC] — SIGNS

1114A.1 [For HCD 1/AC & DSA/AC] General. All accessible toilet and bathing facilities shall be identified by the international symbol of accessibility. Signs need not be provided for facilities within an adaptable covered multifamily dwelling unit, or within an accessible patient or guest room.

SECTION 1115A [FOR HCD 1/AC & DSA/AC] — LAUNDRY ROOMS

1115A.1 [For HCD 1/AC & DSA/AC] General. If clothes-washing machines and clothes dryers are provided in covered multifamily buildings or dwelling units, at least one of each type of appliance shall be provided in each laundry area. Laundry rooms serving covered multifamily dwellings are not required to have front-loading clothes washers. Where front-loading clothes washers are not provided, management shall provide assistive devices, on request, if necessary to permit a resident to use a top-loading clothes washer.

SECTION 1116A [FOR HCD 1/AC & DSA/AC] — FLOORING

1116A.1 [For HCD 1/AC & DSA/AC] General. If carpet or carpet tile is used in a common-use area or public-use area on a ground or floor surface, it shall have firm backing or no backing. The maximum pile height shall be 1/2 inch (12.7 mm). 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 the requirements for changes in level.

SECTION 1117A [FOR HCD 1/AC & DSA/AC] — EXTERIOR ROUTES OF TRAVEL

1117A.1 [For HCD 1/AC & DSA/AC] General. When more than one building or facility is located on a site, accessible routes of travel shall be provided between buildings and accessible site facilities. The accessible route of travel shall be the most practical direct route between accessible building entrances, accessible site facilities and the accessible entrance to the site.

1117A.2 [For HCD 1/AC & DSA/AC] Design and Construction. Use the provisions of this chapter and Chapter 10.

1117A.3 [For HCD 1/AC & DSA/AC] Signs. At every primary public entrance and at every major junction along or leading to an accessible route of travel, there shall be a sign displaying the International Symbol of Accessibility. Signs shall indicate the direction to accessible building entrances and facilities.

1117A.4 [For HCD 1/AC & DSA/AC] Curb Ramps.

1117A.4.1 [For HCD 1/AC & DSA/AC] General. Curb ramps shall be constructed at each corner of street intersections and where a pedestrian way crosses a curb. The preferred and recommended location for curb ramps is in the center of the crosswalk of each street corner. Where it is necessary to locate a curb ramp in the center of the curb return and the street surfaces are marked to identify pedestrian crosswalks, the lower end of the curb ramp shall terminate within such crosswalk areas. Curb ramps do not require handrails.

1117A.4.2 [For HCD 1/AC & DSA/AC] Width of curb ramps. Curb ramps shall be a minimum of 4 feet (1219 mm) in width and shall lie, generally, in a single sloped plane, with a minimum of surface warping and cross slope.

1117A.4.3 [For HCD 1/AC & DSA/AC] Slope of curb ramps. The slope of curb ramps shall not exceed 1 unit vertical to 12 units horizontal (8.33% slope). Transitions from ramps to walks, gutters or streets shall be flush and free of abrupt changes, except that curb ramps shall comply with Section 1117A.4.5. The slope of the fanned or flared sides of curb ramps shall not exceed 1 unit vertical to 8 units horizontal (12.5% slope). If a curb ramp is located where pedestrians must walk across the ramp, then it shall have flared sides; the maximum slope of the flare shall be 1 unit vertical in 10 units horizontal (10% slope). Curb ramps with re-

turned curbs may be used where pedestrians would not normally walk across the ramp.

1117A.4.4 [For HCD 1/AC & DSA/AC] Level landing. A level landing 4 feet (1219 mm) deep shall be provided at the upper end of each curb ramp over its full width to permit safe egress from the ramp surface, or the slope of the flared or flared sides of the curb ramp shall not exceed 1 unit vertical to 12 units horizontal (8.33% slope).

1117A.4.5 [For HCD 1/AC & DSA/AC] Beveled lip. The lower end of each curb ramp shall have a 1/2-inch (13 mm) lip beveled at 45 degrees.

1117A.4.6 [For HCD 1/AC & DSA/AC] Finish. The surface of each curb ramp and its flared sides shall be stable, firm and slip-resistant and shall be of contrasting finish from that of the adjacent sidewalk.

1117A.4.7 [For HCD 1/AC & DSA/AC] Detectable warnings. A curb ramp shall have a detectable warning that extends the full width and depth of the curb ramp when the ramp slope is less than 1 unit vertical in 15 units horizontal (6.7% slope). Detectable warnings shall consist of raised truncated domes with a diameter of nominal 0.9 inch (22.9 mm), a height of nominal 0.2 inch (5.08 mm) and a center-to-center spacing of nominal 2.35 inches (59.7 mm) and shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. Warning surfaces shall be of the color yellow conforming to Federal Color No. 33538, as shown in Table IV of Standard No. 595B. Where the color value contrast between the yellow warning and the main walking surface is less than 70 percent, a 1-inch-wide (25 mm) black strip shall separate the yellow warning from the main walking surface. Contrast shall be determined by:

Contrast = [(B1-B2/B1) X 100%] where B1 = light reflectance value (LRV) of the lighter area and B2 = light reflectance value (LRV) of the darker area]. The material used to provide contrast shall be an integral part of the walking surface. The domes may be constructed in a variety of methods, including cast in place or stamped, or they may be part of a prefabricated surface treatment.

Only approved DSA/AC detectable warning products and directional surfaces shall be installed as provided in the CCR, Title 24, Part 1 Articles 2, 3 and 4. Refer to CCR, Title 24, Part 12, Chapter 12-11A and B for building and facilities access specifications for product approval for detectable warning products and directional surfaces.

[For DSA/AC] NOTE: Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect, Access Compliance, for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are for use in residential housing evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

1117A.4.8 [For HCD 1/AC & DSA/AC] Obstructions. Curb ramps shall be located or protected to prevent their obstruction by parked cars. Built-up curb ramps shall be located so that they do not project into vehicular traffic lanes.

1117A.4.9 [For HCD 1/AC & DSA/AC] Diagonal curb ramps. If diagonal (or corner-type) curb ramps have returned curbs or other well-defined edges, such edges shall be parallel to the direction of pedestrian flow. The bottom of diagonal curb ramps shall have 48 inches (1219 mm) minimum clear space as shown in the figures in Chapter 11B. If diagonal curb ramps are provided at marked crossings, the 48-inch (1219 mm) clear space shall be within the markings (see figures in Chapter 11B). If diagonal curb ramps have flared sides, they shall also have at least a

24-inch-long (610 mm) segment of straight curb located on each side of the curb ramp and within the marked crossing (see figures in Chapter 11B).

SECTION 1118A [FOR HCD 1/AC & DSA/AC] — PARKING FACILITIES

1118A.1 [For HCD 1/AC & DSA/AC] Accessible Parking Required. Accessible parking spaces shall be located on the shortest possible accessible route of travel to an accessible building entrance. In facilities with multiple accessible building entrances with adjacent parking, accessible parking spaces shall be dispersed and located near the accessible entrances. When practical, the accessible route of travel shall not cross lanes for vehicular traffic. When crossing vehicle traffic lanes is necessary, the route of travel shall be designated and marked as a crosswalk.

Each lot or parking structure where parking is provided for clients, guests, employees or residents shall provide accessible parking as required by this section. In separate parking structures or lots that do not serve a particular building, parking spaces for physically disabled people shall be located on the shortest possible circulation route to an accessible pedestrian entrance of the parking facility.

If assigned parking is provided at covered multifamily building sites, designated accessible parking at the dwelling unit shall be provided on request of residents with physical disabilities on the same terms and with the full range of choices (e.g., surface parking or garage) provided for other residents, with accessible parking on a route accessible to wheelchairs for at least 2 percent of the covered dwelling units. Signage is not required. When visitor parking is provided, a minimum of 5 percent of the visitor parking shall provide access to grade-level entrances of multifamily dwellings and accessible parking at facilities (e.g., swimming pools) that serve accessible buildings. Visitor parking spaces shall be provided with signage as required by Section 1118A.5. Such sign shall not be blocked from view by a vehicle parked in the space.

1118A.2 [For HCD 1/AC & DSA/AC] Parking Structures. All entrances to and vertical clearances within parking structures shall have a minimum vertical clearance of 8 feet 2 inches (2489 mm) where required for accessibility to parking spaces for persons with physical disabilities.

EXCEPTION: Private garages are exempt from the 8-foot 2-inch (2489 mm) minimum height requirement. Covered parking spaces and parking spaces in common areas shall provide a minimum of 8 feet 2 inches (2489 mm) vertical clearance.

1118A.2.1 [For HCD 1/AC & DSA/AC] Passenger parking. Passenger parking spaces shall not be considered to be passenger loading zones.

1118A.3 [For HCD 1/AC & DSA/AC] Design and Construction. When accessible parking spaces are required by this section, they shall be designed and constructed in accordance with the California Building Code, Title 24, Part 2, commencing with Section 1118A.

1118A.4 [For HCD 1/AC & DSA/AC] Parking Space Size. Parking spaces for persons with physical disabilities shall be located on the shortest possible route to an accessible entrance and shall be sized as follows:

1118A.4.1 [For HCD 1/AC & DSA/AC] Single parking space size. Where single spaces are provided, they shall be 14 feet (4267 mm) wide and outlined to provide a 9-foot (2743 mm) parking area and a 5-foot (1524 mm) loading and unloading access aisle on the passenger side of the vehicle. When more than one space is provided in lieu of providing a 14-foot-wide (4267 mm) space for each

Division II—SITE ACCESSIBILITY

SECTION 1127B — EXTERIOR ROUTES OF TRAVEL

1127B.1 General. Site development and grading shall be designed to provide access to all entrances and exterior ground-floor exits, and access to normal paths of travel, and where necessary to provide access, shall incorporate pedestrian ramps, curb ramps, etc. When more than one building or facility is located on a site, accessible routes of travel shall be provided between buildings and accessible site facilities. The accessible route of travel shall be the most practical direct route between accessible building entrances, accessible site facilities and the accessible entrance to the site.

EXCEPTIONS: 1. Where the enforcing agency determines that compliance with these regulations would create an unreasonable hardship because of topography, natural barriers, etc., an exception may be granted when equivalent facilitation is provided through the use of other methods and materials.

2. In existing buildings, this section shall not apply in those conditions where, due to legal or physical constraints, the site of the project would not allow compliance with these regulations or equivalent facilitation without creating an unreasonable hardship.

NOTE: See Section 101.17.11, Item 4.

1127B.2 Design and Construction. When accessibility is required by this section, it shall be designed and constructed in accordance with this Building Code. See Section 1114B.1 for a list of applicable sections.

1127B.3 Signs. At every primary public entrance and at every major junction along or leading to an accessible route of travel, there shall be a sign displaying the international symbol of accessibility. Signs shall indicate the direction to accessible building entrances and facilities and shall comply with the requirements found in Sections 1117B.5 through 1117B.5.9.

1127B.4 Outside Stairways. Where stairways occur outside a building, refer to Sections 1006.17 of the 1995 California Building Code, 1120A.4.3 and 1133B.4.4.

1127B.5 Curb Ramps.

1. **General.** Curb ramps shall be constructed at each corner of street intersections and where a pedestrian way crosses a curb. The preferred and recommended location for curb ramps is in the center of the crosswalk of each street corner. Where it is necessary to locate a curb ramp in the center of the curb return and the street surfaces are marked to identify pedestrian crosswalks, the lower end of the curb ramp shall terminate within such crosswalk areas. See Figure 11B-20C, Case E.

2. **Width of curb ramps.** Curb ramps shall be a minimum of 4 feet (1219 mm) in width and shall lie, generally, in a single sloped plane, with a minimum of surface warping and cross slope.

3. **Slope of curb ramps.** The slope of curb ramps shall not exceed 1 unit vertical to 12 units horizontal (8.33% slope). Transitions from ramps to walks, gutters, or streets shall be flush and free of abrupt changes, except that curb ramps shall comply with Item 5 below. Maximum slopes of adjoining gutters, road surface immediately adjacent to the curb ramp, or accessible route shall not exceed 1 unit vertical to 20 units horizontal (5% slope) within 4 feet (1219 mm) of the top and bottom of the curb ramp. The slope of the fanned or flared sides of curb ramps shall not exceed 1 unit vertical to 10 units horizontal (10% slope).

4. **Level landing.** A level landing 4 feet (1219 mm) deep shall be provided at the upper end of each curb ramp over its full width to permit safe egress from the ramp surface, or the slope of the fanned or flared sides of the curb ramp shall not exceed 1 unit vertical to 12 units horizontal (8.33% slope).

5. **Beveled lip.** The lower end of each curb ramp shall have a 1/2 inch (13 mm) lip beveled at 45 degrees as a detectable way-finding edge for persons with visual impairment.

6. **Finish.** The surface of each curb ramp and its flared sides shall be stable, firm and slip-resistant and shall be of contrasting finish from that of the adjacent sidewalk.

7. **Border.** All curb ramps shall have a grooved border 12 inches (305 mm) wide at the level surface of the sidewalk along the top and each side approximately 3/4 inch (19 mm) on center. All curb ramps constructed between the face of the curb and the street shall have a grooved border at the level surface of the sidewalk. See Figures 11B-19A and 11B-19B.

8. **Detectable warnings.** A curb ramp shall have a detectable warning that extends the full width and depth of the curb ramp inside the grooved border when the ramp slope is less than 1 unit vertical to 15 units horizontal (6.7% slope). Detectable warnings shall consist of raised truncated domes with a diameter of nominal 0.9 inch (22.9 mm) at the base tapering to 0.45 inch (11.4 mm) at the top, a height of nominal 0.2 inch (5.08 mm) and a center-to-center spacing of nominal 2.35 inches (59.7 mm) in compliance with Figure 11B-23A. "Nominal" here shall be in accordance with Section 12-11A and B-102, State Referenced Standards Code. The detectable warning shall contrast visually with adjoining surfaces, either light-on-dark or dark-on-light. The material used to provide contrast shall be an integral part of the walking surface. The domes may be constructed in a variety of methods, including cast in place or stamped, or may be part of a prefabricated surface treatment.

Only approved DSA/AC detectable warning products and directional surfaces shall be installed as provided in the California Code of Regulations (CCR), Title 24, Part 1, Articles 2, 3 and 4. Refer to CCR Title 24, Part 12, Chapter 12-11A and B, for building and facility access specifications for product approval for detectable warning products and directional surfaces.

NOTE: Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect-Access Compliance for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are for use in residential housing evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

9. **Obstructions.** Curb ramps shall be located or protected to prevent their obstruction by parked cars.

10. **Diagonal curb ramps.** If diagonal (or corner-type) curb ramps have returned curbs or other well-defined edges, such edges shall be parallel to the direction of pedestrian flow. The bottom of diagonal curb ramps shall have 48 inches (1219 mm) minimum clear space as shown in Figure 11B-22 (c) and (d). If diagonal curb ramps are provided at marked crossings, the 48-inch (1219 mm) clear space shall be within the markings (see Figure 11B-20B, Cases C and D). If diagonal curb ramps have flared sides, they shall also have at least a 24-inch-long (610 mm) segment of straight curb located on each side of the curb ramp and within the marked crossing [see Figure 11B-22 (c)].

NOTES: 1. For additional curb details, see Figures 11B-19A and 11B-19B.

2. If distance from curb to back of sidewalk is too short to accommodate ramp and a 4-foot (1219 mm) platform as in Figure 11B-20A, Case A, the sidewalk may be depressed longitudinally as in Figure 11B-20A, Case B, or Figure 11B-20B, Case C, or may be widened as in Figure 11B-20B, Case D.

3. If sidewalk is less than 5 feet (1524 mm) wide, the full width of the sidewalk shall be depressed as shown in Figure 11B-20B, Case C.

of each parking space shall be 18 feet (5486 mm). The words **NO PARKING** shall be painted on the ground within each five-foot (1524 mm) loading and unloading access aisle. This notice shall be painted in white letters no less than 12 inches (154 mm) high and located so that it is visible to traffic enforcement officials. See Figure 11B-18A.

2. **Van space(s).** One in every eight accessible spaces, but not less than one, shall be served by an access aisle 96 inches (2438 mm) wide minimum placed on the side opposite the driver's side when the vehicle is going forward into the parking space and shall be designated van accessible as required by Section 1129B.5. All such spaces may be grouped on one level of a parking structure. The words **NO PARKING** shall be painted on the ground within each eight-foot (2438 mm) loading and unloading access aisle. This notice shall be painted in white letters no less than 12 inches (154 mm) high and located so that it is visible to traffic enforcement officials. See Figure 11B-18B.

3. **Arrangement of parking space.** In each parking area, a bumper or curb shall be provided and located to prevent encroachment of cars over the required width of walkways. Also, the space shall be so located that persons with disabilities are not compelled to wheel or walk behind parked cars other than their own. Pedestrian ways which are accessible to persons with disabilities shall be provided from each such parking space to related facilities, including curb cuts or ramps as needed. Ramps shall not encroach into any accessible parking space or the adjacent access aisle. This maximum cross slope in any direction of an accessible parking space and adjacent access aisle shall not exceed 2%.

EXCEPTIONS: See Figures 11B-18A through 11B-18C.

1. Where the enforcing agency determines that compliance with any regulation of this section would create an unreasonable hardship, a variance or waiver may be granted when equivalent facilitation is provided.

2. Parking spaces may be provided which would require a person with a disability to wheel or walk behind other than accessible parking spaces when the enforcing agency determines that compliance with these regulations or providing equivalent facilitation would create an unreasonable hardship.

NOTE: See Section 101.17.11, Item 4.

4. **Slope of parking space.** Surface slopes of accessible parking spaces shall be the minimum possible and shall not exceed 1 unit vertical to 50 units horizontal (2% slope) in any direction.

1129B.5 Identification of Parking Spaces for Off-Street Parking Facilities. Each parking space reserved for persons with disabilities shall be identified by a reflectorized sign permanently posted immediately adjacent to and visible from each stall or space, consisting of a profile view of a wheelchair with occupant in white on dark blue background. The sign shall not be smaller than 70 square inches (4516 mm²) in area and, when in a path of travel, shall be posted at a minimum height of 80 inches (2032 mm) from the bottom of the sign to the parking space finished grade. Signs may also be centered on the wall at the interior end of the parking space at a minimum height of 36 inches (914 mm) from the parking space finished grade, ground or sidewalk. Spaces complying with Section 1129B.4, Item 2 shall have an additional sign stating "Van-Accessible" mounted below the symbol of accessibility.

An additional sign shall also be posted in a conspicuous place at each entrance to off-street parking facilities, or immediately adjacent to and visible from each stall or space. The sign shall not be less than 17 inches by 22 inches (432 mm by 559 mm) in size with lettering not less than 1 inch (25 mm) in height, which clearly and conspicuously states the following:

"Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or license plates issued for persons with disabilities may be towed away at owner's expense. Towed vehicles may be reclaimed at _____ or by telephoning _____."

Blank spaces are to be filled in with appropriate information as a permanent part of the sign.

In addition to the above requirements, the surface of each accessible parking space or stall shall have a surface identification duplicating either of the following schemes:

1. By outlining or painting the stall or space in blue and outlining on the ground in the stall or space in white or suitable contrasting color a profile view depicting a wheelchair with occupant; or
2. By outlining a profile view of a wheelchair with occupant in white on blue background. The profile view shall be located so that it is visible to a traffic enforcement officer when a vehicle is properly parked in the space and shall be 36 inches high by 36 inches wide (914 mm by 914 mm). See Figures 11B-18A through 11B-18C.

SECTION 1130B — PARKING STRUCTURES

All entrances to and vertical clearances within parking structures shall have a minimum vertical clearance of 8 feet 2 inches (2489 mm) where required for accessibility to accessible parking spaces.

EXCEPTIONS: 1. Where the enforcing agency determines that compliance with Section 1130B would create an unreasonable hardship, an exception may be granted when equivalent facilitation is provided.

2. This section shall not apply to existing buildings where the enforcing agency determines that, due to legal or physical constraints, compliance with these regulations or equivalent facilitation would create an unreasonable hardship. See Section 101.17.11, Item 4.

SECTION 1131B — PASSENGER DROP-OFF AND LOADING ZONES

1131B.1 Location. When provided, passenger drop-off and loading zones shall be located on accessible route of travel.

1131B.2 Passenger Loading Zones.

1. **General.** Where provided, one passenger drop-off and loading zone shall provide an access aisle at least 60 inches (1524 mm) wide and 20 feet (6096 mm) long adjacent and parallel to the vehicle pull-up space. Such zones shall be located on a surface with a slope not exceeding 1 unit vertical in 50 units horizontal (2% slope). If there are curbs between the access aisle and the vehicle pull-up space, a curb ramp shall be provided.

2. **Vertical Clearance.** Provide minimum vertical clearance of 114 inches (2896 mm) at accessible passenger loading zones and along at least one vehicle access route to such areas from site entrances and exits.

1131B.3 Valet Parking. Valet parking facilities shall provide a passenger loading zone complying with Section 1131B.2 above and shall be located on an accessible route to the entrance of the facility. The parking space requirements of Sections 1129B through 1130B apply to facilities with valet parking.

1131B.4 Bus Stop Pads and Shelters. Where provided, provide bus stop pads 96 inches (2438 mm) long (measured parallel to curb or road edge) to the maximum extent allowed by legal or site constraints. Bus stop pads shall connect to an accessible route. Newly constructed bus stop pads must provide a square curb sur-

face between the pad and road or other detectable warning in accordance with Section 1133B.8.5.

NOTE: Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect-Access Compliance, for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are used in residential housing evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

Bus stop pads shall be at same slope as roadway in the direction parallel to roadway, and maximum 2 percent slope perpendicular to roadway.

Where provided, provide bus stop shelters installed so as to permit a wheelchair user to enter the shelter and access a clear floor area of 30 by 48 inches (762 mm by 1219 mm), completely within the shelter. Bus stop shelters shall connect to an accessible route and to bus stop pads. Only approved DSA/AC detectable warning products and directional surfaces shall be installed as provided in the California Code of Regulations (CCR), Title 24, Part 1, Articles 2, 3 and 4. Refer to CCR Title 24, Part 12, Chapter 12-11A and B, for building and facility access specifications for product approval for detectable warning products and directional surfaces.

NOTE: Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect-Access Compliance, for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are for use in residential housing, evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

SECTION 1132B — OUTDOOR OCCUPANCIES

1132B.1 General. Outdoor occupancies shall be accessible as required in this chapter. See also the general requirements listed in Section 1114B.1.1.

1132B.2 Parks and Recreational Areas. The following parks and recreational areas shall comply with these regulations.

EXCEPTIONS: 1. In existing buildings, when the enforcing agency determines that compliance would create an unreasonable hardship, a variance shall be granted when equivalent facilitation is provided.

2. Where the enforcing agency finds that, in specific areas, the natural environment would be materially damaged by compliance with these regulations, such areas shall be subject to these regulations only to the extent that such material damage would not occur.

3. Automobile access shall not be provided or paths of travel shall not be made accessible when the enforcing agency determines that

compliance with these regulations would create an unreasonable hardship.

1. **Campsites.** Campsites, a minimum of two and no fewer than three for each 100 campsites provided, shall be accessible by level path or ramp and shall have travel routes with slopes not exceeding 1 unit vertical in 12 units horizontal (8.33% slope) to sanitary facilities. Permanent sanitary facilities serving campgrounds shall be accessible to wheelchair occupants.

2. **Beaches, picnic areas.** Beaches, picnic areas, day-use areas, vista points and similar areas shall be accessible.

3. **Sanitary facilities.** Sanitary facilities, to the extent that such facilities are provided, each public use area that is accessible to wheelchair occupants by automobile, walks or other paths of travel.

4. **Boat docks.** Boat docks, fishing piers, etc., shall be accessible.

5. **Parking lots.** Parking lots shall be provided with accessible parking spaces and with curb cuts leading to all adjacent walks, paths or trails.

6. **Trails and paths.** Trails, paths and nature walk areas, or portions of these, shall be constructed with gradients which will permit at least partial use by wheelchair occupants. Hard surface paths or walks shall be provided to serve buildings and other functional areas.

7. **Nature trails.** Nature trails and similar educational and informational areas shall be accessible to the blind by the provision of rope guidelines, raised Arabic numerals and symbols for identification, information signs, and related guide and assistance devices.

NOTE: For museums, orientation buildings, visitor centers, office buildings, retail stores, restaurants, etc., and sanitary facilities serving these uses, see Sections 1104B through 1111B and sections listed in Section 1114B.1.1.

1132B.3 Highway Rest Areas. The specific standards of accessibility for highway rest areas and similar facilities shall be as follows in Section 1132B.3.1, subject to other provisions in these regulations.

1132B.3.1 Permanent facilities. At least one kind of permanent functional area or facility, as applicable, shall be accessible to persons with disabilities, including:

- 1. A sanitary facility for each sex.
- 2. At least one picnic table and one additional table for each 20 tables, or fraction thereof provided.
- 3. Information and display areas.
- 4. Drinking fountains.
- 5. At least one parking space.
- 6. Curb ramps conforming to Section 1127B.5 shall be provided at pedestrian ways where appropriate.

NOTE: Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect-Access Compliance, for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are for use in residential housing evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

1133B.8.4 Detectable directional texture at boarding platforms. At transit boarding platforms, the pedestrian access shall be identified with a detectable directional texture. This detectable directional texture shall comply with Figure 11B-23B and shall be 0.1 inch (2.54 mm) in height that tapers off to 0.04 inch (1.02 mm), with bars raised 0.2 inch (5.08 mm) from the surface. The raised bars shall be 1.3 inches (33.02 mm) wide and 3 inches (76 mm) from center-to-center of each bar. This surface shall differ from adjoining walking surfaces in resiliency or sound on cane contact. The color of the directional texture shall comply with Section 1133B.8.3. This surface will be placed directly behind the yellow detectable warning texture specified in Section 1133B.8.3, aligning with all doors of the transit vehicles, where passengers will embark. The width of the directional texture shall be equal to the width of the transit vehicle's door opening. The depth of the texture shall not be less than 36 inches (914 mm).

Only approved DSA/AC detectable warning products and directional surfaces shall be installed as provided in the California Code of Regulations (CCR), Title 24, Part 1, Articles 2, 3 and 4. Refer to CCR Title 24, Part 12, Chapter 12-11A and B, for building and facility access specifications for product approval for detectable warning products and directional surfaces.

NOTE: Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect-Access Compliance, for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are for use in residential housing evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

1133B.8.5 Detectable warnings at hazardous vehicular areas. If a walk crosses or adjoins a vehicular way, and the walking surfaces are not separated by curbs, railings or other elements be-

tween the pedestrian areas and vehicular areas, the boundary between the areas shall be defined by a continuous detectable warning which is 36 inches (914 mm) wide, complying with Sections 1133B.8.3 through 1133B.8.5.

Only approved DSA/AC detectable warning products and directional surfaces shall be installed as provided in the California Code of Regulations (CCR), Title 24, Part 1, Articles 2, 3 and 4. Refer to CCR Title 24, Part 12, Chapter 12-11A and B, for building and facility access specifications for product approval for detectable warning products and directional surfaces.

NOTE: Detectable warning products and directional surfaces installed after January 1, 2001, shall be evaluated by an independent entity, selected by the Department of General Services, Division of the State Architect-Access Compliance, for all occupancies, including transportation and other outdoor environments, except that when products and surfaces are for use in residential housing evaluation shall be in consultation with the Department of Housing and Community Development. See Government Code Section 4460.

1133B.8.6 Protruding objects.

1133B.8.6.1 General. Objects projecting from walls (for example, telephones) with their leading edges between 27 inches (686 mm) and 80 inches (2032 mm) above the finished floor shall protrude no more than 4 inches (102 mm) into walks, halls, corridors, passageways or aisles. Objects mounted with their leading edges at or below 27 inches (686 mm) above the finished floor may protrude any amount. Free-standing objects mounted on posts or pylons may overhang 12 inches (305 mm) maximum from 27 inches (686 mm) to 80 inches (2032 mm) above the ground or finished floor. Protruding objects shall not reduce the clear width of an accessible route or maneuvering space. See Figure 11B-7A.

1133B.8.6.2 Head room. Walks, halls, corridors, passageways, aisles or other circulation spaces shall have 80 inches (2032 mm) minimum clear head room. See Figure 11B-7A.

1133B.8.6.3 Free-standing signs. Wherever signs mounted on posts or pylons protrude from the posts or pylons and the bottom edge of the sign is at less than 80 inches (2032 mm) above the finished floor or ground level, the edges of such signs shall be rounded or eased and the corners shall have a minimum radius of 0.125 inches.

