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**PART A**

**ADMINISTRATION  
AND SCOPE**

**521 CMR 1.00: AUTHORITY**

- 1.1** **521 CMR** is promulgated by the Architectural Access Board pursuant to authority granted by M.G.L. c. 22, § 13A.
- 1.2** Under the provisions of St. 1974, c. 528, § 2, all orders, rules and regulations duly granted by the Board to Facilitate The Use Of Public Buildings By The Physically Handicapped, which were in force immediately prior to the effective date of St. 1974, c. 528, § 2 shall continue to be in force, and the provisions thereof to be enforced until superseded, revised, rescinded or canceled in accordance with the law by the Architectural Access Board.
- 1.3** **521 CMR** supersedes and revises the Rules and Regulations of the Architectural Access Board, designated as **521 CMR 1.00: AUTHORITY** *et se*
- 1.3.1** In the six (6) months following the effective date of the most current version of **521 CMR** , one has the option of complying with either the previous regulations in their entirety or these regulations in its entirety, not a combination of both. The decision of which regulations will be followed must be made before applying for a building permit.

## **521 CMR 2.00: APPLICATION AND ADMINISTRATION**

### **2.1 PURPOSE**

**521 CMR** is designed to make *public buildings* and *facilities accessible* to, functional for and safe for use by *persons with disabilities*.

### **2.2 INTENT**

It is the intent of **521 CMR** to provide *persons with disabilities* full, free and safe use of all *buildings* and *facilities* so that all such persons may have the educational, employment, living and recreational opportunities necessary to be as self-sufficient as possible and to assume full responsibilities as citizens.

### **2.3 VIOLATIONS**

**521 CMR** is deemed to be a specialized code as referred to in M.G.L. c. 143, § 96, the violation of which shall constitute gross negligence for the purpose of M.G.L. c. 112, § 60G, clause (d), and shall be subject to the additional powers granted to the *Board* by M.G.L. c. 22, § 13A.

2.3.1 The *Board* shall receive complaints of non-compliance with any rule or regulation from any person or may receive complaints initiated by its own staff. If the *Board* finds, after notice and opportunity for a hearing, that any person is not in compliance with any rule or regulation, it may issue an order to compel such compliance. Such order may specify the date and the manner by which such person shall cure the noncompliance found by the *Board* and may require that pending the cure of such noncompliance a performance bond be furnished, payable to the Commonwealth, in such penal sum as the *Board* finds reasonable.

2.3.2 In the event that a person fails to cure such noncompliance by the date specified in the *Board's* order, the *Board* shall be empowered, after further hearing, to impose a fine payable to the Commonwealth not to exceed \$1,000 per day per violation for each day of noncompliance that the *Board* finds was without justification.

2.3.3 The *Board* shall also have the power, if it determines that such failure to cure noncompliance is without justification, to bring a complaint before any appropriate licensing or permit granting authority against the license or permit of such person.

2.3.4 The *Board* shall have the authority to issue subpoenas and the power of Local and State Building Inspectors in the enforcement of its rules and regulations, including but not limited to, the right to enter all *public buildings* and *facilities*.

### **2.4 GENERAL CONVENTIONS**

The following conventions apply when using **521 CMR**:

2.4.1 Graphic and other illustrations are provided in **521 CMR** to illustrate a solution only. They are not to be taken as the best solution or the only solution, but are provided to clarify the intent of the written regulations. The written word always prevails, unless otherwise indicated.

2.4.2 Graphic conventions are shown in **Figure 2a**. Dimensions that are not marked minimum or maximum shall comply with **521 CMR 2.4.4**, unless otherwise noted in the text or captions.

**Figure 2a**

Convention	Description
	dimension showing English units (in inches unless otherwise specified) above the line and SI units (in millimeters unless otherwise specified) below the line
	dimension for small measurements
	dimension showing a range with minimum - maximum
<b>min</b>	minimum
<b>max</b>	maximum
<b>&gt;</b>	greater than
<b>≥</b>	greater than or equal to
<b>&lt;</b>	less than
<b>≤</b>	less than or equal to
	boundary of clear floor space or maneuvering clearance
	centerline
	a permitted element or its extension
	direction of travel or approach
	a wall, floor, ceiling or other element cut in section or plan

2.4.3 Words italicized in the text indicate that a definition of that word is provided in **521 CMR 5.00: DEFINITIONS**.

2.4.4 Tolerances on all dimensions, unless otherwise noted, shall not exceed the following:

- a. Dimensions between 0 and 2 inches, (0 mm and 51 mm) inclusive, shall have a maximum tolerance of plus or minus one-eighth (1/8) of an inch (3 mm).
- b. Dimensions more than 2 inches and less than 36 inches (>51 mm and <914 mm) shall have a maximum tolerance of plus or minus one-half (1/2) inch (13 mm).
- c. Dimensions 36 inches or greater (914 mm or >) shall have a maximum tolerance of plus or minus 1 inch (25 mm).
- d. Slopes may not exceed maximums. Slopes shall be measured in 2 foot (610 mm) increments.

Note: Tolerances do not apply where **521 CMR** requires specific “minimum” or “maximum” measurements within the written text or figure.

2.4.5 When a percentage is calculated to determine the number of *accessible elements*, if the number ends in a fraction of five-tenths (.5) or more, the number shall be rounded up to the next whole number. If the number ends in a fraction less than five-tenths (.5), the number shall be rounded down.

2.4.6 When calculating the conversion from inches to millimeters (using 1" = 25.4 mm), if the number ends in a fraction of five-tenths (5/10 or .5) or more, the number shall be rounded up to the next whole number. If the number ends in a fraction less than five-tenths (5/10 or .5), the number shall be rounded down.

## 2.5 REASONABLE MODIFICATIONS

*Reasonable modifications to public use and common use spaces in a multiple dwelling must comply with 521 CMR. Reasonable modifications to an individual unit do not need to comply with 521 CMR.*

2.5.1 Departures from particular technical and scoping requirements of **521 CMR** by the use of other designs and technologies are not permitted without a *variance*, where the alternative designs and technologies used will provide substantially equivalent or greater access and usability of the *facility*.

## 2.6 MAINTENANCE OF ACCESS FEATURES

At all times, accessibility features must be maintained and fully operational. (*i.e. access aisles kept clear at all times, mechanical devices be kept in operating condition, etc.*).

## **521 CMR 3.00: JURISDICTION**

### **3.1 SCOPE**

All work performed on *public buildings or facilities*, including *construction*, *alterations*, *additions*, and changes of use (**521 CMR 3.5, CHANGE IN USE**) shall conform to **521 CMR**, unless otherwise exempt in **521 CMR 3.10, GENERAL EXCEPTIONS**.

3.1.1 To determine the scope of compliance, refer to **521 CMR 3.2, NEW CONSTRUCTION**, and **521 CMR 3.3, EXISTING BUILDINGS OR FACILITIES**. In the absence of jurisdiction by **521 CMR, 780 CMR** (The Massachusetts State Building Code) may apply.

### **3.2 NEW CONSTRUCTION**

All new *construction of public buildings or facilities* shall comply fully with **521 CMR**.

Note: The provisions of **521 CMR 3.2, NEW CONSTRUCTION**, shall apply to existing *buildings or facilities*, which have not been legally occupied and/or used for a period of at least five (5) years.

### **3.3 EXISTING BUILDINGS OR FACILITIES**

All *additions* to, reconstruction, remodeling, and *alterations* or *repairs* of existing *public buildings or facilities*, which may or may not require a building permit, for *spaces* or *elements* which are governed by these regulations, or which are so defined by a state or local inspector, shall be governed by all applicable subsections in **521 CMR 3.00: JURISDICTION**.

Note:

For specific applicability of **521 CMR** to existing *lodging facilities* undergoing renovations, see **521 CMR 33.4, UNITS, SLEEPING ROOMS, BEDS, AND SUITES: MINIMUM NUMBER**.

Note:

For specific applicability of **521 CMR** to existing *multiple dwellings* undergoing renovations, see **521 CMR 34.00: MULTIPLE DWELLINGS**.

Note:

For specific applicability of **521 CMR** to existing medical care *facilities* undergoing renovations; see **521 CMR 37.00: MEDICAL CARE FACILITIES**.

3.3.1 If the work being performed amounts to less than 30 percent of the *full and fair cash value* of the *building or facility* and:

a. if the work costs less than \$100,000, then only the work being performed is required to comply with **521 CMR**

or

b. if the work costs \$100,000 or more, then the work being performed is required to comply with **521 CMR**. In addition, an *accessible entrance* and an *accessible* toilet room, telephone, drinking fountain (if toilets, telephones and drinking fountains are provided) shall also be provided in compliance with **521 CMR**.

Exception:

General maintenance and on-going upkeep of existing, underground *transit facilities* will not trigger the requirement for an *accessible entrance* and toilet unless the cost of the work exceeds \$500,000 or unless work is being performed on the *entrance* or toilet.

Exception:

Whether performed alone or in combination with each other, the following types of *alterations* are not subject to **521 CMR 3.3.1**, unless the cost of the work exceeds \$500,000 or unless work is being performed on the entrance or toilet. (When performing exempted work, a memo stating the exempted work and its costs must be filed with the permit application or a separate building permit must be obtained.)

- a. The construction of *curb cuts* shall comply with **521 CMR 13.00: CURB CUTS**.
  - b. *Alteration* work which is limited solely to electrical mechanical, or plumbing systems; to abatement of hazardous materials; or retrofit of automatic sprinklers **and** does not involve the *alteration* of any *elements* or *spaces* required to be *accessible* under **521 CMR**. Where electrical outlets and controls are altered, they must comply with **521 CMR**.
  - c. Roof repair or replacement, window repair or replacement, repointing and masonry repair work.
  - d. Work relating to septic system repairs, (including Title V, 310 CMR 15.00, improvements).
  - e. *Site improvements*, including but not limited to, landscaping, fencing and *site* utilities.
- 3.3.2 If the work performed, including the exempted work, amounts to 30 percent or more of the *full and fair cash value* of the *building* the entire *building* is required to comply with **521 CMR**.
- a. Where the cost of constructing an *addition* to a building amounts to 30 percent or more of the *full and fair cash value* of the existing *building*, both the *addition* and the existing *building* must be fully *accessible*.
- 3.3.3 No *alteration* shall be undertaken which decreases or has the effect of decreasing accessibility or usability of a *building* or *facility* below the requirements for new *construction*.
- 3.3.4 If *alterations* of single *elements*, when considered together, amount to an *alteration* of a room or *space* in a *building* or *facility*, that *space* shall be made *accessible*.
- 3.3.5 No *alteration* of an existing *element*, *space*, or area of a *building* or *facility* shall impose a requirement for greater accessibility than that which would be required for new *construction*.

### **3.4 PARTIAL APPLICATION**

*Alterations* by a tenant do not trigger the requirements of **521 CMR 3.3.1b** and **521 CMR 3.3.2** for other tenants. However, tenant *alterations*, *repairs*, *construction*, and changes in use falling within **521 CMR 3.3.1b** or **521 CMR 3.3.2**, will trigger compliance with **521 CMR** in areas of *common use*, for the owner(s) of the *building*. *Alterations*, *repairs*, *construction*, and changes in use by the owner(s) falling within **521 CMR 3.3.1b** or **521 CMR 3.3.2**, will trigger full *building* or *facility* compliance with **521 CMR**, including tenant spaces.

- a. In multi-tenant *buildings*, the *full and fair cash value* shall be prorated by the ratio of the square footage of the tenant space to the square footage of the whole *building*.

Example:

Where the whole *building* is 100,000 square feet (9290 m<sup>2</sup>), the *full and fair cash value* is \$1,000,000, and the tenant space is 10,000 square feet (one-tenth (1/10) of the total) (929 m<sup>2</sup>), then the *full and fair cash value* would be one-tenth (1/10) of \$1,000,000 or \$100,000.

- b. If the *Board* determines that such prorating would cause an inequitable result, the *Board* may otherwise calculate the *full and fair cash value* of the tenant space.

### **3.5 CHANGE IN USE**

When the *use* of a *building* changes to one that is open to and used by the public, an *accessible entrance* must be provided, even if no work is being performed. When a portion of a *building* changes *use* to one that is open to and used by the public, then an *accessible route* must be provided from an *accessible entrance* even if no work is being performed.

- 3.5.1 Any *facility* or *building* not used or occupied for a period of two (2) years or more, shall be considered abandoned, and therefore shall be required to comply with requirements of **521 CMR 3.5, CHANGE IN USE**.

Exception:

Changes in *use*, in detached private residential single-family homes where no permitable work or *alterations* are being performed, and the single-family home continues to be occupied by the owner as a residence.

### **3.6 WORK PERFORMED OVER TIME**

When the work performed on a *building* is divided into separate phases or *projects* or is under separate building permits, the total cost of such work in any 36 month period shall be added together in applying **521 CMR 3.3, EXISTING BUILDINGS OR FACILITIES**.

### **3.7 OUTDOOR FACILITIES**

For *facilities* where the primary function areas are outdoors, including but not limited to beaches, parks, picnic areas, playgrounds, and campsites, the *full and fair cash value* shall include the value of the land as well as any *buildings* or *facilities* on the land.

### **3.8 HISTORIC BUILDINGS**

An historic *building* or *facility* that is listed or is eligible for listing in the National or State Register of Historic Places or is designated as historic under appropriate state or local laws may be granted a *variance* by the *Board* to allow alternate accessibility. If a *variance* is requested on the basis of historical significance, then consultation with the Massachusetts Historical Commission is required in order to determine whether a *building* or *facility* is eligible for listing or listed in the National or State Register of Historic Places. The Massachusetts Historical Commission may request a copy of the proposed *variance* request and supporting documentation to substantiate the *variance* request and its

effect on historic resources. A written statement from the Massachusetts Historical Commission is required with the application for *variance*.

### 3.9 TEMPORARY STRUCTURES

*Buildings* or *facilities* that are used for a period of time not to exceed 90 days within any calendar year shall be considered temporary structures, including but not limited to reviewing stands, temporary classrooms, bleacher areas, exhibit areas, temporary banking *facilities*, temporary health screening services, or temporary pedestrian passageways, shall comply with **521 CMR**.

- 3.9.1 Temporary overnight shelters, as defined in **780 CMR**, shall provide at a minimum, an *accessible entrance* and an *accessible* toilet room in compliance with **521 CMR 10.00: ENTRANCES** and **521 CMR 18.00: TOILET ROOMS AND COMPARTMENTS**, regardless of whether other work is performed or a change of use occurs.

### 3.10 GENERAL EXCEPTIONS

*Sites, buildings, facilities, and elements* are exempt from **521 CMR** to the extent specified by the following:

- 3.10.1 *Construction Sites*: Structures and *sites* directly associated with the actual processes of *construction*; including but not limited to, scaffolding, bridging, materials hoists, materials storage, and *construction* trailers, shall not be required to comply with **521 CMR** or to be on an *accessible route*. Portable toilets provided for use exclusively by *construction* personnel on a *construction site* shall not be required to comply with **521 CMR 18.1.1**, or to be on an *accessible route*.
- 3.10.2 *Raised Areas*: Areas raised primarily for purposes of security, life safety, or fire safety, including but not limited to, observation or lookout galleries, prison guard towers, fire towers, or life guard stands shall not be required to comply with **521 CMR** or to be on an *accessible route*.
- 3.10.3 *Air Traffic Control Towers*: An *accessible route* shall not be required to serve the cab and the floor immediately below the cab of an air traffic control tower.
- 3.10.4 *Spaces* accessed only by ladders, catwalks, crawl *spaces*, or freight (non-passenger) elevators, and frequented only by service personnel for *repair* purposes, are exempt. Such *spaces* may include, but are not limited to, elevator pits, elevator penthouses, piping or equipment catwalks.
- 3.10.5 *Machinery Spaces*: *Spaces* frequented only by service personnel for maintenance, *repair*, or occasional monitoring of equipment shall not be required to comply with **521 CMR** or to be on an *accessible route*. *Machinery spaces* include, but are not limited to, elevator pits or elevator penthouses; mechanical, electrical or communications equipment rooms; piping or equipment catwalks; water or sewage treatment pump rooms and stations; electric substations and transformer vaults; and highway and tunnel utility *facilities*.
- 3.10.6 *Single Occupant Structures*: Single occupant structures accessed only by passageways below grade or elevated above standard curb height, including but not limited to, toll booths that are accessed only by underground tunnels, shall not be required to comply with **521 CMR** or to be on an *accessible route*.
- 3.10.7 *Raised Diving Boards and Diving Platforms*: Raised diving boards and diving platforms shall not be required to comply with **521 CMR** or to be on an *accessible route*.

3.10.8 Detached Dwellings: Detached one- and two-family dwellings and accessory structures, and their associated *sites* and *facilities*, are not required to be *accessible*. When a commercial *facility* is located in a private residence (i.e. detached one- and two-family dwellings and accessory structures), the portion of the residence used exclusively in the operation of the commercial *facility* or that portion used both for the commercial *facility* and for residential purposes, shall comply with **521 CMR**.

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## 521 CMR 4.00: APPEAL AND VARIANCE

### 4.1 VARIANCES

Application: An owner or an owner's representative or tenant who thinks that full compliance with **521 CMR** is *impracticable* may apply to the *Board* for a *variance* from **521 CMR**. Application for a *variance* shall be made on a form provided by the *Board* for this purpose, shall contain such information as is required by the *Board*, and shall be signed by the applicant. If a tenant is seeking a *variance*, a letter from the owner of the *building* giving authorization of the *variance* being filed on his/her behalf is required. The application shall also include the required filing fee, via a check/money order made payable to the "Commonwealth of Massachusetts", and all supporting documentation (e.g. plans in 11 inch by 17 inch (280 mm by 432 mm) format, photographs, cost estimates, etc.). The complete package submitted for the *variance* request is also required to be submitted via compact disc to all parties outlined below. The *Board* requires that the "service notice" form provided at the end of the application be completed and notarized, or the application will not be processed. This form provides certification that a copy of the complete application and compact disc has been sent and/or received by the Local Building Inspector, Local Disability Commission (if applicable), and Local Independent Living Center for the city/town that the property in question resides in.

- 4.1.1 *Board* Action: Upon receipt of an application for *variance*, the *Board* shall investigate the matter and may:
- a. grant the application with whatever conditions it deems appropriate or deny the application without a hearing. Any person aggrieved by the *Board's* action may request an adjudicatory hearing within 30 days of the written decision;
  - b. schedule a conference to consider the simplification or clarification of the issues and/or the possibility of an agreement disposing of all or any matters as may aid in the disposition of an adjudicatory proceeding. Those matters agreed upon by the parties shall be electronically recorded and/or reduced to writing and shall be signed by the parties, and shall thereafter constitute a part of the record;
  - c. commence an adjudicatory hearing in accordance with the provisions of M.G.L. c. 30A and 801 CMR 1.02: Informal/Fair Hearing Rules, as stated in the hearing notice.

### 4.2 COMPLAINTS

Initiating a Complaint: Any person who has knowledge or evidence that any other person or entity has not complied or is not complying with **521 CMR**, may complain in writing to the *Board* on a special form available from the *Board*.

- 4.2.1 *Board* Action: Upon receipt of a complaint, the *Board* shall investigate the complaint, and may:
- a. issue a stipulated order indicating the date compliance must be achieved.
  - b. schedule a conference to consider the simplification or clarification of the issues, the possibility of obtaining stipulations and agreements, the possibility of an agreement disposing of all or any of the issues in dispute, and any other matters as may aid in the disposition of an adjudicatory proceeding. Those matters agreed upon by the parties shall be electronically recorded and/or included in a written document and shall be signed by the parties, and shall thereafter constitute a part of the record.
  - c. commence an adjudicatory hearing in accordance with the provisions of M.G.L. c. 30A and 801 CMR 1.02: Informal/Fair Hearing Rules, as stated in the hearing notice.

d. dismiss a complaint at any time after notification to the complainant.

#### **4.3 HEARINGS**

All adjudicatory hearings shall be conducted in accordance with the provisions of M.G.L. c. 30A and 801 CMR 1.02: Informal/Fair Hearing Rules, as stated in the hearing notice.

4.3.1 Hearings will be scheduled within 60 days of the receipt of a request for an adjudicatory hearing unless the *Board* in its discretion extends such time for good cause shown. The *Board* will schedule hearings on two (2) weeks notice unless it deems a shorter period necessary.

4.3.2 When the *Board* deems it necessary and subject to appropriation, the services of an independent expert may be sought.

#### **4.4 REOPENING HEARING, MOTION FOR RECONSIDERATION**

The *Board* on its own motion, or on motion of any applicant, complainant or aggrieved person, may reopen the hearing in order to receive additional evidence which was not reasonably available at the time of the hearing. The request for reopening shall summarize such evidence to be presented.

4.4.1 The *Board* shall notify all persons who testified at or received formal notice of an initial hearing of a decision to reopen a hearing to take further testimony or receive further evidence.

4.4.2 Within ten (10) days from the date the *final decision* is received by the applicant or complainant, an applicant, complainant, or aggrieved person may file a motion for reconsideration, setting forth the grounds or statutory provisions relied upon to sustain the motion.

#### **4.5 APPEALS**

Any party aggrieved by the *final decision* of the *Board* may appeal such decision to State Superior Court in accordance with the provisions of M.G.L. c. 30A, § 14.

#### **4.6 ADVISORY OPINIONS**

Upon written request, the *Board* may issue advisory opinions concerning the interpretation or applicability of **521 CMR**. Advisory opinions issued by the *Board* for specific projects and/or properties may be relied upon by the persons requesting them, as well as by any agency, or official of a city, town, or region.

#### **4.7 PETITION FOR THE ADOPTION OF REGULATIONS**

Any interested person, or such person's attorney, may at any time petition the *Board* to adopt, amend or repeal any regulation.

## 521 CMR 5.00: DEFINITIONS

### 5.1 GENERAL

As used in **521 CMR**, the following words shall have the meaning set forth in **521 CMR 5.00: DEFINITIONS**. The meaning of terms not specifically defined in **521 CMR 5.00: DEFINITIONS**, or in referenced standards, shall be as defined by collegiate dictionaries in the sense that the context implies.

**ACCESS AISLE:** An *accessible* pedestrian space between *elements* such as parking spaces, seating, or desks that provides clearances complying with **521 CMR**.

**ACCESSIBLE:** A *site, building, facility* or portion thereof that complies with **521 CMR** and that can be approached, entered, and used by *persons with disabilities*. When the term "*accessible*" is used, it shall mean both physical and communication access unless otherwise noted in **521 CMR**.

**ACCESSIBLE DWELLING:** Applies to *dwelling units* that contain features that provide, at the time of initial *construction*, full accessibility without need for further modification.

**ACCESSIBLE ELEMENT:** An *elements* complying with **521 CMR** that can be used by *persons with disabilities* (for example, telephone, controls, appliances, equipment and the like).

**ACCESSIBLE MEANS OF EGRESS:** An *accessible route* of egress travel that complies with **521 CMR** from any *accessible* point in a *building* or *facility* to a public way, and does not include stairs, steps, or escalators. *Areas for assisted rescue* or evacuation elevators may be included as part of *accessible means of egress*.

**ACCESSIBLE ROUTE:** A continuous, unobstructed path that complies with **521 CMR**.

**ACCESSIBLE SPACE:** *Space* that complies with **521 CMR** and that can be used by *persons with disabilities*.

**ADAPTABILITY:** The ability of certain *building* spaces and *elements*, such as kitchen counters, sinks, and grab bars, to be added or altered so as to accommodate the needs of persons with or without disabilities or with different types or degrees of disability.

**ADDITION:** An extension or increase in floor area or height of a *building* or structure.

**ADMINISTRATIVE AUTHORITY:** A governmental agency that adopts or enforces regulations for the design, *construction*, or *alteration* of *buildings* and *facilities*.

**ALTERATION:** A change to a *building* or *facility* that affects or could affect the usability of the *building* or *facility* or portion thereof. *Alterations* include, but are not limited to, remodeling, renovation, rehabilitation, reconstruction, historic restoration, resurfacing of *circulation paths* or *vehicular ways*, changes or rearrangement of the structural parts or *elements*, and changes or rearrangement in the plan configuration of walls and full-height partitions.

**AMUSEMENT ATTRACTION:** Any *facility*, or portion of a *facility*, located within an amusement

park or theme park which provides amusement without the use of an amusement device. *Amusement attractions* include, but are not limited to, fun houses, barrels, and other attractions without seats.

**AMUSEMENT RIDE:** A system that moves persons through a fixed course within a defined area for the purpose of amusement.

**AMUSEMENT RIDE SEAT:** A seat that is built-in or mechanically fastened to an *amusement ride* intended to be occupied by one (1) or more passengers.

**AREA FOR ASSISTED RESCUE:** An exterior area adjacent to an exit discharge, where the exit discharge is not *accessible*.

**AREA OF REFUGE:** An area where persons unable to use stairways can remain temporarily to await instructions or assistance during emergency evacuation.

**AREA OF SPORT ACTIVITY:** That portion of a room or *space* where the play or practice of a sport occurs.

**ASSEMBLY AREA:** A *building* or *facility*, or portion thereof, used for the purpose of entertainment, educational or civic gatherings, or similar purposes. For the purposes of these requirements, *assembly areas* include, but are not limited to, classrooms, lecture halls, courtrooms, meeting rooms, hearing rooms, legislative chambers, movie theaters, auditoriums, theaters, playhouses, dinner theaters, concert halls, centers for the performing arts, amphitheaters, arenas, stadiums, grandstands, bleachers, or convention centers. *Assembly areas* shall also include, but not be limited to, churches, chapels, temples, synagogues, mosques and other house of worship or religious *facilities*.

**ASSISTIVE LISTENING SYSTEM (ALS):** An amplification system utilizing transmitters, receivers, and coupling devices to bypass the acoustical space between a sound source and a listener by means of induction loop, radio frequency, infrared, or direct-wired equipment.

**AUTOMATIC DOOR:** A door equipped with a power-operated mechanism and controls which open and close the door automatically. The switch that begins the automatic cycle may be a photoelectric device, floor mat, or manual switch (*see: power-assisted door*).

**BALCONY:** A platform that projects from the wall of a *building*.

**BATHROOM:** A *space* or a series of interconnected *spaces* that contain a toilet, sink, and bathtub or shower.

**BOARD:** The Architectural Access Board within the Department of Public Safety, Commonwealth of Massachusetts.

**BOARDING PIER:** A portion of a pier where a boat is temporarily secured for the purpose of embarking or disembarking.

**BOAT LAUNCH RAMP:** A sloped surface designed for launching and retrieving trailered boats and other water craft to and from a body of water.

**BOAT SLIP:** That portion of a pier, main pier, finger pier, or float where a boat is moored for the purpose of berthing, embarking, or disembarking.

**BRAILLE:** A standardized system for communicating in writing with persons who are blind. Grade II *Braille* is standard literary *Braille*. Standard dimensions for literary *Braille* are as follows: Dot diameter: .059 inches (1.5 mm); Inter-dot spacing: .090 inches (2.3 mm); Horizontal separation between cells: .241 inches (6.1 mm); and Vertical separation between cells: .395 inches (10 mm).

**BRIDGE PLATE:** An *element* which makes the final transition between a fixed or floating platform and a vehicle or vessel.

**BUILDING:** A structure enclosed within exterior walls or fire walls (as defined in **780 CMR**), built, erected and framed in a combination of any materials, whether portable or fixed having a roof, to form a structure for the shelter of persons, animals or property. For the purposes of this definition, "roof" shall include an awning or similar covering, whether or not permanent in nature. The word "*building*" shall be construed where the context requires, as though followed by the words "or part or parts thereof". For application of **521 CMR**, each portion of a *building* which is separated from any other portions by fire walls (as defined in **780 CMR**) and is not dependent on the existing *building* for *accessible elements* shall be considered as a separate *building*.

**CATCH POOL:** A pool or designated section of a pool used as a terminus for water slide flumes.

**CHILDREN'S USE:** Describes *spaces* and *elements* specifically designed for use primarily by people 12 years old and younger.

**CIRCULATION PATH:** An exterior or interior way of passage provided for pedestrian travel, including but not limited to, *walks*, hallways, courtyards, elevators, platform lifts, *ramps*, stairways, and landings.

**CLEAR:** Unobstructed.

**CLEAR FLOOR OR GROUND SPACE:** The minimum unobstructed *level* floor or ground *space* required to accommodate a single, stationary wheelchair and occupant. .

**CLUSTER:** A group of rooms proximate to one another; generally, within sight of, or adjacent to, one another.

**COMMON USE:** Interior or exterior *circulation paths*, rooms, *spaces*, or *elements* that are not for *public use* and are made available for the shared use of two (2) or more people.

**COMMUTER RAIL:** Short-haul passenger service operating in metropolitan and suburban areas, whether within or across geographical boundaries of a state, usually characterized by reduced fare, multiple ride, and commutation tickets, and by morning and afternoon peak period operations. This term does not include light or *rapid rail* transportation.

**COMPLEX:** Multiple housing developed on one (1) or more *sites* by a single entity, which is or will be covered by a single mortgage contract for permanent financing or was originally constructed or acquired under one (1) contract for financial assistance for new *construction* or acquisition. A *complex* is comprised of the whole of one (1) or more residential structures and appurtenant structures, equipment, roads, *walks*, and parking lots which a single entity owns, within a municipality.

**CONSTRUCTION:** Work for which a building permit is required, work determined to be *construction* by a state or local building inspector, or work for which a certificate of occupancy is necessary upon completion.

**CROSS SLOPE:** The slope that is perpendicular to the *running slope* and the direction of travel.

**CURB CUT:** A short *ramp* cutting through a curb.

**DETECTABLE WARNING:** A standardized surface feature built in or applied to walking surfaces or other *elements* to give warning of hazards on a *circulation path*.

**DORMITORY:** A *space* in a *building* where group *sleeping accommodations* are provided in one (1) room, or in a series of closely associated rooms, for persons not members of the same family group, under joint occupancy and single management, including, but not limited to, college *dormitories* or fraternity houses.

**DWELLING:** Any *building* that contains one or two *dwelling units* used, intended, or designed to be built, used, rented, leased, let or hired out to be occupied, or that are occupied for living purposes. Residential *dwelling*s do not include *lodging facilities*, inpatient medical care, licensed long-term care, and detention or correctional *facilities*.

**DWELLING UNIT:** A single unit providing complete, independent living *facilities* for one (1) or more persons, including permanent provisions for living, sleeping, eating, cooking and sanitation.

**ELEMENT:** An architectural or mechanical component of a *building, facility, space* or *site*, e.g., telephone, *curb cut*, door, drinking fountain, seating, or toilet.

**ELEVATED PLAY COMPONENT:** A *play component* that is approached above or below grade and that is part of a composite play structure consisting of two (2) or more *play components* attached or functionally linked to create an integrated unit providing more than one (1) play activity. *Play components* that are attached to a play structure and can be approached from a platform or deck (e.g., climbers and overhead *play components*) are considered *elevated play components*.

**ENTRANCE:** Any access point to a *building* or portion of a *building* or *facility* used for the purpose of entering into a level of *occupiable space* within a *building* or *facility*. An *entrance* includes the approach *walk*, stairs, lifts, *ramp* or other vertical access leading to the *entrance* platform; the *entrance* platform itself; vestibules, if provided; the entry door(s) or gate(s); and the hardware of the entry door(s) or gate(s).

**FACILITY:** All or any portion of *buildings*, structures, *site improvements*, *elements*, *complexes*, equipment, *vehicular ways*, pedestrian routes, parking lots, or other real or personal property located on a *site*.

**FINAL DECISION:** Determination of the *Board*, arrived at after consideration of the facts brought to its attention in accordance with **521 CMR**.

**FULL AND FAIR CASH VALUE :** The assessed valuation of a *building* (not including the land) as recorded in the Assessor's Office of the municipality at the time the building permit is issued as equalized at 100 percent valuation. The 100 percent equalized assessed value shall be based upon Massachusetts Department of Revenue's determination of the particular city's or town's assessment ratio.

Example:

Town X has an assessment ratio of 40 percent; the particular *building* in question is assessed at \$200,000.00. To determine the equalized assessed value of this *building*, divide \$200,000.00 by 0.4. The equalized assessed value equals \$500,000.00.

Exceptions:

- a. If no assessed value exists, or the assessed value is more than three (3) years old, a request to substitute the appraised value may be submitted to the *Board*. The request to use the appraised value must be submitted by a certified appraiser or for transit *facilities*, either a certified appraiser or an independent registered professional engineer and must be submitted prior to obtaining a building permit for the *project*.
- b. The value of *multiple dwellings* owned or financed by public sector agencies, local housing authorities, Massachusetts Housing Finance Agency, or the Department of Housing and Urban Development shall be determined by *replacement cost*.
- c. The value of *buildings* owned, constructed, or renovated by the Commonwealth of Massachusetts shall be determined by the *replacement cost*.

**GANGWAY:** A variable-sloped pedestrian *walkway* that links a fixed pier or land to a floating vessel or dock, or which is fixed to a floating structure.

**GOLF CAR PASSAGE:** A continuous passage on which a motorized golf car can operate.

**GROUND LEVEL PLAY COMPONENT:** A *play component* that is approached and exited at the ground level.

**GROUND FLOOR:** The floor of a *building* closest to the level of the exterior grade and any floor within 36 inches (914 mm) of an exterior grade at some or all of its perimeter. *Buildings* on sloped *sites* may have more than one (1) *ground floor*. For *multiple dwellings* with a garage, *multi-story unit* or commercial *space* at grade level, the first floor of *dwelling units* above the garage, *multi-story unit* or commercial *space* shall be considered the *ground floor*.

**HALF BATH/HALF BATHROOM:** A *space* with a toilet and a sink.

**IMPRACTICABLE/IMPRACTICABILITY:**

- a. Compliance with **521 CMR** would be technologically unfeasible; or
- b. Compliance with **521 CMR** would result in excessive and unreasonable costs without any substantial benefit to *persons with disabilities*.

**LEVEL:** Sloped a maximum of one-to-fifty (1:50) (2 percent).

**LIGHT RAIL:** A *light rail* vehicle is a streetcar type vehicle operated on city streets, semi-exclusive rights of way, or exclusive rights of way.

**LIPPAGE:** The variation in height between adjoining paving units.

**LODGING FACILITY:** A *building, facility*, or portion thereof, excluding inpatient medical care *facilities*, which contains one (1) or more *dwelling units* or *sleeping accommodations*, not intended for permanent residence. A *lodging facility* may also include a *building* or portion thereof where lodgings are let to four (4) or more persons not within second degree of kindred to the persons operating the *facility*.

**MAILBOX:** Receptacle(s) for the receipt of documents, packages, or other deliverable matter. *Mailboxes* include, but are not limited to, post office boxes and receptacles provided by commercial mail-receiving agencies, apartment *facilities*, or schools.

**MARINE FACILITIES:** *Marine facilities* shall include, but not be limited to, piers, docks, wharves, bulkheads, seawalls, and any other fixed manmade structures at the land/water interface, and floating structures including barges, floating docks, and rafts which provide access from the water's edge to floating vessels including, but not limited to boats, ships, ferries, or any other form of waterborne transportation.

**MARKED CROSSING:** A crosswalk or other identified path intended for pedestrian use in crossing a *vehicular way*.

**MEDICAL EQUIPMENT:** Equipment and furniture that includes but is not limited to the following: examination tables, examination chairs, lift equipment, scales, radiologic and diagnostic equipment, dental chairs, ophthalmology equipment, and any other equipment used in the medical context for the provision of health care services to patients, including in diagnosis, treatment and rehabilitation.

**MEZZANINE OR MEZZANINE FLOOR:** An intermediate level between the floor and ceiling of any *story* with an aggregate floor area of not more than 33 percent of the floor area of the *story* in which the level is located.

**MULTI-STORY UNIT:** A *dwelling unit* or sleeping unit with habitable space located on more than one (1) *story*.

**MULTIPLE DWELLING:** A *building* or part of a *building* for hire, rent, lease, or sale, containing three (3) or more *dwelling units*.

**NOMINAL MARINE CONDITIONS:** Denotes a condition in the marine environment where physical *facilities* are unmoved by the effects of wind, waves, wakes, currents, and weather conditions.

**OCCUPIABLE:** A room or enclosed *space* designed for human occupancy in which individuals congregate for amusement, education or similar purposes, or in which occupants are engaged in labor, and which is equipped with means of egress, light, and ventilation.

**OPERABLE PART:** A part of a piece of equipment or appliance used to insert or withdraw objects, or to activate, deactivate, or adjust the equipment or appliance (for example: coin slot, pushbutton, or handle).

**PICTOGRAM:** A pictorial symbol that represents activities, *facilities*, or concepts.

**PERSONS WITH DISABILITIES:** Individuals who experience substantial limitations in one (1) or more major life activities, including but not limited to such functions as performing manual tasks, walking, seeing, hearing, speaking, breathing, learning and working. *Persons with disabilities* shall include but not be limited to those who have the inability to walk, difficulty walking, hearing disabilities, lack of coordination, reaching and manipulation disabilities stamina, difficulty interpreting and reacting to sensory information and extremes in physical size.

**PLAY AREA:** A portion of a *site* containing *play components* designed and constructed for children.

**PLAY COMPONENT:** An *element* intended to generate specific opportunities for play, socialization, or learning. *Play components* are manufactured or natural; and are stand-alone or part of a composite play structure and considered either *ground level play components* or *elevated play components*.

**POWER-ASSISTED DOOR:** A door with a mechanism that helps to open the door or that reduces the opening resistance of a door, upon the activation of a switch or a continued force applied to the door itself.

**PROJECT:** See 521 CMR 5.00: Complex

**PROPRIETOR:** One with title to the establishment who owns the entire fee or portion of the entire fee and the consequent right to dispose of the establishment or such fee portion as vested in him or her.

## **PUBLIC BUILDING**

- a. A *building* privately or publicly financed that is open to and used by the public, including but not limited to transportation terminals, institutional *buildings*, educational *buildings*, commercial *buildings*, *buildings* having places of assembly, hotels, motels, dormitories, , *public use* and *common use spaces* of apartment *buildings* and condominiums (*multiple dwellings*), parking lots of 15 or more automobiles, public *sidewalks* and ways, funeral homes, and public rest rooms, and public areas of shopping centers and restaurants.
- b. A *building* constructed by the Commonwealth or any political subdivision thereof with public funds and open to *public use*, including but not limited to those constructed by public housing authorities, the Massachusetts Port Authority, the Massachusetts Parking Authority, the Massachusetts Turnpike

Authority, the Massachusetts Bay Transportation Authority, and building authorities of any public educational institution or their successors.

**PUBLIC USE:** Describes interior or exterior rooms or *spaces* that are made available to the general public. *Public use* may be provided at a *building* or *facility* that is privately or publicly owned.

**RAMP:** A walking surface that has a *running slope* greater than one-to-twenty (1:20) (5 percent) but not greater than one-to-twelve (1:12) (8.3 percent).

**RAPID RAIL:** A subway type transit vehicle railway operated on exclusive private rights of way with high level platforms. *Rapid rail* may be operated on elevated or at grade level track separated from other traffic.

**REASONABLE MODIFICATION:** Physical changes to *multiple dwellings* requested by *persons with disabilities* or their agents to enable full use and enjoyment thereof, as described in M.G. L., c. 151B, § 4(a), or St. 1989, c. 722.

**REPAIR:** The reconstruction or renewal of any part of an existing *building* or *facility* for the purpose of its maintenance.

**REPLACEMENT COST:** Current cost of *construction* and equipment for a newly constructed *building*.

- a. For *multiple dwellings*, *replacement cost* shall be determined by \$73.32 per square foot.
- b. For courthouses, correctional *facilities*, educational *facilities* and other *buildings* (other than *multiple dwellings*) owned, constructed, or renovated by the Commonwealth of Massachusetts, the *replacement cost* shall be determined by and reflected in the Commonwealth's Capital Asset Management Information System (CAMIS) survey and data base, for state owned *buildings*. The Division of Capital Asset Management (DCAM) shall file the CAMIS database, containing the *replacement costs*, with the *Board*. DCAM shall update the *replacement costs* annually as of the first day of January each year, based on the inflation rate determined by R.S. Means, including appropriate adjustments for location and other factors. For *buildings* that are not included in the CAMIS database, but may be renovated by DCAM such as county-owned *facilities*, the *replacement costs* shall be calculated by DCAM based on the *replacement costs* for comparable *facilities* that are included in the CAMIS database. DCAM shall supplement the CAMIS database on file with the *Board*, for any such *building*, by preparing and filing documentation identifying the *replacement cost* for the *building* and how it was calculated.

**RUNNING SLOPE:** The slope that is parallel to the direction of travel and perpendicular to the *cross slope*.

**SERVICE ENTRANCE:** An *entrance* intended primarily for delivery of goods or services.

**SIDEWALK:** A prepared *walk* within a street right of way.

**SIGNAGE:** Displayed verbal, symbolic, *tactile*, and/or pictorial information.

**SITE:** A parcel of land bounded by a property line, or a designated portion of a public right-of-way.

**SITE IMPROVEMENT:** Landscaping, paving for pedestrian and *vehicular ways*, outdoor lighting, recreational *facilities*, and the like, added to a *site*.

**SLEEPING ACCOMMODATIONS:** Rooms in which people sleep; for example, *dormitory* and hotel or motel guest rooms or suites.

**SOFT CONTAINED PLAY STRUCTURE:** A play structure made up of one (1) or more *play components* where the user enters a fully enclosed play environment that utilizes pliable materials, such as plastic, netting, or fabric.

**SPACE:** A definable area, *e.g.*, room, toilet room, hall, *assembly area*, *entrance*, storage room, alcove, courtyard, or lobby.

**SPRING TIDE RANGE:** The *spring tide range* for coastal communities in Massachusetts shall be that number published in “Table 2 – Tidal Difference and other Constants” of the current: *Tide Tables – High and Low Tide Predictions East Coast of North America and South America including Greenland* as published by the U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, National Ocean Service.

**STORY:** That portion of a *building* included between the upper surface of a floor and the upper surface of the floor or roof next above. If such portion of a *building* does not include *occupiable space*, it is not considered a *story* for the purposes of **521 CMR**. There may be more than one (1) floor level within a *story* as in the case of a *mezzanine* or *mezzanines*.

**STRUCTURAL CHANGE:** *Structural change* includes major reconstruction of walls or partitions or relocation of bearing walls or partitions.

**STRUCTURAL FRAME:** The *structural frame* shall be considered to be the columns and the girders, beams, trusses, foundation and spandrels having direct connections to the columns and all other members that are essential to the stability of the *building* as a whole.

**STRUCTURAL STRENGTH:** *Structural strength* of grab bars, shower seats, fasteners and mounting devices shall be as follows:

- a. Bending stress in a grab bar or seat induced by the maximum bending moment from the application of 250 lbs. shall be less than the allowable stress for the material of the grab bar or seat.
- b. Shear stress induced in a grab bar or seat by the application of 250 lbs. shall be less than the allowable shear stress for the material of the grab bar or seat. If the connection between the grab bar or seat and its mounting bracket or other supports is considered to be fully restrained, then direct and torsional shear stresses shall be totaled for the combined shear stress, which shall not exceed the allowable shear stress.
- c. Shear force induced in a fastener or mounting device from the application of 250 lbs. shall be less than the allowable lateral load of either the fastener or mounting device or the supporting structure, whichever is the smaller allowable load.

- d. Tensile force induced in a fastener by direct tension force of 250 lbs. plus the maximum moment from the application of 250 lbs. shall be less than the allowable withdrawal load between the fastener and the supporting structure
- e. Grab bars shall not rotate within their fittings.

**TACTILE:** Describes an object that can be perceived using the sense of touch.

**TACTILE WARNING:** A surface texture applied to or built into walking surfaces or other *elements* to warn visually impaired persons of hazards in the path of travel.

**TEEING GROUND:** In golf, the starting place for the hole to be played.

**TEMPORARY ACCESSIBLE PARKING:** Where there are an insufficient number of *accessible* parking spaces or when permanent *accessible* parking spaces cannot be provided in time for an event, *temporary accessible parking* spaces can be created in permanent paved lots, as well as in dirt lots or fields.

**TEMPORARY CURB RAMP:** When *temporary modifications* are utilized to overcome level changes created by curbs.

**TEMPORARY MODIFICATIONS:** When changes to a *site* are anticipated to be in place for less than 90 days, *temporary modifications* compliant with **521 CMR** must be made.

**TEXT TELEPHONE (TTY):** Technology which employs interactive graphic (*i.e.* typed) communications through the transmission of coded signals across the standard telephone network. These devices are also known as TDD's.

**TOWNHOUSE:** A single family *dwelling unit* constructed in a group of three (3) or more attached units in which each unit extends from foundation to roof and with open *space* (*i.e.* yard or public way) on at least two (2) sides.

**TRANSFER DEVICE:** Equipment designed to facilitate the transfer of a person from a wheelchair or other mobility aid to and from an *amusement ride seat*.

**TRANSIT FACILITY:** A physical structure whose primary function is to facilitate access to and from a transportation system which has scheduled stops at the structure.

**TRANSITION PLATE:** A sloping pedestrian walking surface located at the end(s) of a *gangway*.

**TRANSIT PLATFORM:** A boarding area for rail transit vehicles.

**TYPE A:** Applies to *dwelling units* that have features similar to *Type B*, but have the additional feature of greater floor *space* to accommodate the needs of occupants who need such *space* due to their disability.

**TYPE B:** Applies to *dwelling units* that have features that can be modified without *structural change* to meet the specific functional needs of an occupant with a disability.

**UNASSISTED ACCESS:** *Unassisted access* enables a *person with a disability* to obtain information about and to maneuver a path of travel without the assistance of another person, except at those points and under those conditions under which individuals without disabilities would be in need of assistance from another person. This definition does not restrict the right of a *person with a disability* to request and receive assistance.

**USE:** Purpose for which the *building* or *facility* is designed, used or intended to be used.

**USE ZONE:** The ground area beneath and immediately adjacent to a play structure or play equipment designed for unrestricted circulation around the equipment and on whose surface it is predicted that a user would land when falling from or exiting a play structure or equipment.

**VEHICULAR WAY:** A route intended for vehicular traffic, such as a street, driveway, or parking lot.

**VESSEL LENGTH:** The straight line horizontal measurement of the overall length from the foremost part of the boat to the aftermost part of the boat, measured from end to end over the deck, excluding sheer, and measured parallel to the centerline. Bow sprits, bumpkins, rudders, outboard motor brackets, handles, and other similar fittings, attachments, and extensions are not included in the measurement.

**WALK (WALKWAY):** An interior or exterior pathway with a prepared surface intended for pedestrian use, including but not limited to general pedestrian areas such as plazas, courts and crosswalks.

**VARIANCE:** Modification of or substitution for a Rule or Regulation.

**ZONE OF REACH:** An operable mechanism is within reach if it meets either criterion outlined in **521 CMR 6.5, Forward Reach**, or **521 CMR 6.6, Side Reach**.

# **PART B**

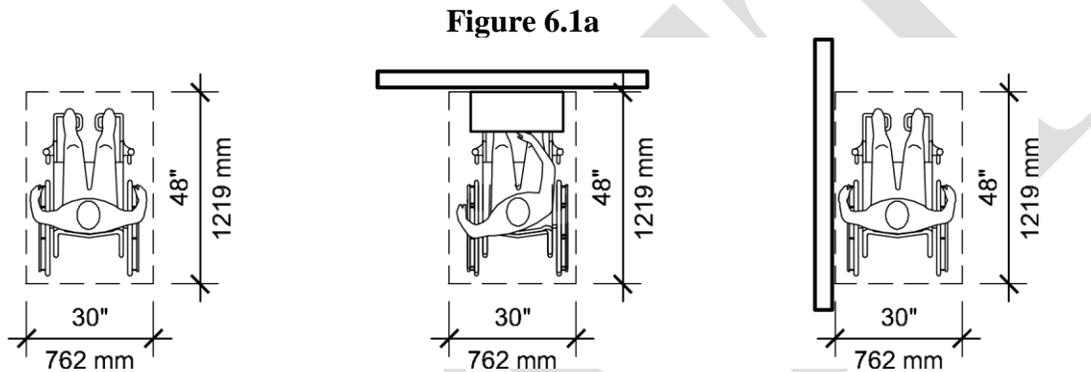
# **BUILDING BLOCKS**

**521 CMR 6.00: SPACE ALLOWANCE AND REACH RANGES**

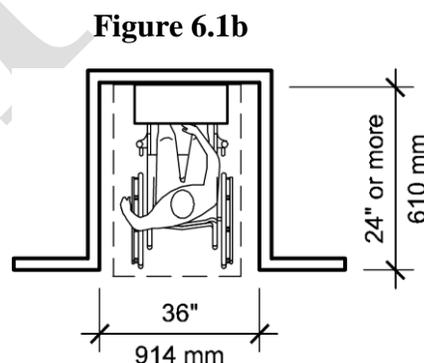
**6.1 CLEAR FLOOR OR GROUND SPACE FOR WHEELCHAIRS**

Shall comply with the following:

- a. The minimum *clear floor or ground space* required to accommodate a single, stationary wheelchair and occupant is 30 inches by 48 inches (762 mm by 1219 mm) (). The minimum *clear floor or ground space* for wheelchairs may be positioned for forward or parallel approach to an object (). See **Figure 6.1a**.

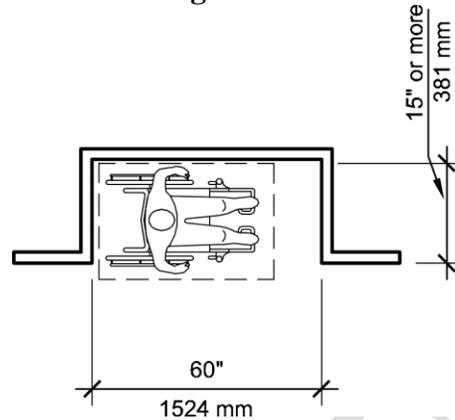


- b. One (1) full unobstructed side of the *clear floor or ground space* for a wheelchair shall adjoin or overlap an *accessible route* or adjoin another wheelchair *clear floor or ground space*. If a *clear floor or ground space* is located in an alcove or otherwise confined on all or part of three (3) sides, additional maneuvering clearances shall be provided as shown in **See Figures 6.1c and 6.1d**.
- c. Forward Approach: Alcoves shall be 36 inches (914 mm) wide minimum where the depth exceeds 24 inches (610 mm). See **Figure 6.1b**.



- d. Parallel Approach: Alcoves shall be 60 inches (1524 mm) wide minimum where the depth exceeds 15 inches (381 mm). See **Figure 6.1d**.

**Figure 6.1c**



e. *Clear floor or ground space* for wheelchairs shall comply with **521 CMR 7.00: GROUND AND FLOOR SURFACES**.

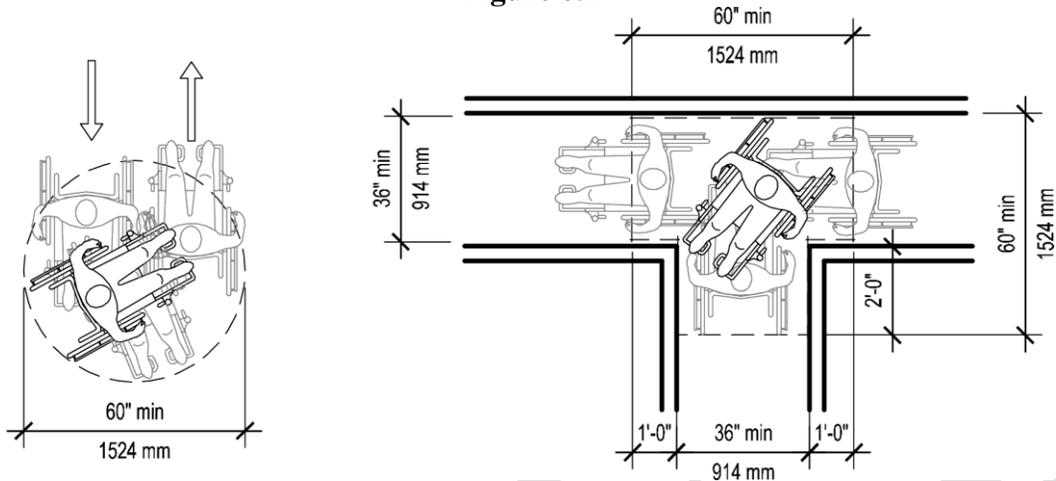
6.1.1 Unless otherwise specified, *clear floor or ground space* shall be permitted to include knee and toe clearances, **521 CMR 6.3, Knee Clearances**, and **521 CMR 6.4, Toe Clearances**.

## **6.2 WHEELCHAIR TURNING SPACE**

The *space* required for a wheelchair to make an 180-degree turn is 60 inches (60" = 1524mm) in diameter (See **Fig. 6.2**) or a T-shaped *space*, per **521 CMR 6.2.1**. Unless otherwise indicated, doors shall be permitted to swing into wheelchair turning spaces, and the turning *space* shall be permitted to include knee and toe clearances, compliant with **521 CMR 6.3, Knee Clearances** and **521 CMR 6.4, Toe Clearances**.

6.2.1 The T-shaped *space* shall be within a square of 60 inches (1524 mm) minimum, with arms and base 36 inches (914 mm) minimum in width. Each arm of the "T" shall be *clear* of obstructions for 12 inches (305 mm) minimum in each direction, and the base shall be *clear* of obstruction for a minimum of 24 inches (610 mm). See **Figure 6.2**.

**Figure 6.2**

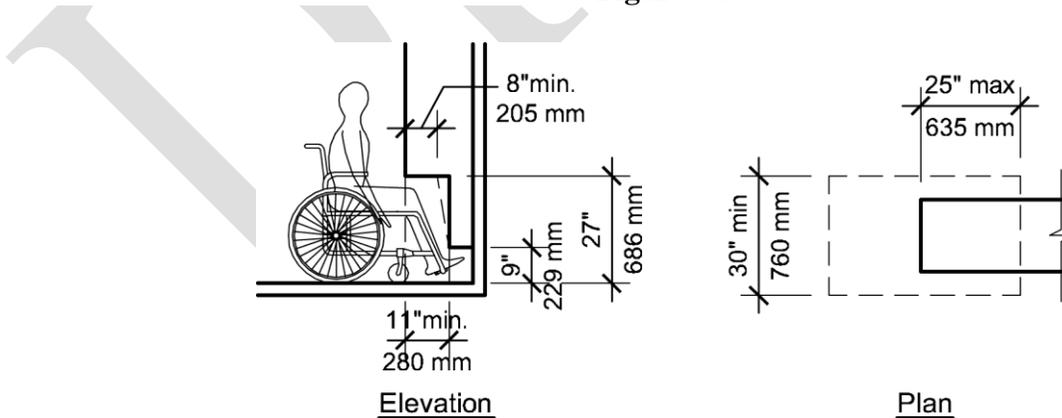


**6.3 Knee Clearances**

Space under an *element* between 9 inches (229 mm) and 27 inches (686 mm) above the finish floor or ground shall be considered knee clearance and shall comply with the following:

- a. Knee clearance shall extend a maximum of 25 inches (635 mm).
- b. Where knee clearance is required under an *element* as part of a *clear floor or ground space*, the knee clearance shall be a minimum of 11 inches (280 mm) deep at 9 inches (229 mm) above the finish floor or ground, and 8 inches (203 mm) deep minimum at 27 inches (686 mm) above the finish floor or ground.
- c. Between 9 inches (229 mm) and 27 inches (686 mm) above the floor, the knee clearance shall be permitted to be reduced at a rate of 1 inch (25 mm) for each 6 inches (152 mm) in height.
- d. Knee clearance shall be 30 inches (762 mm) minimum in width.

**Figure 6.3**

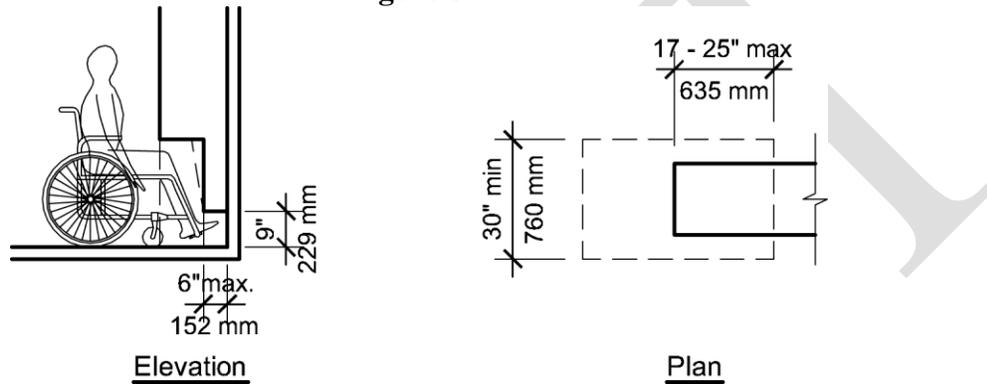


**6.4 Toe Clearances**

Space under an *element* between the finish floor or ground, and 9 inches (229 mm) above the finish floor or ground shall be considered toe clearance and shall comply with the following:

- a. Toe clearance shall extend 25 inches (635 mm) maximum under an *element*.
- b. Where toe clearance is required at an *element* as part of a *clear floor or ground space*, the toe clearance shall extend 17 inches (432 mm) minimum under the *element*.
- c. *Space* extending greater than 6 inches (152 mm) beyond the available knee clearance at 9 inches (229 mm) above the finish floor or ground shall not be considered toe clearance.
- d. Toe clearance shall be 30 inches (762 mm) wide minimum.

**Figure 6.4**

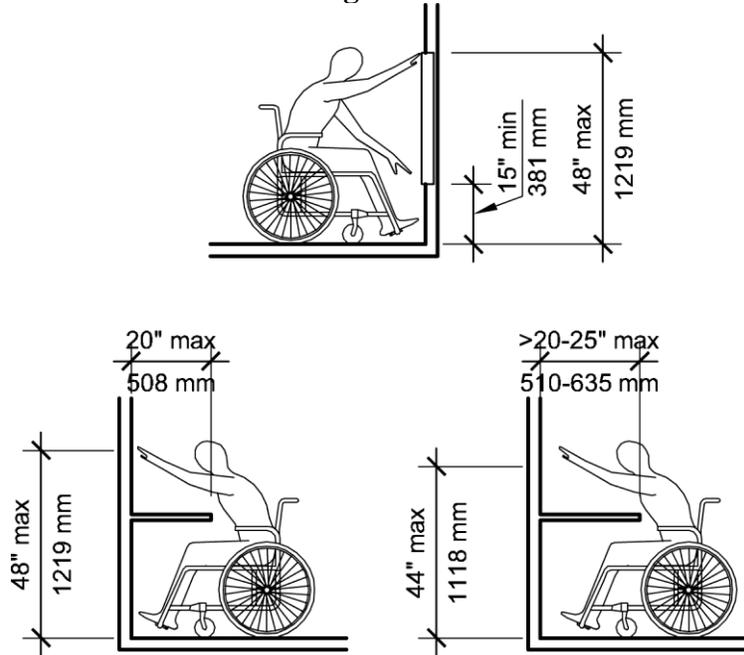


## 6.5 FORWARD REACH

Forward reach ranges shall comply with the following:

- a. If the *clear floor or ground space* only allows forward approach to an object, the maximum high forward reach allowed shall be 48 inches (1219 mm) (See **Fig. 6.5a**). The minimum low forward reach is 15 inches (381 mm). If the high forward reach is over an obstruction, reach and clearances shall comply with **521 CMR 6.5b**.
- b. Where a high forward reach is over an obstruction, the *clear floor or ground space* shall extend beneath the *element* for a distance not less than the required reach depth over the obstruction. The high forward reach shall be 48 inches (1219 mm) maximum where the reach depth is 20 inches (508 mm) maximum. Where the reach depth exceeds 20 inches (508 mm), the high forward reach shall be 44 inches (1118 mm) maximum and the reach depth shall be 25 inches (635 mm) maximum (See **Figure 6.5**).

Figure 6.5



## 6.6 SIDE REACH

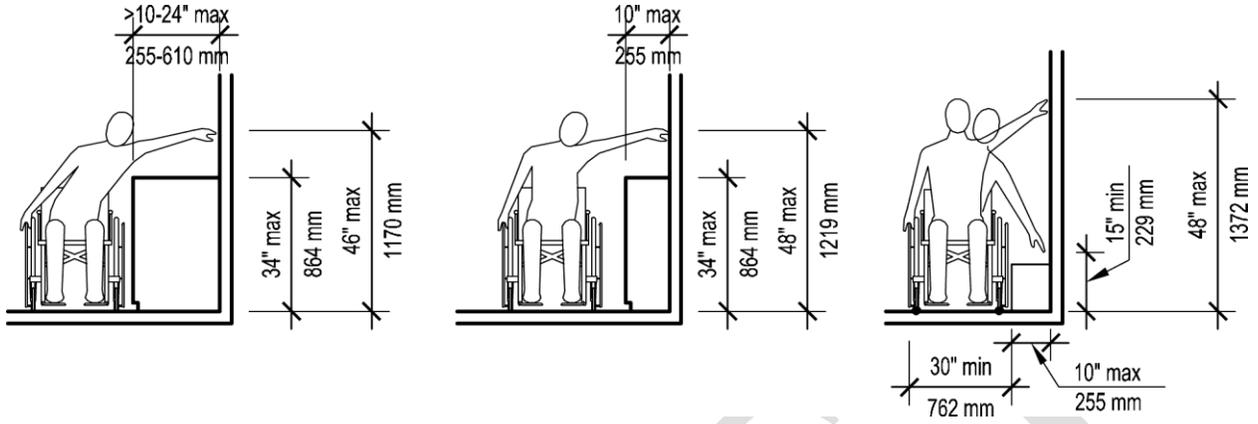
Side reach ranges shall comply with the following:

- a. If the *clear floor or ground space* allows a parallel unobstructed approach by a person in a wheelchair, the maximum high side reach allowed shall be 48 inches (1219 mm) and the low side reach shall be 15 inches (381 mm) minimum above the finish floor or ground (See Fig. 6.6). If the side reach is over an obstruction, the reach and clearances shall comply with **521 CMR 6.6**.

### Exceptions:

1. An obstruction shall be permitted between the *clear floor or ground space* and the *element* where the depth of the obstruction is 10 inches (254 mm) maximum.
  2. *Operable parts* of fuel dispensers shall be permitted to be 54 inches (1372 mm) maximum measured from the surface of the *vehicular way* where fuel dispensers are installed on existing curbs.
- b. Where a *clear floor or ground space* allows a parallel approach to an object and the high side reach is over an obstruction, the height of the obstruction shall be 34 inches (864 mm) maximum and the depth of the obstruction shall be 24 inches (610 mm) maximum. The high side reach shall be 48 inches (1219 mm) maximum for a reach depth of 10 inches (254 mm) maximum. Where the reach depth exceeds 10 inches (254 mm), the high side reach shall be 46 inches (1169 mm) maximum for a reach depth of 24 inches (610 mm) maximum.

**Figure 6.6**



DRAFT

## 7.00: GROUND AND FLOOR SURFACES

### 7.1 GENERAL

Ground and floor surfaces including, but not limited to, floors, *walks*, *ramps*, and *curb cuts* shall be stable, firm, slip resistant, and maintained with materials that ensure continued slip resistance, and shall comply with **Section 7.00: GROUND AND FLOOR SURFACES**.

#### Exceptions:

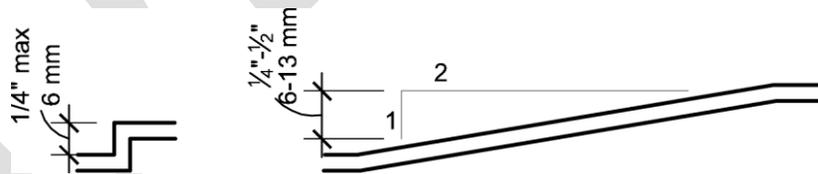
1. Within animal containment areas, floor and ground surfaces shall not be required to be stable, firm, and slip resistant.
2. *Areas of sport activity* shall not be required to comply with **521 CMR 7.00: GROUND AND FLOOR SURFACES**.

### 7.2 LEVEL CHANGES

Ground and floor surfaces shall be of a common *level* throughout, except for the following permitted changes in level.

- 7.2.1 Vertical change in level up to and including one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm) high maximum shall be permitted. See **Figure 7.2**.
- 7.2.2 Changes in level greater than one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm) high maximum and less than one-half ( $\frac{1}{2}$ ) of an inch (13 mm) high maximum shall be beveled with a slope no greater than one-to-two (1:2) (50 percent). See **Figure 7.2**. See also **CMR 521 7.4, Pavers, Paving Stones and Bricks**, for additional restrictions and requirements for surfaces using surface pavers, paving stones, and bricks.
- 7.2.3 Changes in level greater than one-half ( $\frac{1}{2}$ ) of an inch (13 mm) high shall require a *curb cut*, *walkway*, *ramp*, elevator, or platform lift that complies with **521 CMR 9.00: WALKWAYS**, **521 CMR 13.00: CURB CUTS**, **521 CMR 12.00: RAMPS** or **521 CMR 14.00: ELEVATORS**.

**Figure 7.2**



### 7.3 SURFACE FLATNESS

Ground and floor surfaces shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**, in regard to slope and *cross slope*. In addition, all ground and floor surfaces shall comply with the following surface flatness requirements:

- 7.3.1 Ground and floor surfaces shall be constructed to a tolerance of not more than three-eighths ( $\frac{3}{8}$ ) of an inch (10 mm) for exterior surfaces and one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm) for interior surfaces out of true

plane in any single 10 foot (3048 mm) long section of ground or floor surface. This is subject to verification by the use of a 10 foot (3048 mm) long straightedge.

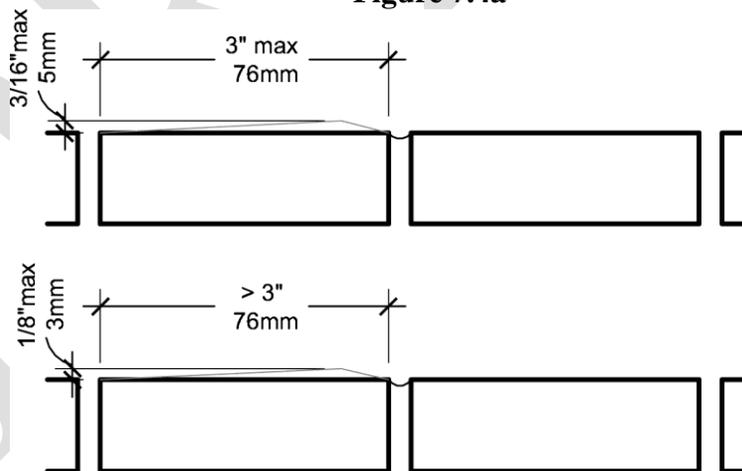
- 7.3.2 The tolerance for surface flatness in the short dimension of *walkways* that are less than 6 feet (1829 mm) in width shall be no more than one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm) out of true plane in this dimension.
- 7.3.3 Where expansion and control joints are needed along *accessible routes*, they shall be saw cut and not exceed one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm) in width. If the joint is between sections of bridges, *buildings* or platforms, the joint may exceed one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm) provided that it is covered in a manner that is firm and minimizes any variations in vertical displacement over time.

#### 7.4 PAVERS, PAVING STONES AND BRICKS

The use of surface paving products such as pavers, paving stones and bricks shall be permitted on *accessible routes*. The use of such products shall be subject to **521 CMR 7.00: GROUND AND FLOOR SURFACES**, and to **521 CMR 7.4, Pavers, Paving Stones and Bricks**, in particular. Irregularly shaped materials that cannot be installed in a manner that meets the following requirements shall not be allowed.

- 7.4.1 Paving products shall have substantially flat top surfaces. “Flatness” for the purposes of this section is defined as: a measurement of the maximum vertical distance from any point on the surface of a paver to a straightedge, when set on the top surface. Flatness of paving products used on an *accessible route* shall be fabricated within the following maximum vertical variation from flat within any individual paver:
  - a. 4 inches (102 mm) and under size: one-eighth ( $\frac{1}{8}$ ) of an inch (3 mm) variation from flat.
  - b. over 4 inches (102 mm): three-sixteenths ( $\frac{3}{16}$ ) of an inch (5 mm) variation from flat. See **Figure 7.4a**.

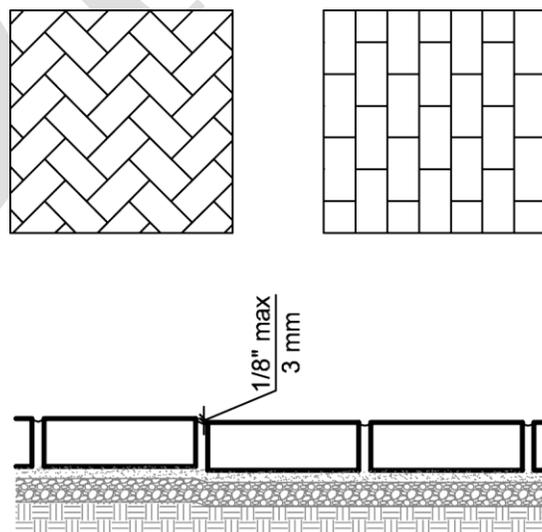
Figure 7.4a



- 7.4.2 Paving products shall be selected and their installation designed and detailed so that horizontal joints between pavers are no greater than one-half ( $\frac{1}{2}$ ) of an inch (13 mm) inclusive of chamfered edges.
- 7.4.3 Setting of paving products shall comply with the following:
  - a. Paving products shall be set so that the *lippage* shall be no greater than one-eighth ( $\frac{1}{8}$ ) of an inch (3 mm) (See **Figure 7.4b**).

- b. Paver setting methods shall be selected and designed so as to minimize *lippage* between adjoining units, and shall allow for vertical adjustment during the setting process so that tolerances are met. While not required, a sand setting bed is encouraged for brick pavers as this method is understood to provide for minimal *lippage*.
- c. Paving products such as cast bricks, which have irregularly shaped sides which prevent stones from being set tight to one another, shall be set slightly apart from one another, approximately one-sixteenth (1/16) of an inch (2 mm). The intent of this requirement is to allow for vertical adjustment between adjoining paver units as outlined above, as well as to provide for frictional vertical interlock between adjoining bricks.
- d. Paving products shall be selected that shall provide appropriate slip resistance when wet. Glossy surfaces are not allowed.
- e. Paving products such as bricks, when rectangular in shape, shall be placed either in a herringbone pattern at 90 degrees to the direction of travel, or, if in a running bond, with the longer side parallel to the direction of travel (See **Figure 7.4b**).
- f. Walking surfaces using pavers, paving stones and bricks shall be designed and installed using physical edge restraint systems such as concrete curbs or borders, non-corrosive metal or plastic angles, or the like. Such edge restraint systems shall be designed to prevent the paving surface from moving horizontally and the joint between pavers opening to beyond allowed tolerances.
- g. Setting methods, substrates, and drainage systems shall be designed and provided as needed to maximize the life of the walking surface and to minimize changes in the quality of the surface over time. Pavers, paving stones and bricks and their supporting substrate shall be installed by qualified and experienced mechanics.
- h. Surfaces using paving products when completed shall also comply with surface flatness requirements as listed in **521 CMR 7.3, Surface Flatness**. Tolerances, as noted, shall apply to any point on the surface, including tolerances on the inherent flatness of the individual paving units as noted in **521 CMR 7.4.1**.

**Figure 7.4b**



## 7.5 CARPET

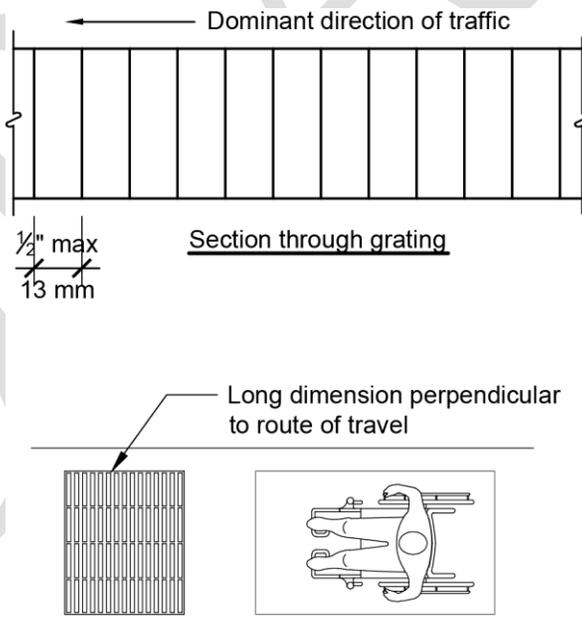
When carpet or carpet tile is used on a ground or floor surface, it shall comply with the following:

- a. Carpet material shall be high density, non-absorbent, and the maximum pile thickness shall be one-half ( $\frac{1}{2}$ ) of an inch (13 mm).
- b. Carpet shall be adhered directly to the floor or shall be stretched tautly and securely fastened to floor surfaces at all edges.
- c. Edges of carpet exposed to traffic shall have trim along the entire length of the exposed edge. Edges perpendicular to the path of travel shall have edging strips no higher than three-eighths ( $\frac{3}{8}$ ) of an inch (10 mm) above the floor and shall have a beveled edge with a slope no greater than one-to-two (1:2) (50 percent).
- d. If padding is installed, it shall not exceed one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm) in thickness and shall be secured taut to the floor.

## 7.6 GRATINGS / OPENINGS

If openings are located in walking surfaces, then they shall have *spaces* no greater than one-half ( $\frac{1}{2}$ ) of an inch (13 mm) wide in one direction, except as allowed in elevators (**521 CMR 14.2.1**), transportation platforms (**521 CMR 30.7.1**), and at track crossings (**521 CMR 30.13**). If gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominant direction of travel. See **Fig. 7.6**.

**Figure 7.6**



# PART C

# ACCESSIBLE ROUTES

## 521 CMR 8.00: ACCESSIBLE ROUTE

### 8.1 GENERAL

An *accessible route* shall connect all *accessible spaces* and *elements* inside and outside a *facility* and shall coincide with the route for the general public. *Accessible routes* may not include stairs, steps, or escalators, even if the stairs and steps are required to be *accessible* under **521 CMR**.

### 8.2 LOCATION

Within the boundary of the *site*, an *accessible route(s)* shall be provided from *accessible parking*, *accessible passenger loading zones*, and public streets or *sidewalks* to the *accessible building entrance* they serve. The *accessible route(s)* shall coincide with the route for the general public.

8.2.1 At least one (1) *accessible route* shall connect *accessible buildings, facilities, elements* and *spaces* that are on the same *site*.

### 8.3 WIDTH

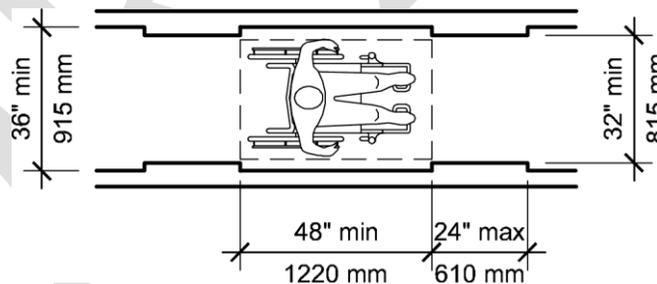
The minimum *clear width* for *accessible routes* shall be as follows:

8.3.1 Interior *accessible route(s)* shall have a minimum *clear width* of 36 inches (914 mm).

#### Exception:

The *clear width* shall be permitted to be reduced to 32 inches (813 mm) minimum for a length of 24 inches (610 mm) maximum, provided that the reduced width segments are separated by segments that are 48 inches (1219 mm) long minimum and 36 inches (914 mm) wide minimum. See **Figure 8.3**.

**Figure 8.3**

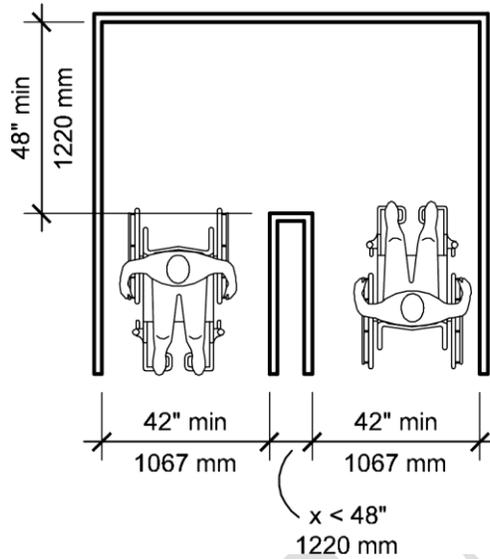


8.3.2 Exterior *accessible route(s)* shall comply with **521 CMR 9.00: WALKWAYS**.

### 8.4 CLEAR WIDTH AT TURNS

Where the *accessible route* makes a 180 degree turn around an object that is less than 48 inches (1220 mm) in width, *clear widths* shall be 42 inches (1067 mm) minimum approaching the turn, 48 inches (1219 mm) minimum during the turn and 42 inches (1067 mm) minimum leaving the turn (See **Figure 8.4a**).

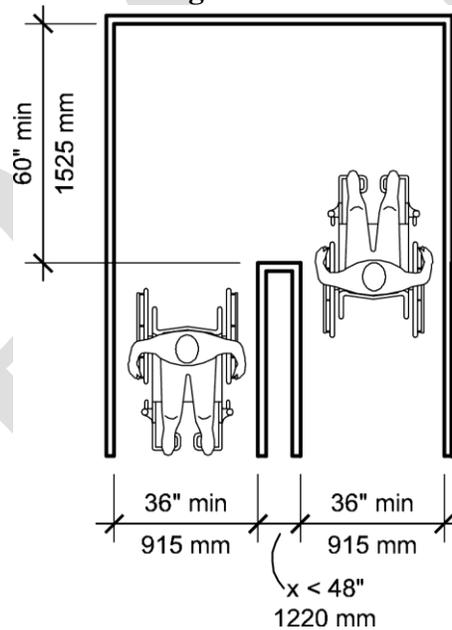
**Figure 8.4a**



Exception:

Where the *clear* width at the turn is 60 inches (1524 mm) minimum (as seen in **Figure 8.4b**), compliance with **521 CMR 8.4, Clear Width at Turns**, shall not apply.

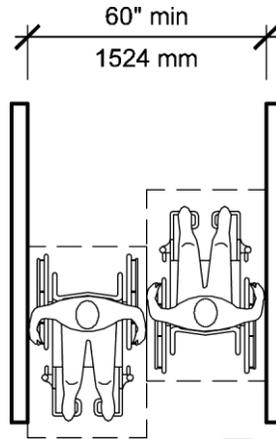
**Figure 8.4b**



**8.5 PASSING SPACES**

The minimum width for two (2) wheelchairs to pass is 60 inches (1524mm). See **Figure 8.5a**.

**Figure 8.5a**



8.5.1 An *accessible route* with a *clear width* less than 60 inches (1524 mm) shall provide a passing space at intervals of 200 feet (60960 mm) maximum. Passing spaces shall be either: a space 60 inches by 60 inches (1524 mm by 1524 mm) minimum; or, an intersection of two (2) walking surfaces providing a T-shaped space complying with **521 CMR 6.2.1** where the base and arms of the T-shaped space extend 48 inches (1219 mm) minimum beyond the intersection. See **Figures 8.5b** and **8.5c**.

**Figure 8.5b**

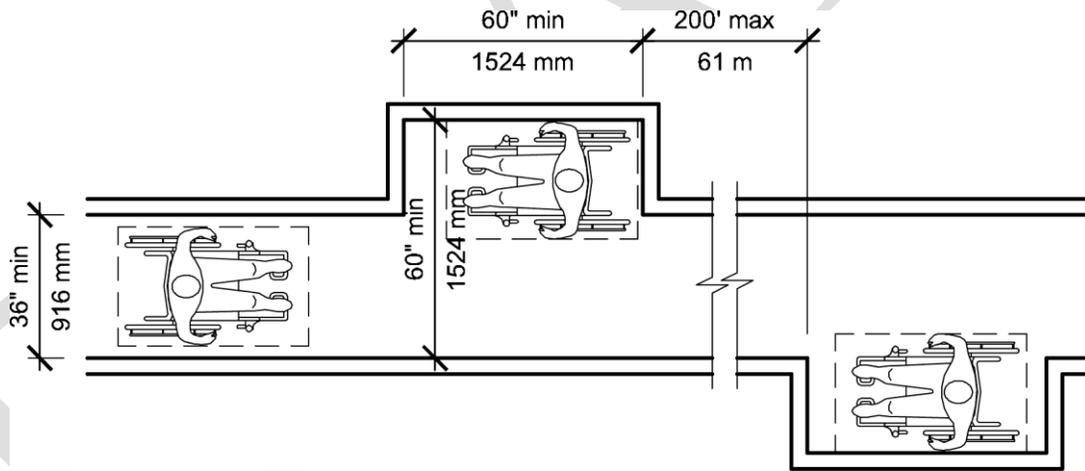
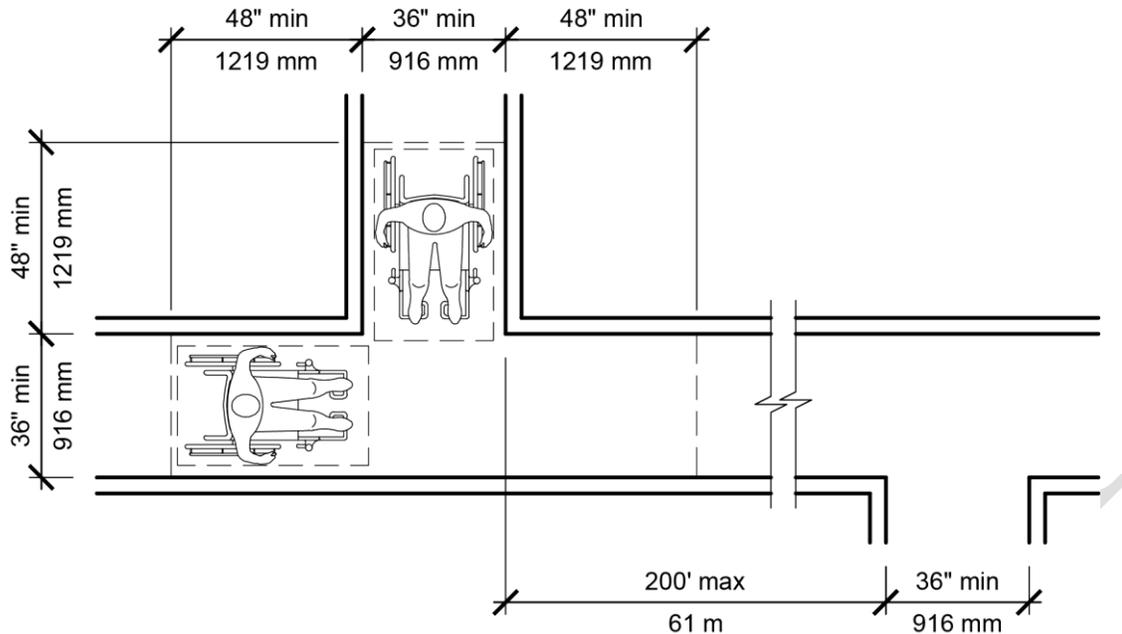


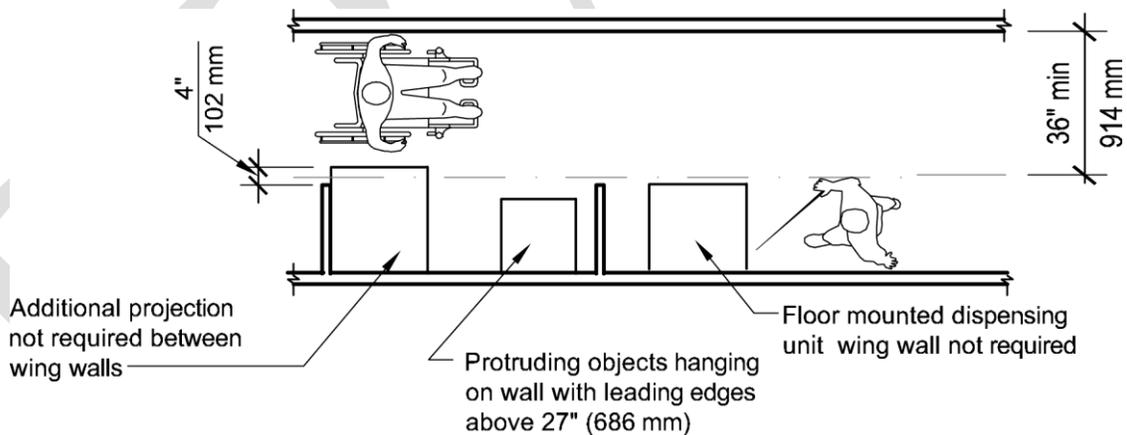
Figure 8.5c



## 8.6 PROTRUDING OBJECTS

Objects shall not reduce the *clear* width of an *accessible route* or maneuvering *space* (See **Figure 8.6a**) and must comply with **521 CMR 8.6, Protruding Objects**.

Figure 8.6a

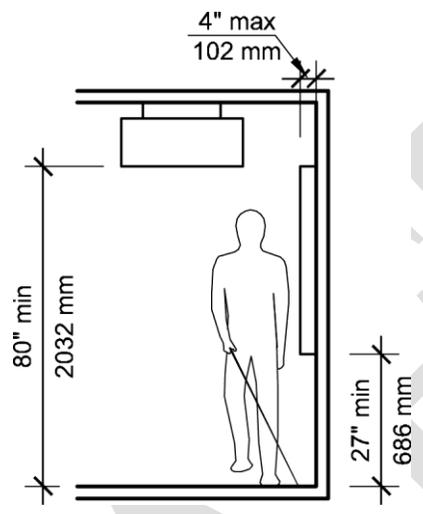


### Exceptions:

1. Within *areas of sport activity*, protruding objects on *circulation paths* shall not be required to comply with **521 CMR 8.6, Protruding Objects**.
2. Within *play areas*, protruding objects on *circulation paths* shall not be required to comply with **521 CMR 8.6, Protruding Objects**, on the condition that ground level *accessible routes* provide vertical clearance in compliance with **521 CMR 8.7, Vertical Clearance**.

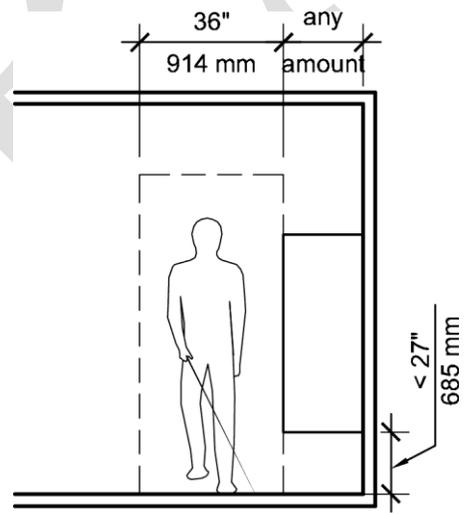
8.6.1 Objects projecting from walls (for example, telephones) with their leading edges greater than 27 inches and not more than 80 inches (686 mm and 2032 mm) above the finished floor shall protrude a maximum of four (4) inches (102 mm) horizontally into *walks*, halls, corridors, passageways, or aisles and shall not have sharp or abrupt edges. See **Figure 8.6b**.

**Figure 8.6b**



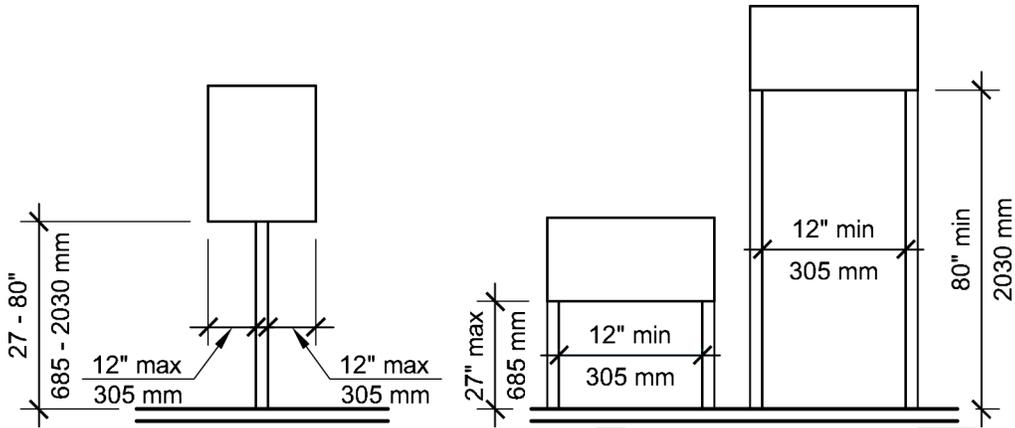
8.6.2 Objects mounted with their leading edges at or below 27 inches (686 mm) above the finished floor may protrude any distance as long as they do not reduce the *accessible route* to less than 36 inches (914 mm) clear width. See **Figure 8.6c**.

**Figure 8.6c**



8.6.3 Free-standing objects mounted on posts or pylons may have a maximum overhang of 12 inches maximum (305 mm) measured between 27 inches minimum and 80 inches maximum (686 mm and 2032 mm) above the ground or finished floor. See **Figure 8.6d**.

**Figure 8.6d**



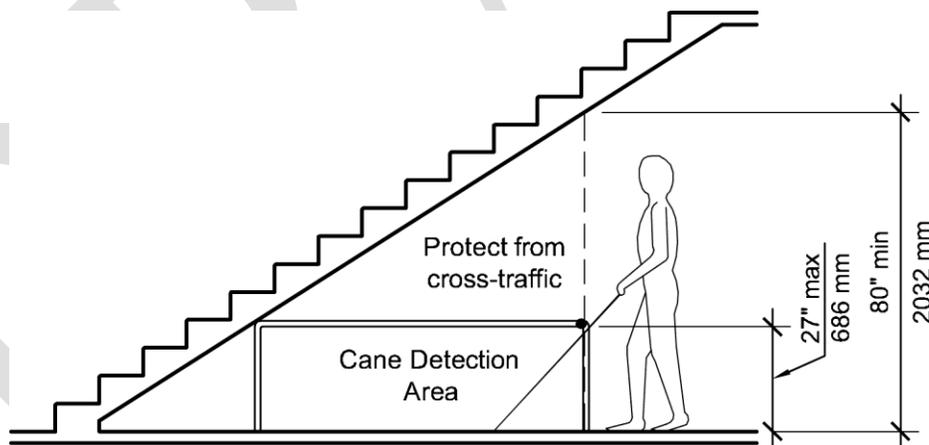
**8.7 VERTICAL CLEARANCE**

Vertical clearance shall be a minimum of 80 inches (2032 mm) high. Guardrails or other barriers shall be provided where the vertical clearance is less than 80 inches (2032 mm) high. The leading edge of such guardrail or barrier shall be located a maximum of 27 inches (686 mm) above the finish floor or ground. See **Figure 8.7**.

Exception:

Door closers and door stops shall be permitted to be a minimum of 78 inches (1981 mm) above the finish floor or ground.

**Figure 8.7**



**8.8 SURFACE TEXTURES**

The surface of an *accessible route* shall comply with **521 CMR 7.00: GROUND AND FLOOR SURFACES**.

**8.9 SLOPE AND CROSS SLOPE**

An *accessible route* with a *running slope* steeper than one-to-twenty (1:20) (5 percent) is a *ramp* and shall comply with **521 CMR 12.00: RAMPS**. Nowhere shall the *cross slope* of an *accessible route* exceed one-to-fifty (1:50) (2 percent). (Refer to **521 CMR 2.4.4d**)

## 8.10 CHANGES IN LEVELS

Changes in levels along an *accessible route* shall comply with **521 CMR 7.2, Level Changes**.

## 8.11 ACCESSIBLE MEANS OF EGRESS

A continuous and unobstructed *accessible route* from any *accessible point* in a *building* or *facility* to either a public way, an *area of refuge*, or an exterior *area for assisted rescue*. *Accessible routes* serving any *accessible space* or *element* shall also serve as an *accessible means of egress* for emergencies or connect to an *accessible area for assisted rescue*.

8.11.1 All *spaces* or *elements* required to be *accessible* by **521 CMR** shall be provided with no less than one (1) *accessible means of egress*.

- a. Where more than one (1) means of egress is required under **780 CMR** (The Massachusetts State Building Code) from any *accessible space* or *element*, each *space* or *element* shall be served by not less than two (2) *accessible means of egress*.

### Exception:

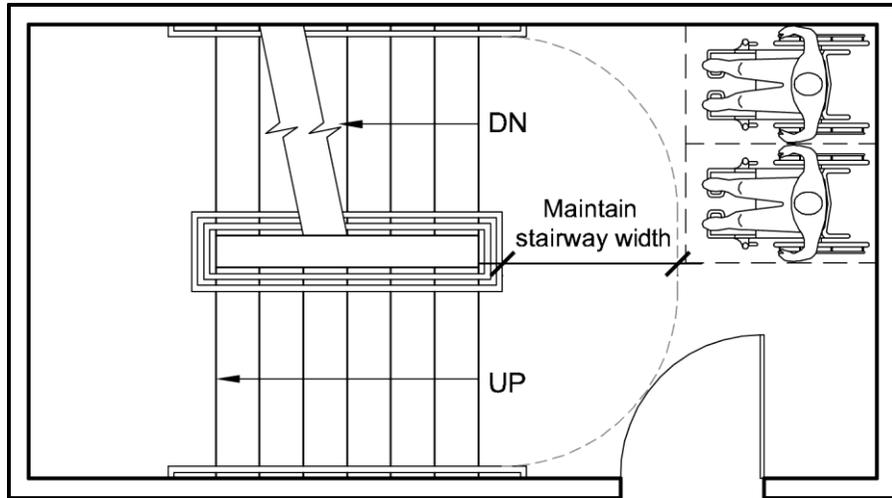
For the purpose of **521 CMR 8.11, Accessible Means of Egress**, fire escapes shall be exempt.

8.11.2 The exit discharge shall provide a continuous *accessible path* of travel from an *exit* to a public way by means of a *walkway* or a *ramp*.

- a. Where public ways are farther than 100 feet (30480 mm) from an exit, exterior *areas for assisted rescue* complying with **521 CMR 8.12.2**, may be constructed along the exit discharge located no closer than 100 feet (30480 mm) from the *building*.
- b. In *buildings* where the grade at the level of exit discharge prohibits *construction* of either a *walkway* or a *ramp*, a portion of an exterior exit *balcony* located immediately adjacent to an emergency exit complying with **780 CMR** may be constructed as an exterior *area for assisted rescue*. See **Figure 8.11**.

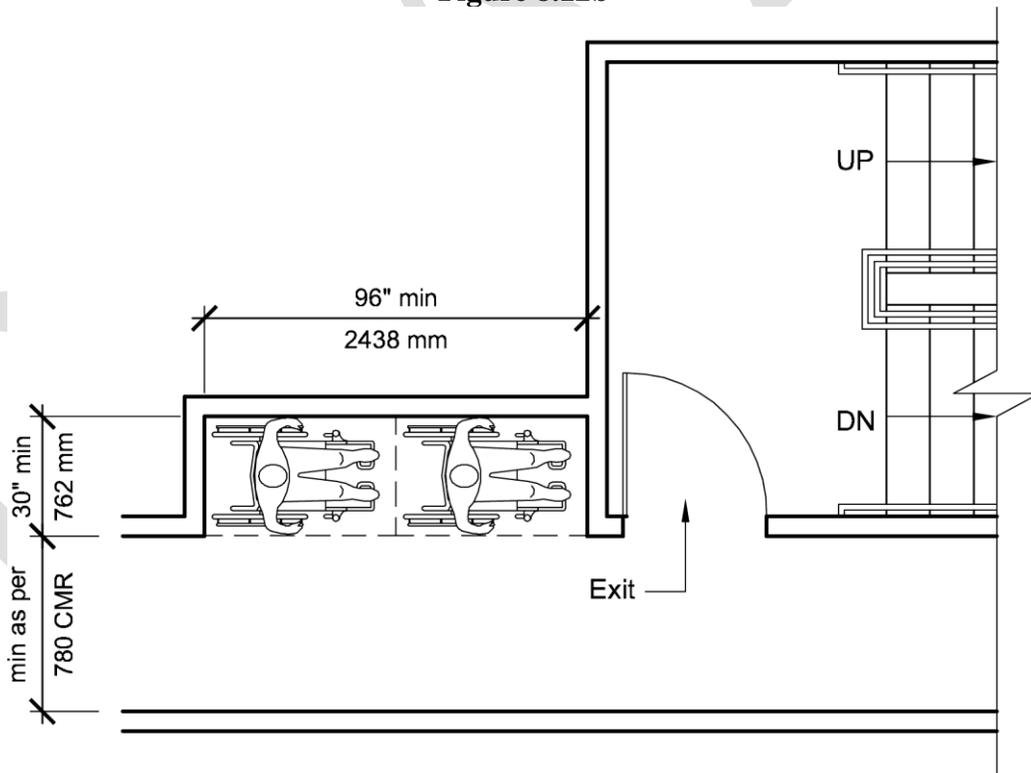


Figure 8.12a



- b. A portion of a one (1) hour fire-resistive corridor (complying with applicable requirements of **780 CMR** for fire-resistive *construction* and for openings) located immediately adjacent to an exit enclosure. (See **Figure 8.12b**)

Figure 8.12b



- c. A vestibule located immediately adjacent to an exit enclosure and constructed to the same fire-resistive standards controlling corridors and openings.
- d. A portion of a stairway landing within an exit enclosure which is vented to the exterior and is separated from the interior of the *building* with not less than 1 hour fire-resistive doors.

- e. When approved by the appropriate applicable building official, an area or a room that is separated from other portions of the *building* by a smoke barrier. Smoke barriers shall have a fire-resistive rating of not less than 1 hour and shall completely enclose the area or room. Doors in the smoke barrier shall be tight-fitting smoke- and draft-control assemblies having a fire-protection rating of not less than 20 minutes and shall be self-closing or automatic closing. The area or room shall be provided with an exit directly to an exit enclosure. Where the room or area exits into an exit enclosure which is required to be of more than 1 hour fire-resistive *construction*, the room or area shall have the same fire-resistive *construction*, including the same opening protection, as required for the adjacent exit enclosure.
  - f. An elevator lobby where elevator shafts and adjacent lobbies are pressurized as required for smoke-proof enclosures by **780 CMR** or **524 CMR** (The Massachusetts State Elevator Code), and when complying with requirements herein for size, communication, and *signage*. Such pressurization system shall be activated by smoke detectors on each floor located in a manner approved by the appropriate local authority. Pressurization equipment and its duct work within the *building* shall be separated from other portions of the *building* by a minimum two-hour fire restrictive *construction*.
- 8.12.2 Each *area of refuge* and exterior *area for assisted rescue* shall provide at least two (2) *accessible spaces*, not less than 30 inches by 48 inches (762 mm by 1219 mm) each.
- a. The *area of refuge* and exterior *area for assisted rescue* shall not encroach on any required exit width.
  - b. The total number of such 30 inch by 48 inch (762 mm by 1219 mm) areas per *story* shall be not less than one (1) for every 200 persons of calculated occupant load served by the *area of refuge* .
- 8.12.3 Each *stairway* adjacent to an *area of refuge* and exterior *area for assisted rescue* shall have a minimum *clear* width of 48 inches (1219 mm) between handrails.
- 8.12.4 A method of two-way communication, with both visible and audible signals, shall be provided between each *area of refuge* and the primary *entrance* to the *building*. The fire department or appropriate building official may approve a location other than the primary *entrance* to the *building*. Any operable mechanism shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
- 8.12.5 Identification: Each *area of refuge* shall be identified by a sign that states "*area of refuge*" and displays the international symbol of accessibility. The sign shall be illuminated when exit sign illumination is required. *Signage* shall also be installed at all inaccessible exits and where otherwise necessary to clearly indicate the direction to *areas of refuge*. In each *area of refuge*, instructions on the *use* of the area under emergency conditions shall be posted adjoining the two-way communication system.

## 521 CMR 9.00: WALKWAYS

### 9.1 GENERAL

*Walkways* shall include but not be limited to all *walks*, *sidewalks*, overpasses, bridges, tunnels, underpasses, plazas, courts and other pedestrian pathways, and shall comply with the following requirements:

Exception:

Limited *walkway* and *sidewalk* removal, and replacement work associated with the *repair* or replacement of essential in ground utilities and services, when the *walkway* or *sidewalk* removal and replacement is limited to no more than a 10 foot (3 m) length of the *walkway* or *sidewalk* (when measured along the direction of travel), shall be exempt from the requirements of **521 CMR 7.00: GROUND AND FLOOR SURFACES**. The new work shall be done in such a manner and with such materials so that the replacement surface either matches the pre-existing condition, or so that it in no way lessens the pre-existing surface hardness or flatness. Further, the point where the replacement surface meets existing surfaces the transition shall be smooth and flat and shall be subject to **521 CMR 7.2, Level Changes**.

### 9.2 WIDTH

Width of *walkways* shall be a minimum of 48 inches (1219mm), excluding curb stones. An unobstructed path of travel shall be provided which is a minimum of 36 inches (914mm) *clear*, excluding curb stones, for a linear length of 60 inches (1524 mm) maximum.

### 9.3 GRADE

*Walkways* with a *running slope* greater than one-to-twenty (1:20) (5 percent) are *ramps* and shall comply with **521 CMR 12.00: RAMPS**.

- 9.3.1 Nowhere shall the *cross slope* of *walkways*, or any 24 inch (610 mm) segment thereof, exceed one-to-fifty (1:50) (2 percent). (Refer to **521 CMR 2.4.4d.**)

Exception:

*Sidewalks* on streets and ways shall be considered *walkways*, with the exception that if the slope of the natural topography exceeds one-to-twenty (1:20) (5 percent) a *ramp* is not required.

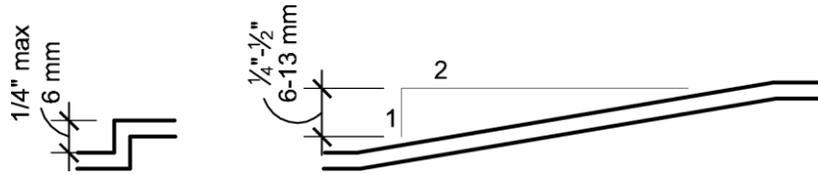
- 9.3.2 Nowhere shall the surface slope, or any 24 inch (610 mm) segment thereof, of any plaza area exceed one-to-fifty (1:50) (2 percent).

### 9.4 LEVEL CHANGES

*Walkways* shall have continuous common surfaces, not interrupted by steps or changes in level greater than one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm).

- 9.4.1 Changes in level between one-quarter ( $\frac{1}{4}$ ) of an inch and one-half ( $\frac{1}{2}$ ) of an inch (6 mm and 13 mm) shall be beveled with a slope no greater than one-to-two (1:2) (50 percent). See **Figure 9.4**.

**Figure 9.4**



9.4.2 Changes in level greater than one-half (1/2) of an inch (13 mm) shall require a *curb cut*, *walkway*, *ramp*, elevator, or platform lift that complies with **521 CMR 13.00: CURB CUTS**, **521 CMR 9.00: WALKWAYS**, **521 CMR 12.00: RAMPS**, or **521 CMR 14.00: ELEVATORS**.

**9.5 SURFACE**

*Walkway* surfaces shall be in compliance with **521 CMR 7.00: GROUND AND FLOOR SURFACES**.

**9.6 DRAINAGE**

Grading and drainage shall be designed to minimize pooling of water or accumulation of ice or flow of water across *walkways*.

**9.7 GRATINGS**

If gratings are located in walking surfaces, they shall have *spaces* no greater than one-half (1/2) of an inch (13 mm) wide in the direction of the flow of travel. If gratings have elongated openings, then they shall be placed so that the long dimension is perpendicular to the dominant direction of travel. See **Fig. 22b**.

**9.8 INTERSECTIONS**

Wherever a *walkway* crosses or joins streets, public ways, driveways or parking lots, it shall comply with the following:

9.8.1 The intersecting surfaces shall blend to a common level with a slope no greater than one-to-twenty (1:20) (5 percent), or a *curb cut* shall be installed in compliance with **521 CMR 13.00: CURB CUTS**.

## 521 CMR 10.00: ENTRANCES

### 10.1 GENERAL

All entrance(s) of a building or tenancy in a building shall be accessible. Entrances are any entrances that are not solely service entrances, or loading entrances. At least one (1) public exterior accessible entrance of a building or tenancy in a building shall be equipped with an automatic door or a power-assisted door.

10.1.1 *Service entrances:* If the only entrance to a building, or tenancy in a facility, is a service entrance, that entrance shall be accessible.

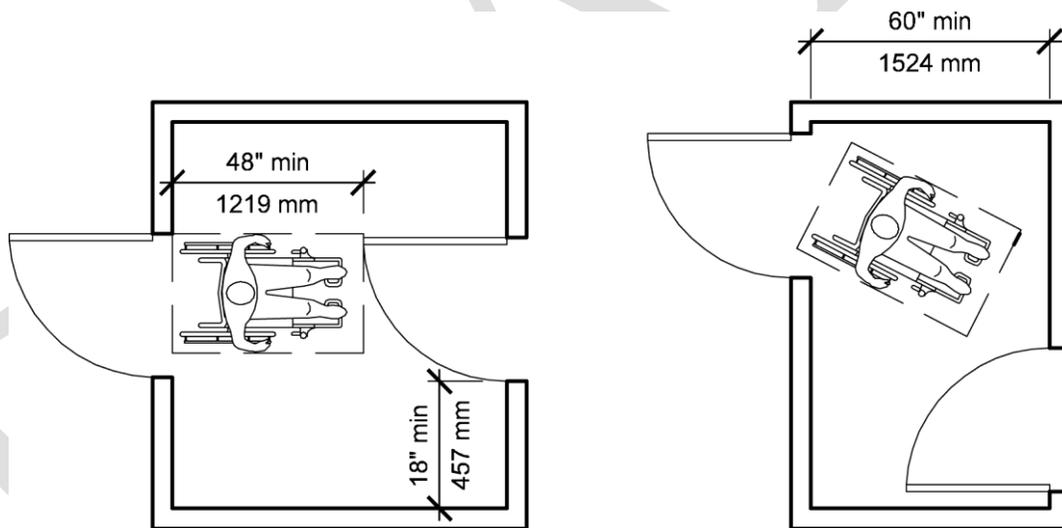
### 10.2 APPROACH

The approach to an accessible entrance shall be a paved walk or ramp with a slip resistant surface, uninterrupted by steps. Entrance(s) shall have a level space on the interior and exterior of the entrance doors complying with Fig. 25a and 25b.

### 10.3 VESTIBULES

Between any two (2) hinged or pivoted doors, there shall be a minimum of 48 inches (1219 mm) plus the width of any door swinging into the space. See Figure 10.3a.

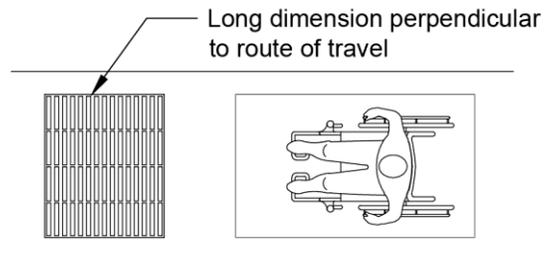
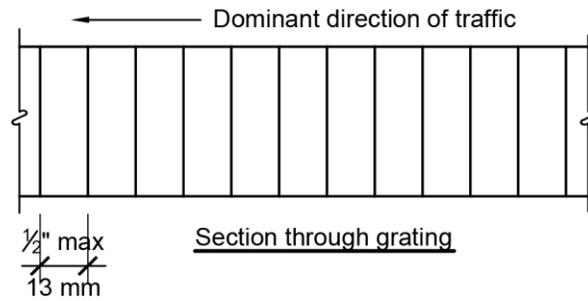
Figure 10.3



### 10.4 DOOR MATS

Door mats one-half (1/2) of an inch (13 mm) thick or less shall be securely anchored at all edges to avoid tripping. Door mats between one-quarter (1/4) of an inch (6 mm) and one-half (1/2) of an inch (13 mm) thick must be secured with beveled edging that slopes a maximum of one-to-two (1:2) (50 percent). Door mats thicker than one-half (1/2) of an inch (13 mm) shall be recessed. Grates shall have openings not exceeding one-half (1/2) of an inch (13 mm) in the path of travel. See Figure 10.4a.

Figure 10.4



### 10.5 PROTRUDING OBJECTS

Objects that protrude into entranceways, (suspended lights, signs, fixtures, door closers, etc.) shall comply with **521 CMR 8.6, Protruding Objects.**

### 10.6 SIGNAGE

Any *entrance/exit* of a *facility* not *accessible* by persons in wheelchairs shall have a sign clearly indicating the location of the *accessible entrance/exit*.

## 521 CMR 11.00: DOORS AND DOORWAYS

### 11.1 GENERAL

All doors and openings along *accessible routes* shall comply with the following requirements.

#### Exception:

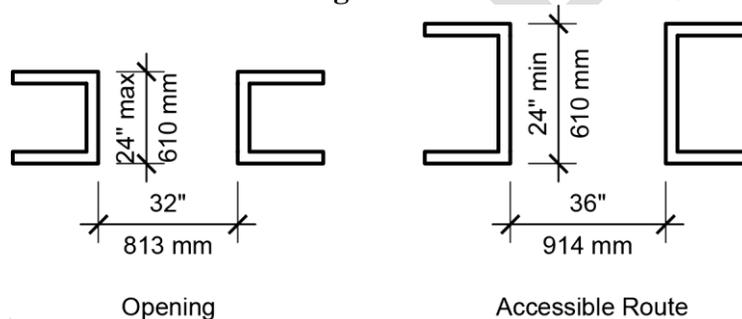
Doors, doorways, and gates designed to be operated only by security personnel shall not be required to comply with **521 CMR 11.2, Revolving Doors**; **521 CMR 11.6, Maneuvering Clearance** through **521 CMR 11.9, Door Closers and Gate Closers**; and **521 CMR 11.12, Door Hardware**.

11.1.1 Gates, including ticket gates, shall also comply with **521 CMR 11.00: DOORS AND DOORWAYS**.

#### Exceptions:

1. Openings greater than 24 inches (610 mm) in depth are not doorways but may be part of an *accessible route*, in which case they shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES** and **521 CMR 12.00: RAMPS** (See **Figure 11.1a**).

Figure 11.1



2. Doors not requiring full user passage, such as shallow closets, may have the *clear* opening reduced to 20 inches (508 mm) minimum, See **521 CMR 34.5.8, Closets**.

11.1.2 In *buildings* classified in the *assembly use* and *educational use* (See **780 CMR 302.0**) with an occupancy of over 150 (See **521 CMR 26.1**), all required egress doors which lead directly to the outside at grade, shall be made *accessible* at the exterior as well as the interior so as to provide a safe path of travel to a public way for persons who are disabled. Such egress doors shall be provided with illuminated *signage* identifying accessibility by the use of the international symbol contained within the “exit” sign (See **521 CMR 21.1.4**)

### 11.2 REVOLVING DOORS

Revolving doors shall not be the only means of passage at an *accessible entrance* or along an *accessible route* unless the revolving door is also *accessible*. An *accessible* door shall be provided adjacent to a revolving door and shall permit the same use pattern.

11.2.1 Whenever the revolving doors are unlocked, the adjacent *accessible* door shall be unlocked.

11.2.2 The adjacent *accessible* door must have hardware that allows *entrance* into the *building* as well as egress.

### 11.3 TURNSTILES

Turnstiles shall not be the only means of passage at an *accessible entrance* or along an *accessible route*. An *accessible gate* shall be provided adjacent to the turnstile and shall be designed to permit the same use pattern, complying with **521 CMR 11.2.1** and **11.2.2**.

### 11.4 DOUBLE-LEAF DOORWAYS

A doorway having two (2) independently operated door leaves shall have at least one (1) leaf that meets the requirements of **521 CMR 11.5, Width**, and **521 CMR 11.6, Maneuvering Clearance**. That leaf shall be an active leaf.

### 11.5 WIDTH

All doorways and openings that are required to be *accessible* shall have a *clear* opening of not less than 32 inches (813 mm). *Clear* opening of a door is measured from the face of the stop on the latch side to the face of the door when the door is open 90 degrees. For door types such as bi-fold, accordion, and pocket, the *clear* opening is measured when the door is in its most fully open position. See **Figure 11.5a**.

**NOTE:** A standard 36 inch (914 mm) door with a standard hinge will produce a *clear* opening of a minimum of 32 inches (813 mm).

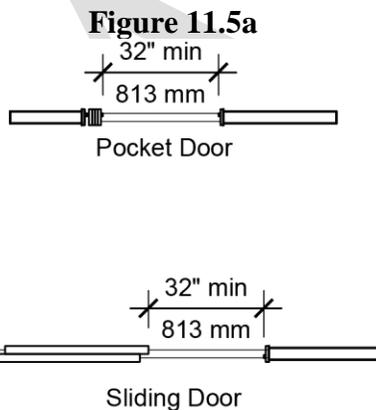
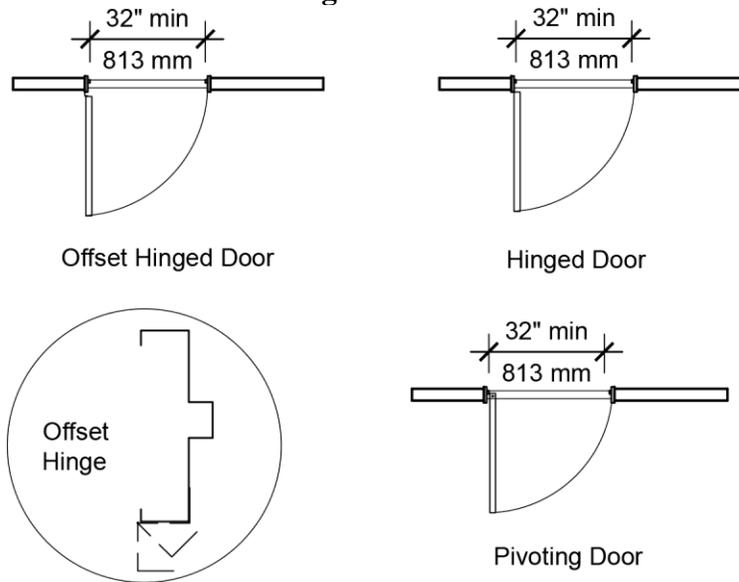


Figure 11.5b



## 11.6 MANEUVERING CLEARANCE

A minimum *clear floor or ground space* shall be provided on both sides of all doors and gates. A minimum *clear floor or ground space* shall be provided on both sides of all *automatic doors* or gates and *power-assisted doors* or gates without standby power and serving as part of an *accessible means of egress*.

### Exception:

*Automatic doors* with stand-by power, or that remain open in the power-off condition, are exempt from **521 CMR 11.6.3, Pull Side Clearance, 521 CMR 11.6.4, Push Side Clearance, and 521 CMR 11.8, Door Opening Force**

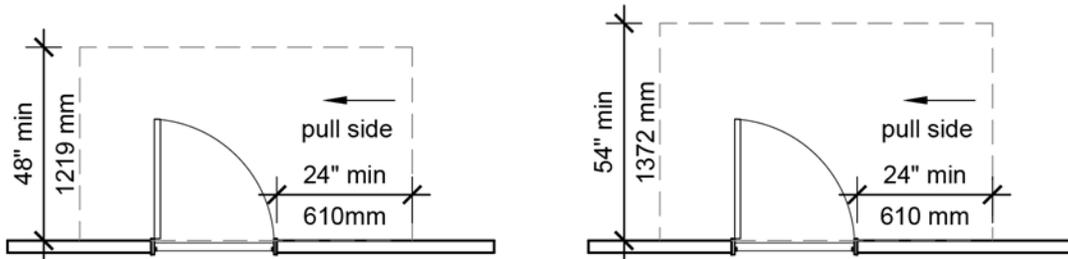
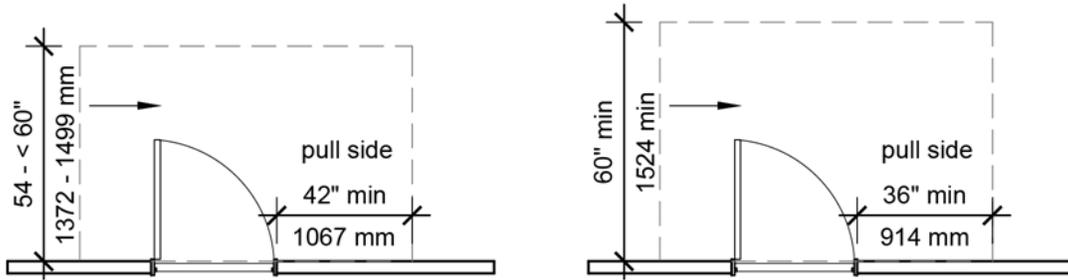
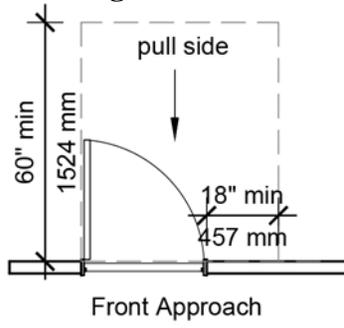
11.6.1 The floor or ground area within the required clearances shall be *level*.

11.6.2 Doors located in a recess of more than 6 inches (152 mm) deep shall have *clear floor or ground space* as required in **521 CMR, 11.6.3, Pull Side Clearance, and 521 CMR 11.6.4, Push Side Clearance**. Said *clear floor or ground space* shall be measured within 6 inches (152 mm) of the door.

11.6.3 Pull side clearance shall comply with **Figure 11.6a** and the following table:

<b>Approach Direction</b>	<b>Door or Side</b>	<b>Perpendicular to Doorway</b>	<b>Parallel to Doorway (beyond latch side – also see notes)</b>
From front	Pull	60 inches (1524 mm)	18 inches (458 mm)
From hinge side	Pull	60 inches (1524 mm)	36 inches (914 mm)
From hinge side	Pull	54 inches (1372 mm)	42 inches (1067 mm)
From latch side	Pull	48 inches (1219 mm) <b>See Note</b>	24 inches (610 mm)
<b>Note:</b> 48 inches (1219 mm) allowed only if the door has no closer. Provide 54 inches (1372 mm) if the door has a closer.			

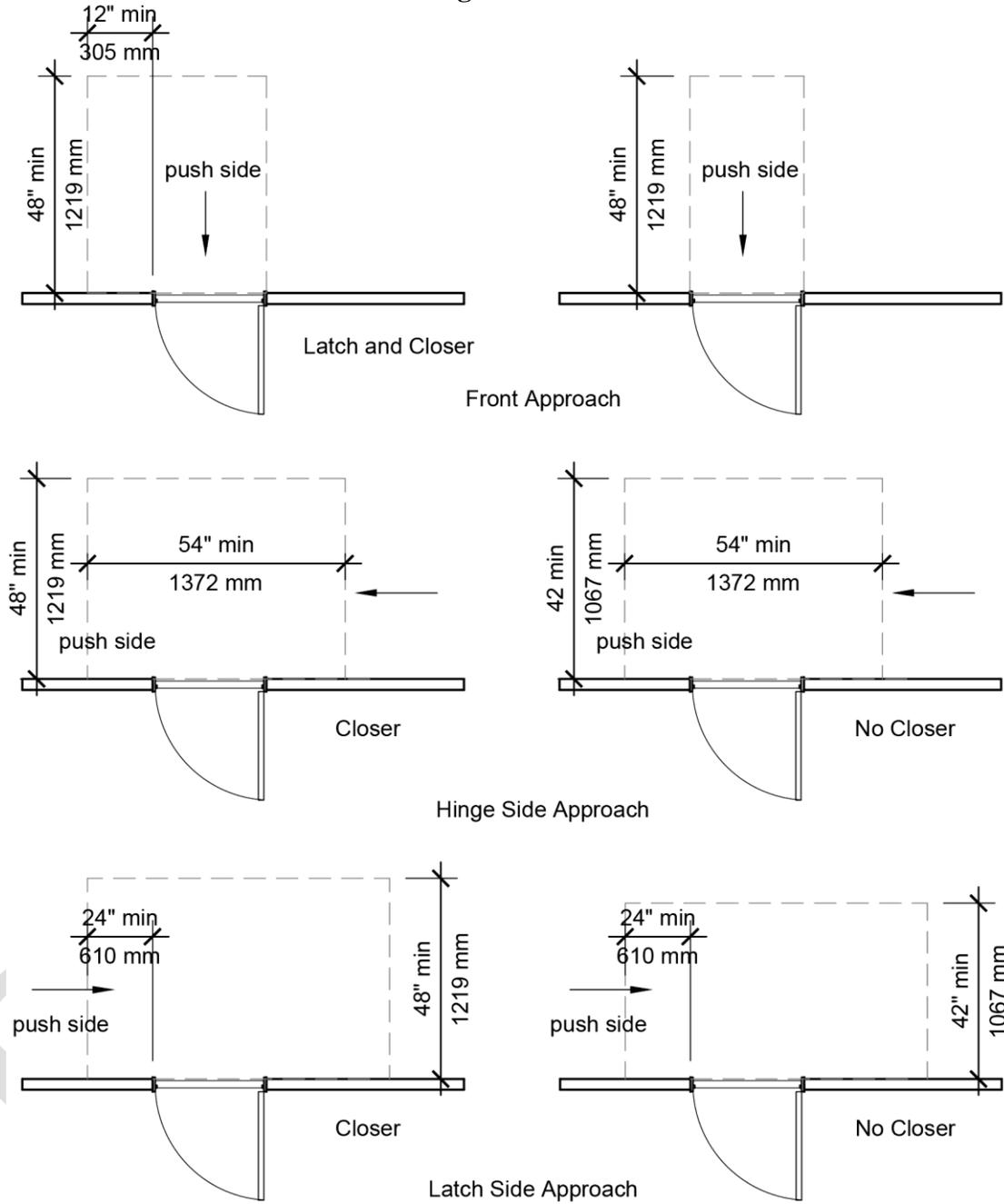
Figure 11.6a



11.6.4 Push side clearance shall comply with **Figure 11.6b** and the following table.

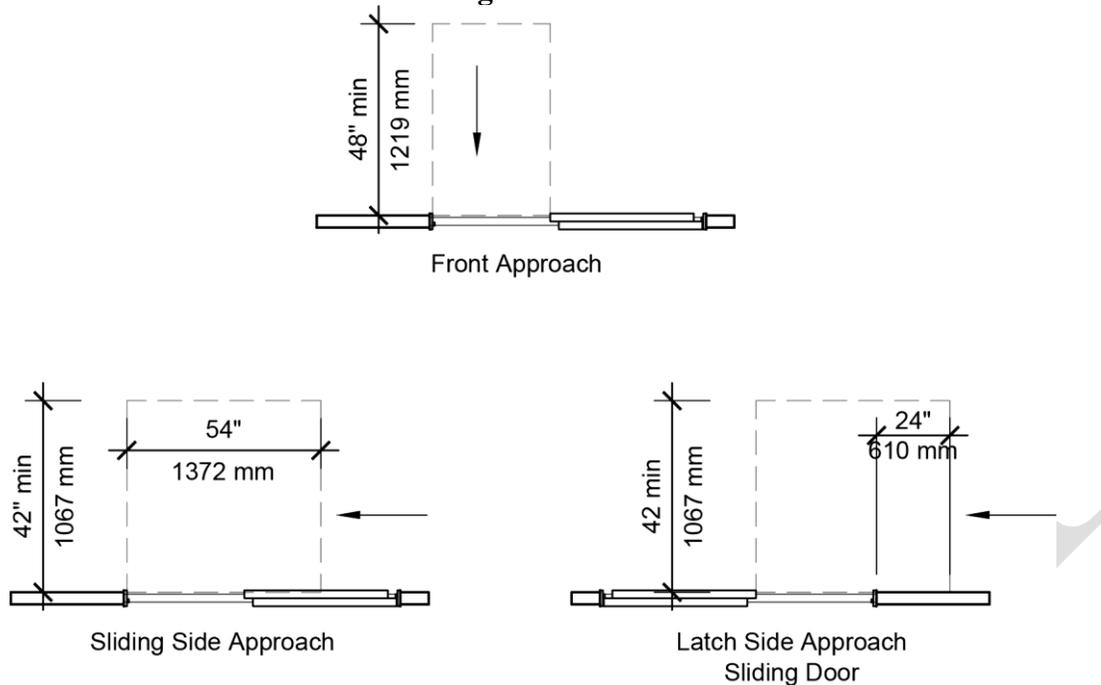
<b>Approach Direction</b>	<b>Door or Side</b>	<b>Perpendicular to Doorway</b>	<b>Parallel to Doorway (beyond latch side – also see notes)</b>
From front	Push	48 inches (1219 mm)	0 inches (0 mm) <b>See Note 1</b>
From hinge side	Push	42 inches (1067 mm) <b>See Note 2</b>	22 inches (559 mm) <b>See Note 3</b>
From latch side	Push	42 inches (1067 mm) <b>See Note 4</b>	24 inches (610 mm)
<p><b><u>Note 1:</u></b> 0 inches (0 mm) allowed only if the door has only a closer but no latch, only a latch but no closer, or neither. Provide 12 inches (305 mm) if the door has both a latch and a closer.</p> <p><b><u>Note 2:</u></b> 42 inches (1067 mm) allowed only if the door has only a closer but no latch, only a latch but no closer, or neither. Provide 48 inches (1219 mm) if the door has both a latch and a closer.</p> <p><b><u>Note 3:</u></b> 22 inches (559 mm) is measured <i>before</i> the hinge side in the direction of approach.</p> <p><b><u>Note 4:</u></b> 42 inches (1067 mm) allowed only if the door has no closer. Provide 48 inches (1219 mm) if the door has a closer.</p>			

**Figure 11.6b**



11.6.4 Clearance for sliding door shall comply with **Figure 11.6c**.

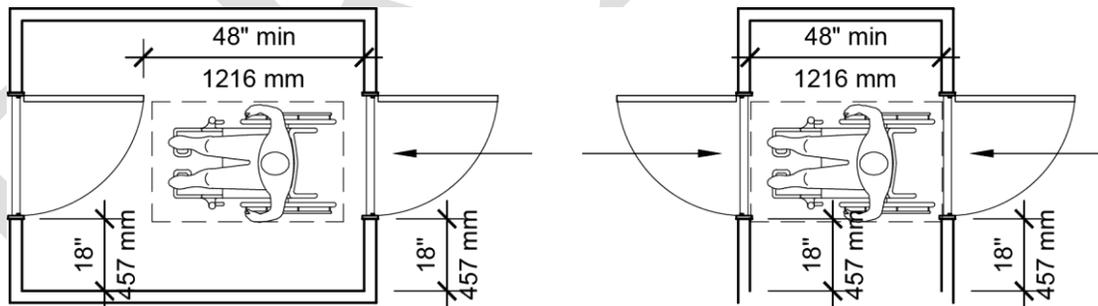
**Figure 11.6c**



**11.7 DOORS OR GATES IN SERIES**

The minimum *space* between two (2) hinged or pivoted doors in series shall be 48 inches (1219 mm) plus the width of any door swinging into the *space*. Doors in series shall swing either in the same direction or away from the *space* between the doors. See **Figure 11.7**.

**Figure 11.7**



Exception:

Screen doors provided directly adjacent to *entrance* doors.

**11.8 DOOR OPENING FORCE**

The maximum force for pushing or pulling open a door shall be as follows:

- a. These forces apply only to opening the door, not to the effort required to retract latch bolts or disengage other devices that may hold the door in a closed position.
  - i. exterior hinged doors: 15 lbs.

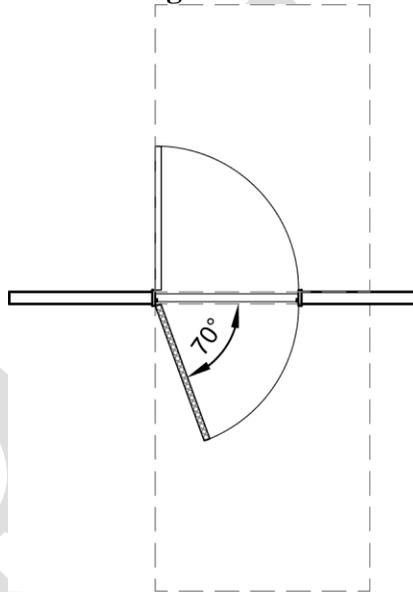
- ii. interior hinged doors: five (5) lbs.
- iii. sliding or folding doors: five (5) lbs.

Exception:

Fire doors shall have the minimum opening force allowable by the appropriate *administrative authority*.

- b. Compensating devices: Doors requiring greater force shall be equipped with *automatic doors* or *power-assisted doors*.
- c. Spring Hinges. Door and gate spring hinges shall be adjusted so that from the open position of 70 degrees, the door or gate shall move to the closed position in 1.5 seconds minimum. See **Figure 11.8**.

**Figure 11.8**



**11.9 DOOR CLOSERS AND GATE CLOSERS**

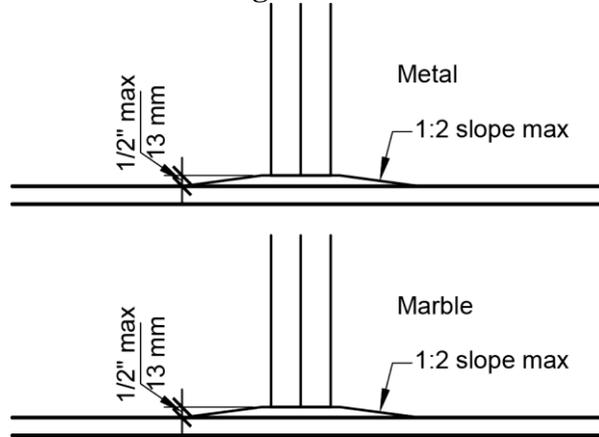
Door closers and gate closers shall be adjusted so that from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

**11.10 THRESHOLDS**

Thresholds at doorways shall comply with the following (See **Figure 11.10**):

- 11.10.1 Thresholds shall not exceed one-half (1/2) of an inch (13 mm) in height and shall be beveled on both sides with a slope no greater than one-to-two (1:2) (50 percent).
- 11.10.2 Changes in floor finish materials shall have an edge strip or threshold that is beveled at a ratio of one- one-to-two (1:2) (50 percent).
- 11.10.3 Exterior sliding door thresholds shall not exceed three-quarters (3/4) of an inch (19 mm) in height and shall be beveled both sides with a slope no greater than one-to-four (1:4) (25 percent).

**Figure 11.10**



### 11.11 VISION LIGHTS AND PEEPHOLES

Doors, gates, and side lights adjacent to doors or gates, containing one or more glazing panels that permit viewing through the panels shall have the bottom of at least one glazed panel located 42 inches (1067 mm) maximum above the finish floor. If peepholes are provided, they shall be mounted at 42 inches (1067 mm) maximum above the finish floor. All modes of visual identification shall allow for a minimum of 180 degree range of view.

Exception:

Vision lights with the lowest part more than 66 inches (1676 mm) from the finish floor or ground shall not be required to comply with **521 CMR 11.11, Vision Lights**.

### 11.12 DOOR HARDWARE

Shall comply with the following:

- a. Type: Handles, pulls, latches, locks, and other operating devices on *accessible* doors and gates shall have a shape that complies with the requirements of **521 CMR 41.5, Operation**. Lever-operated mechanisms, push-type mechanisms, and U-shaped handles are acceptable designs. When sliding doors are fully open, operating hardware shall be exposed and usable from both sides.
- b. Height: Hand-operated door opening hardware shall be located 34 inches to 48 inches (864 mm to 1219 mm) above the floor. See **Figure 11.12**.

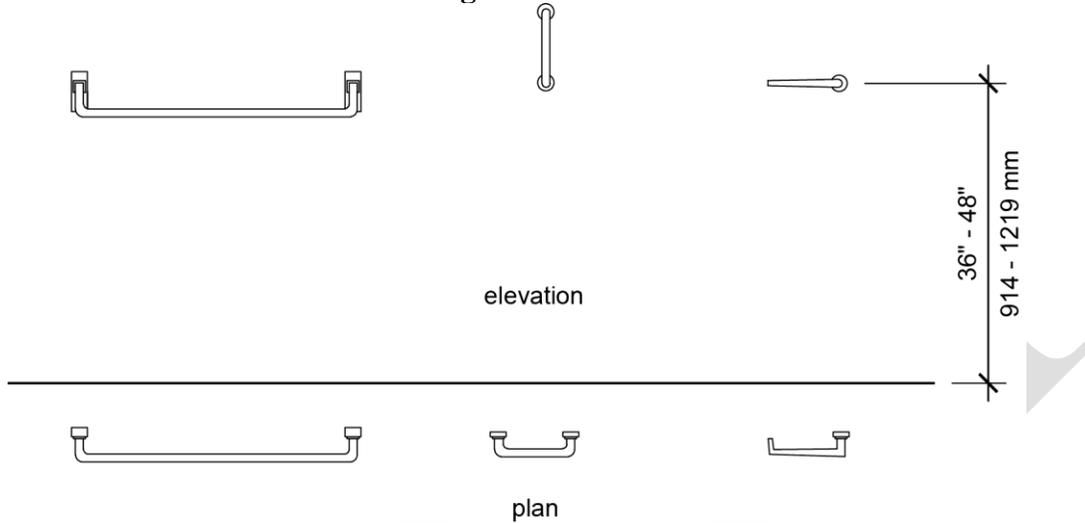
Exception:

Access gates in barrier walls and fences protecting pools, spas, and hot tubs shall be permitted to have *operable parts* of the release of latch on self-latching devices at 54 inches (1372 mm) maximum above the finish floor or ground provided the self-latching devices are not also self-locking devices and operated by means of a key, electronic opener, or integral combination lock.

- c. Operation: Doors in the means of egress shall be operable with one (1) hand, per the requirements of **521 CMR 41.5, Operation**, and with a single effort. Doors in the paths of ingress shall be able to be *operable* and opened with one (1) hand, per **521 CMR 41.5, Operation**.

- d. Special Hardware: Doors opening into hazardous areas shall have door-opening hardware which is knurled or has a roughened surface to give *tactile warning* to persons with visual impairments. Hazardous areas shall include but not be limited to loading platforms, boiler rooms, and electrical equipment rooms.

**Figure 11.12**



## 521 CMR 12.00: RAMPS

### 12.1 GENERAL

Any part of an *accessible route* with a slope greater than one-to-twenty (1:20) (5 percent) shall be considered a *ramp* and shall comply with the requirements of **521 CMR 12.00: RAMPS**.

### 12.2 SLOPE AND RISE

*Ramp* slopes shall comply with the following:

- 12.2.1 The maximum slope of a *ramp*, and any 24 inch (610 mm) segment thereof, shall be one-to-twelve (1:12) (8.3 percent). (There is no tolerance allowed on the maximum slope, Refer to **521 CMR 2.4.4d**). Ramps of a shallower slope (i.e. one-to-fourteen (1:14) (7.1 percent) or shallower) are preferable.

Exception:

In existing *sites, buildings, and facilities*, *ramps* shall be permitted to have *running slopes* steeper than 1:12 complying with Table 12.2.1 where such slopes are necessary due to space limitations. When this exception is utilized, no handrails are required.

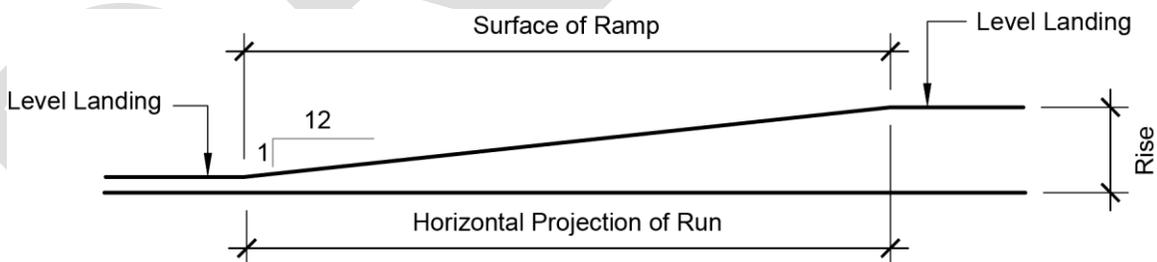
**Table 12.2.1 Maximum Ramp Slope and Rise for Existing Sites, Buildings, and Facilities**

Slope <sup>1</sup>	Maximum rise
Steeper than 1:10 but not steeper than 1:8	3 Inches (76 mm)
Steeper than 1:12 but not steeper than 1:10	6 Inches (152 mm)

1. A slope steeper than 1:8 is prohibited.

- 12.2.2 The maximum rise for any run shall be 30 inches (762 mm). See **Figure 12.2**.

**Figure 12.2**



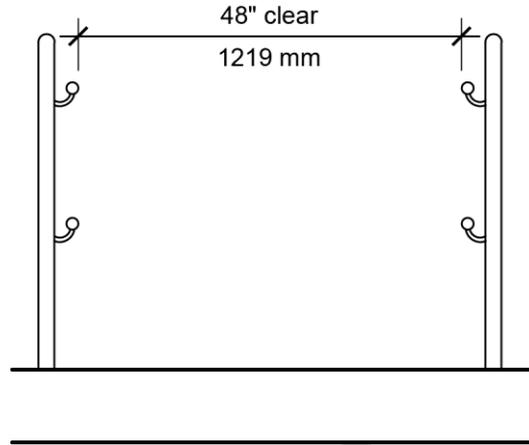
### 12.3 CROSS SLOPE

The *cross slope* of *ramp* surfaces shall be no greater than one-to-fifty (1:50) (2 percent)

### 12.4 CLEAR WIDTH

The minimum *clear* width of a *ramp* shall be 48 inches (1219 mm), measured between the railings. See **Figure 12.4**.

**Figure 12.4**

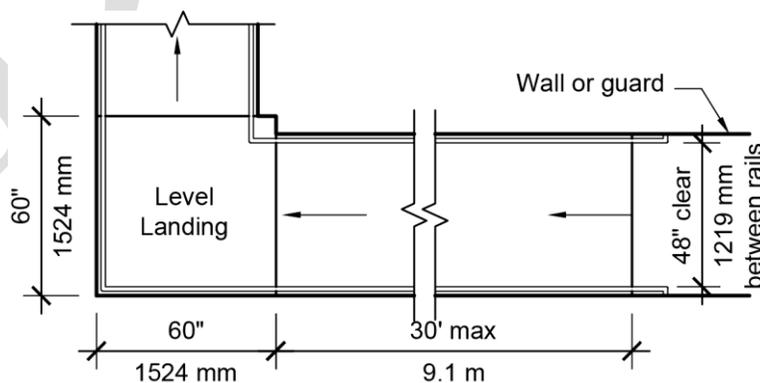


**12.5 LANDINGS**

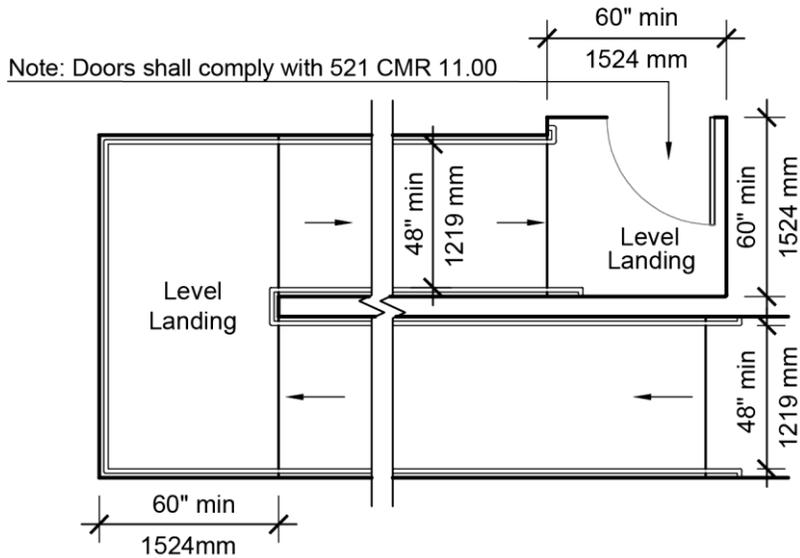
*Ramps* shall have landings for turning and resting. At a minimum, landings shall be located at the bottom and the top of each *ramp* and each *ramp* run, and whenever a *ramp* changes direction. The maximum length of a *ramp* run between landings shall be 30 feet (9144 mm). See **Figure 12.5a** and **12.5b**. Landings shall have the following features:

- a. Landings shall be *level* and unobstructed by projections and door swings, except as permitted by **521 CMR 12.5e**.
- b. The landing shall be at least as wide as the *ramp* run leading to it.
- c. The landing length shall be a minimum of 60 inches (1524 mm) .
- d. If *ramps* change direction at landings, the minimum landing size shall be 60 inches by 60 inches (1524 mm by 1524 mm). See **Figure 12.5a** and **12.5b**.
- e. If a doorway is located at a landing, then the *level* area in front of the doorway shall also comply with maneuvering clearances as required in **521 CMR 11.6, Maneuvering Clearances**. See **Figure 12.5c**.

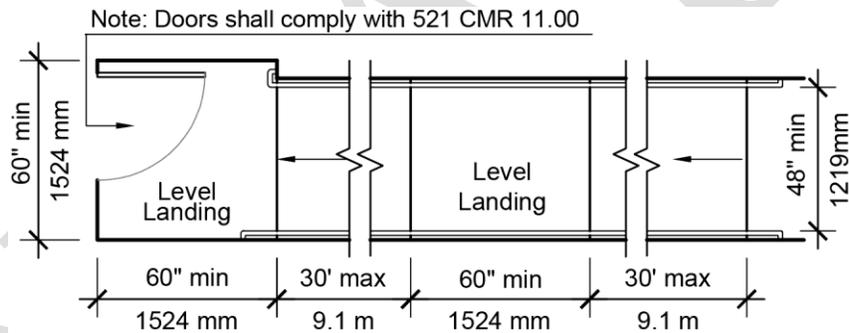
**Figure 12.5a**



**Figure 12.5b**



**Figure 12.5c**



## 12.6 HANDRAILS

Handrails shall be provided at all *ramps*. Handrails shall have the following features:

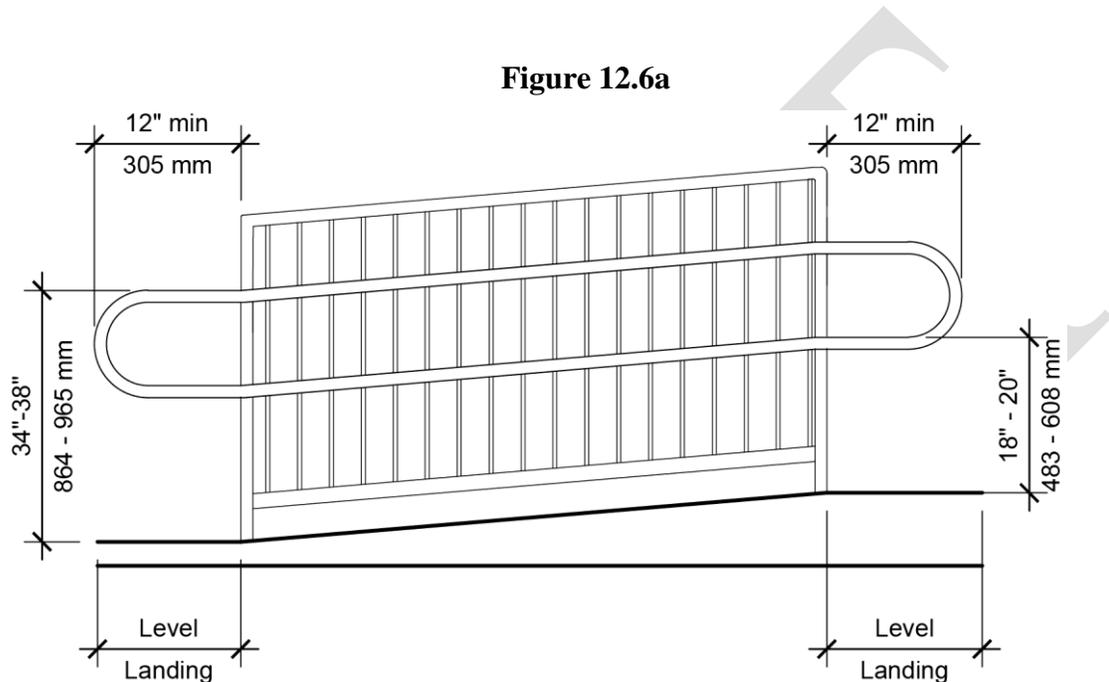
- Handrails shall be provided along both sides of *ramp* runs.
- Handrails shall be provided in pairs, one (1) at a height between 34 inches and 38 inches (864 mm and 965 mm), and a lower one at a height between 18 and 20 inches (457 mm and 508 mm), measured, at a consistent height, vertically from the surface of the *ramp* to top of handrail. See **Figure 12.6a**.
- Handrails shall be continuous so that a hand can move from end to end without interruption.

### Exceptions:

Handrails shall not be continuous at the following locations:

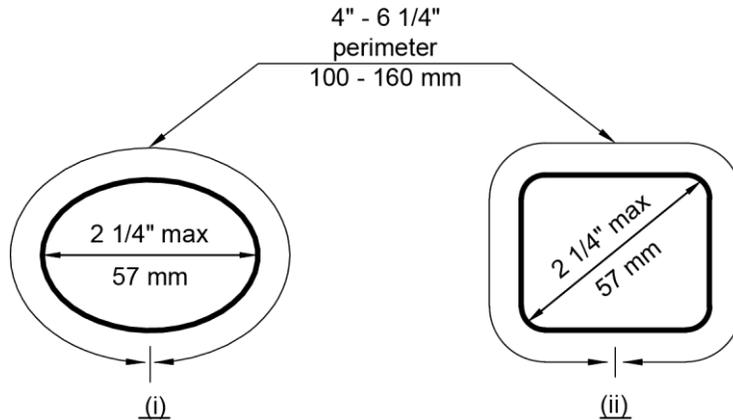
- Doorways

2. Openings
  3. In places of assembly, at aisles serving seating.
- d. Handrails shall extend a minimum of 12 inches (305 mm) beyond the top and bottom of the ramp and shall be parallel with the floor or ground surface, except where the extension would cause a safety hazard. See **Figure 12.6a**.



- e. Handrail gripping surfaces shall have a cross-section complying with the following (See **Figure 12.6b**):
- i. **Circular Cross Section:** Handrails shall have a circular cross-section dimension with an outside diameter of one-and-a-quarter (1¼) inches (32 mm) minimum and 2 inches (51 mm) maximum.
  - ii. **Non-Circular Cross Section:** Handrails shall have a perimeter dimension of 4 inches (100 mm) minimum and 6 ¼ inches (159 mm) maximum, and a cross-section dimension of 2 ¼ inches (57 mm) maximum.

**Figure 12.6b**



- f. The gripping surface shall be free of any sharp or abrasive *elements*.
- g. When a handrail is mounted adjacent to a wall, the *clear space* between the handrail and the wall or adjacent surface shall be a minimum of 1½ inches (38 mm) and a maximum of 2 inches (51 mm). Handrails may be located in a wall recess if the depth of the recess is no greater than the width of the handrail plus 2 inches (51 mm). and extends a minimum of 18 inches (457 mm) above the top of the rail. See **Figure 12.6c** and **Figure 12.6d**.

**Figure 12.6c**

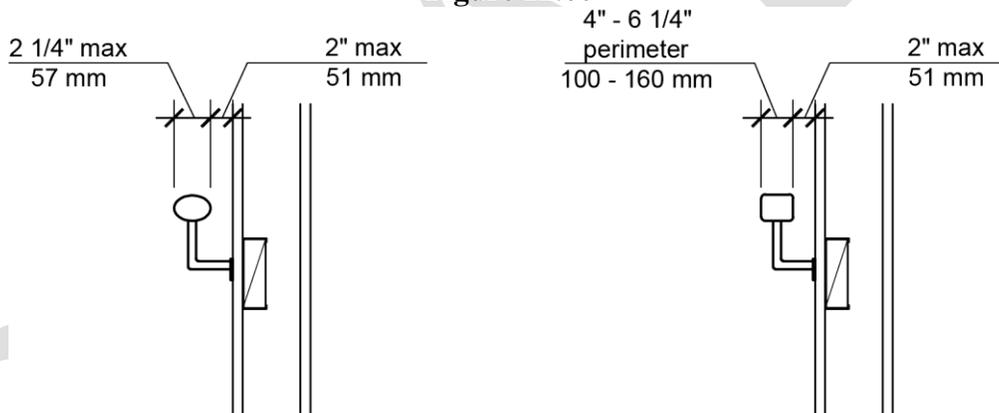
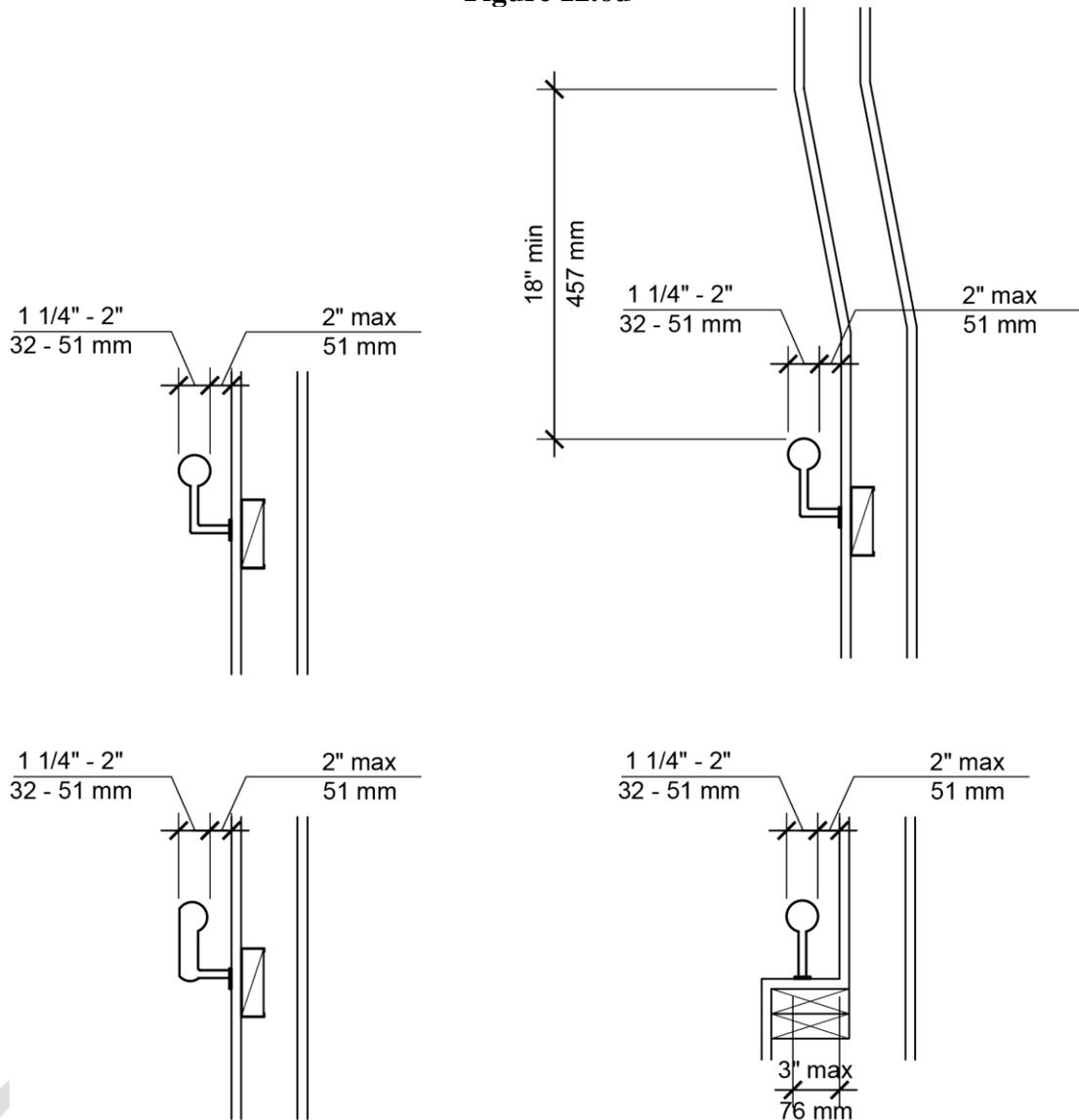


Figure 12.6d



- h. End condition: Ends of handrails shall be returned smoothly to floor, wall, post, or lower rail.
- i. Handrails shall not rotate within their fittings.

## 12.7 SURFACES

Ramp surfaces shall be stable, firm, and slip resistant in compliance with **521 CMR 7.00: Ground and Floor Surfaces**. Ramps may be carpeted only if carpeting is installed in accordance with **521 CMR 7.3, Carpets**.

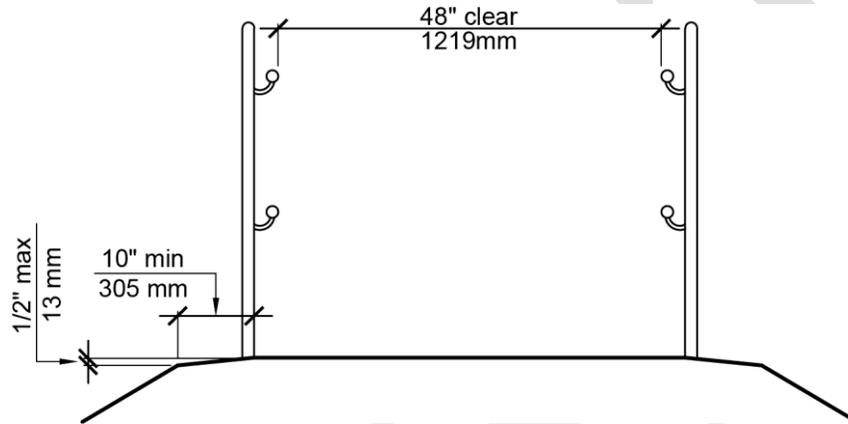
## 12.8 EDGE PROTECTION

Edge protection complying with **521 CMR 12.8a** or **521 CMR 12.8b** shall be provided on each side of ramp runs and at each side of ramp landings.

Exceptions:

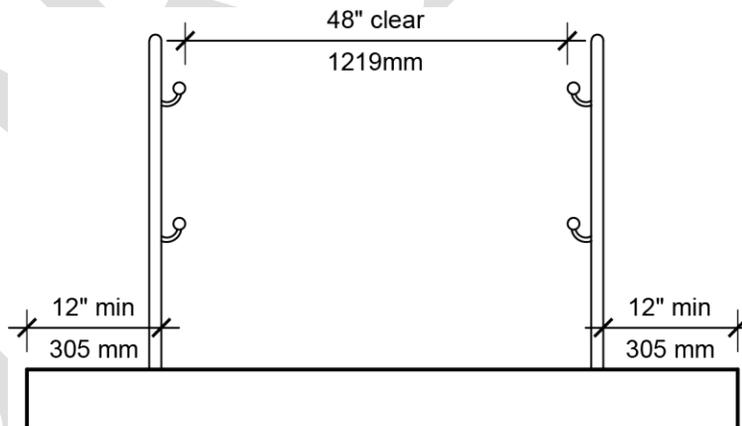
1. Edge protection shall not be required on *ramps* at *curb cuts* that are not required to have handrails and have slopes complying with **521 CMR 13.3, Slope**, and **521 CMR 13.7, Flared Sides**.
2. Edge protection shall not be required on the sides of *ramp* landings serving an adjoining *ramp* run or stairway.
3. Edge protection shall not be required on the sides of *ramp* landings having a vertical drop-off of one half (1/2) of an inch (13 mm) maximum within 10 inches (254 mm) horizontally of the landing edge. See **Figure 12.8a**.

**Figure 12.8a**



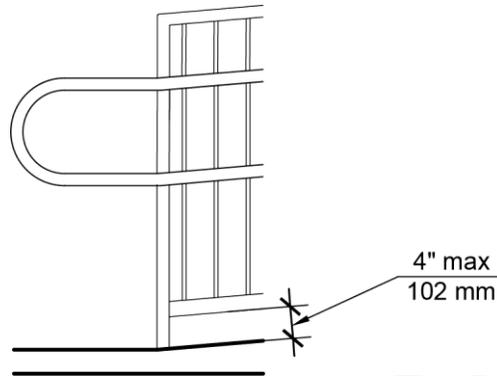
- a. The floor or ground surface of the *ramp* run or landing shall extend 12 inches (305 mm) minimum beyond the inside face of a handrail complying with **521 CMR 12.6, Handrails**. See **Figure 12.8b**.

**Figure 12.8b**



- b. A curb or barrier shall be provided that prevents the passage of a 4 inch (102 mm) diameter sphere, where any portion of the sphere is within 4 inches (102 mm) of the finish floor or ground surface. See **Figure 12.8c**.

**Figure 12.8c**



**12.9 OUTDOOR CONDITIONS**

Outdoor *ramps* and their approaches shall be designed so that water will not accumulate on walking surfaces. If gratings are used to disperse water, they shall comply with **521 CMR 9.7, Gratings**.

**12.10 CIRCULAR RAMPS**

Circular *ramps* are not permitted, except with the approval of this *Board*.

## 521 CMR 13.00: CURB CUTS

### 13.1 GENERAL

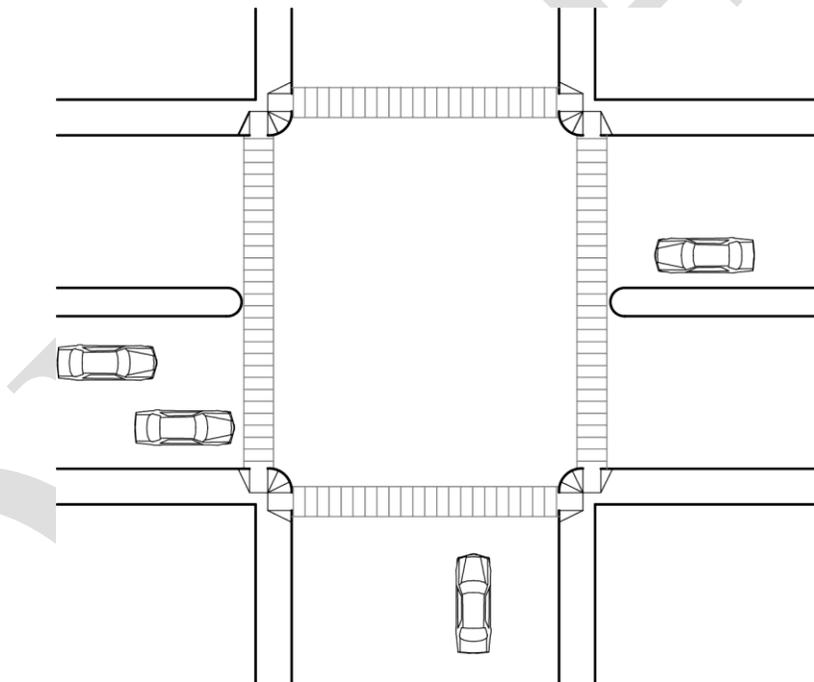
Whenever *sidewalks*, *walkways*, streets, or curbs on streets and ways are *constructed*, reconstructed, resurfaced (i.e. grinding, milling, scarifying, etc.), or *repaired*, *curb cuts* are required. All *curb cuts* shall comply with the following:

### 13.2 LOCATION

*Curb cuts* shall occur wherever an *accessible route* crosses a curb and at the following locations:

- 13.2.1 *Curb cuts* are required at each corner of each intersection, located within the crosswalk and/or the pedestrian path of travel. *Curb cuts* shall be perpendicular to the curb at street crossings and each shall have a *level landing* at the top. At *marked crossings*, the bottom of the *ramp run*, exclusive of flared sides, shall be wholly contained within the *marked crossing*. See **Fig. 21a**. See **Figure 13.2a**. The crosswalk/pedestrian path of travel must also be perpendicular to the curb.

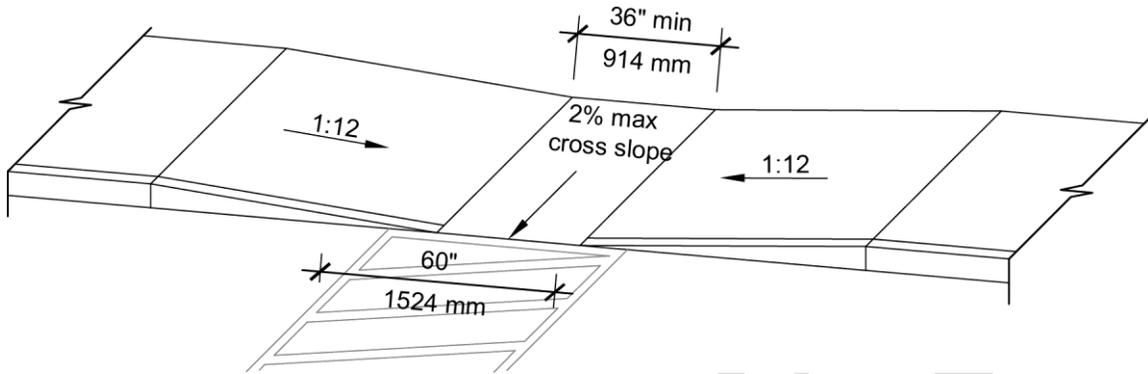
**Figure 13.2a**



#### Exceptions:

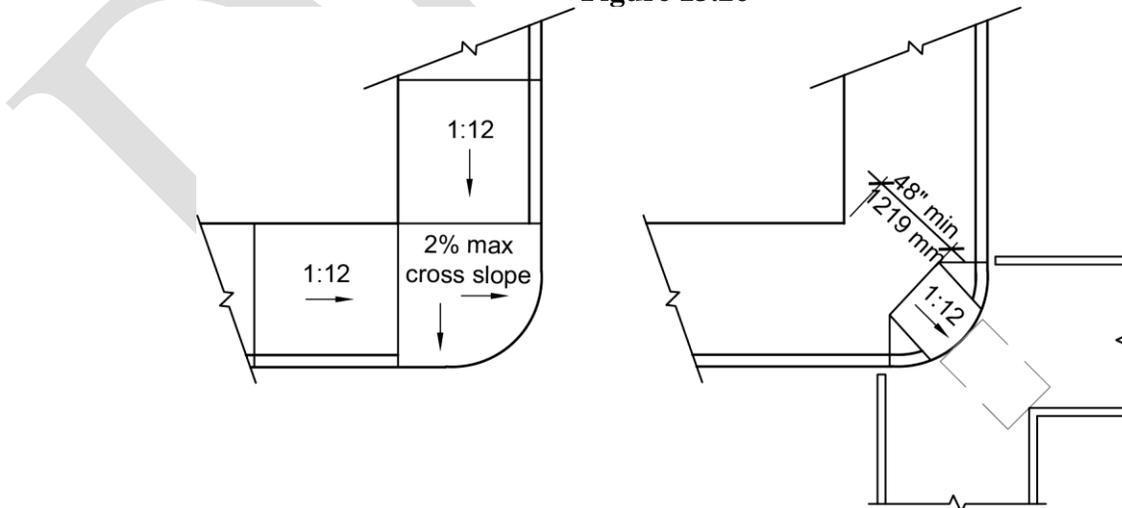
1. Where pedestrian right-of-way established width will not accommodate a perpendicular *curb cut* and the 48 inch (1219 mm) *level landing*, a *sidewalk curb cut* with a *level landing* shall be provided instead of a perpendicular *curb cut*, and shall comply with **Figure 13.2b**.

**Figure 13.2b**



2. Where *site* constraints prevent the installation of a perpendicular *curb cut* or a parallel *curb cut* with a *level* landing, an apex *curb cut* is allowed. When apex *curb cuts* are installed, a 48 inch (1219 mm) landing shall also be provided at the bottom of the *curb cut* and located within a marked crosswalk, as shown in **Figure 13.2c**. *Site* constraints include the following:
- a. Driver or pedestrian line of sight to or from the front of the *level* landing on the *ramp* is impaired, preventing safe observation of crosswalks or approaching traffic at the intersection by a significant immovable or unalterable streetscape feature such as a *building*, structure or historic *element*, etc.
  - b. Stop line is beyond the allowed limit as stated in the Manual on Uniform Traffic Control Devices.
  - c. Vaults containing electrical, telecommunications, etc. that are under or on the existing *sidewalk*.
  - d. Large radius intersections which are 30 feet (9144 mm) or greater.

**Figure 13.2c**

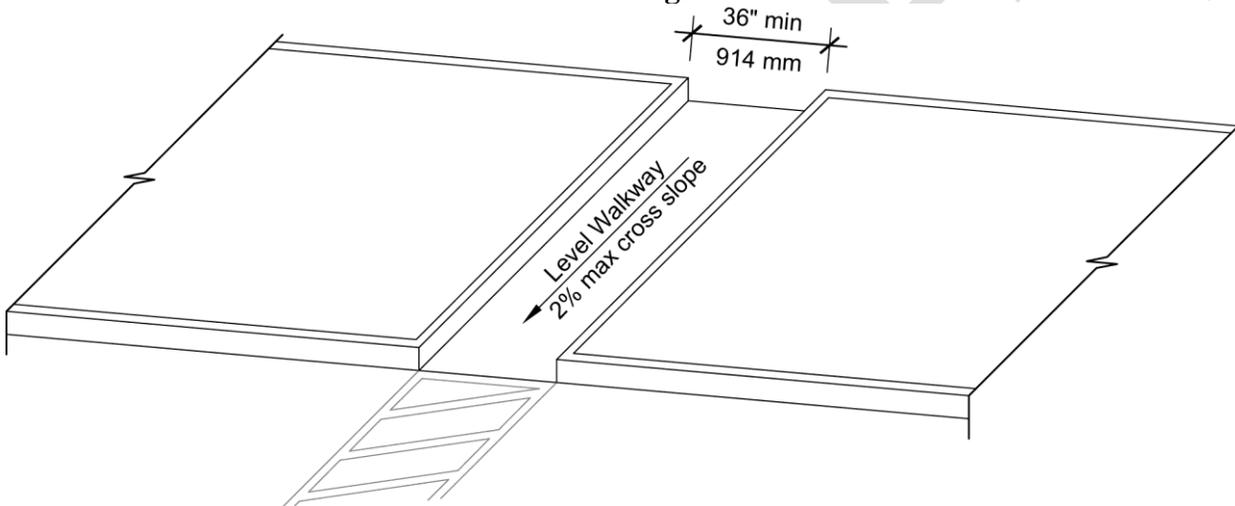


13.2.2 Reciprocal *curb cuts*: When *curb cuts* or *sidewalks* are being *constructed* or reconstructed on one (1) side of the street, and when such *curb cuts* or *sidewalks* are connected to an opposite side of the street by one (1) or more pedestrian paths of travel, then at least one (1) *curb cut* shall be provided on the opposite side of the street where such side is controlled by the same owner.

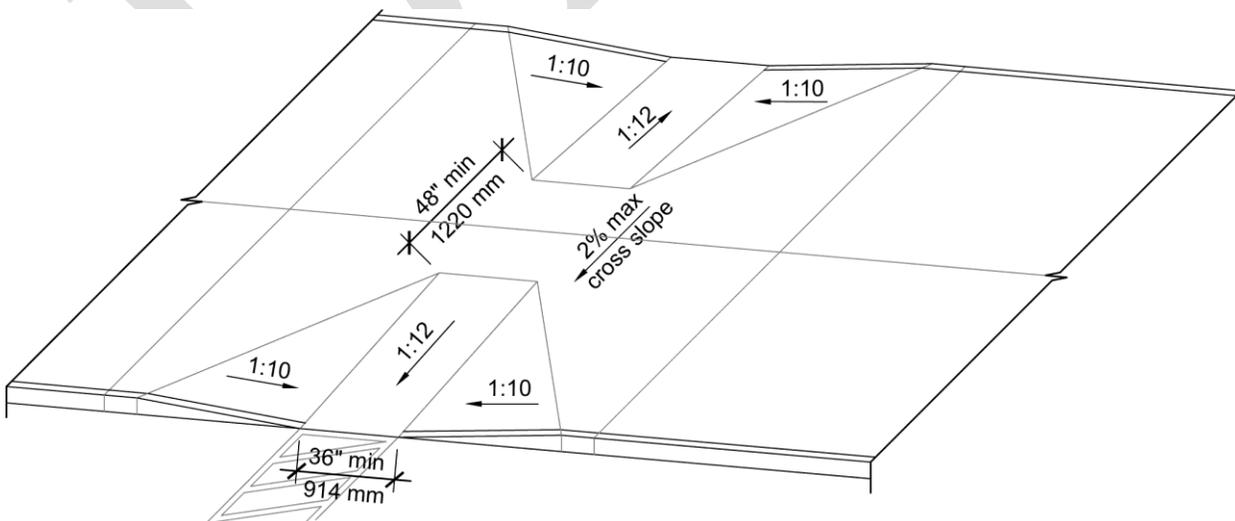
13.2.3 Driveways: *Curb cuts* are required at driveways intersecting *sidewalks* when the driveway has side curbs.

13.2.4 Raised Islands: Any raised islands in crossings shall be cut through *level* with the street or have *curb cuts* at both sides and a *level* area a minimum of 48 inches (1219 mm) long by a minimum of 36 inches wide (914 mm) between the *curb cuts* in the part of the island intersected by the crossings. Each 48 inch (1219 mm) minimum by 36 inch (914 mm) minimum *space* shall be oriented so that the 48 inch (1219 mm) minimum length is in the direction of the *running slope* of the *curb cut* it serves. The 48 inch (1219 mm) minimum by 36 inch (914 mm) minimum *spaces* and the *accessible route* shall be permitted to overlap. See **Figure 13.2d** and **Figure 13.2e**.

**Figure 13.2d**



**Figure 13.2e**

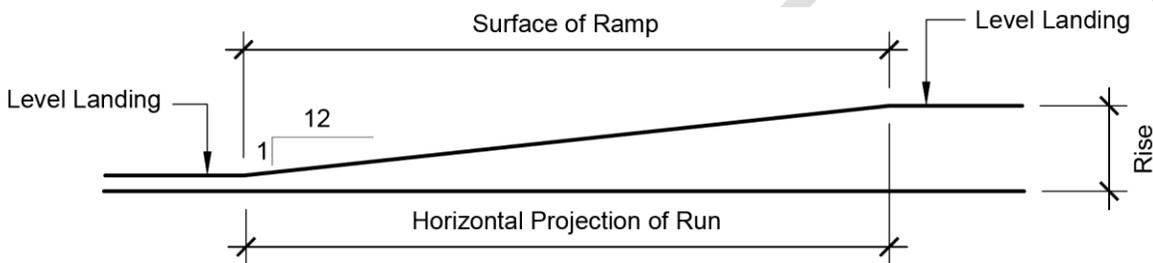


13.2.5 Obstructions: *Curb cuts* shall be located or protected to prevent their obstruction by parked vehicles.

### 13.3 SLOPE

The maximum slope shall be one- to-twelve (1:12) (8.3 percent). *Curb cuts* of a shallower slope (i.e. one-to-fourteen (1:14) (7.1 percent) or shallower) are preferable. Where *sidewalks* are too narrow to install a straight-line *curb cut* at a slope of one-to-twelve (1:12) (8.3 percent), the sides of the *curb cut* shall be a maximum of one-to-twelve (1:12) (8.3 percent). . See **Figure 13.3**. The maximum *cross slope* for any *curb cut* shall be one-to-fifty (1:50) (2 percent). (There is no tolerance allowed on slope requirements. Refer to **521 CMR 2.4.4d**).

**Figure 13.3**



### 13.4 TRANSITIONS

Transitions from *curb cuts* to *walks*, gutters, or streets shall be flush or free of changes in level greater than one-half ( $\frac{1}{2}$ ) of an inch (13 mm). Maximum slopes of adjoining gutters, road surface immediately adjacent to the *curb cuts*, or *accessible route* shall not exceed one-to-twenty (1:20) (5 percent).

### 13.5 DRAINAGE

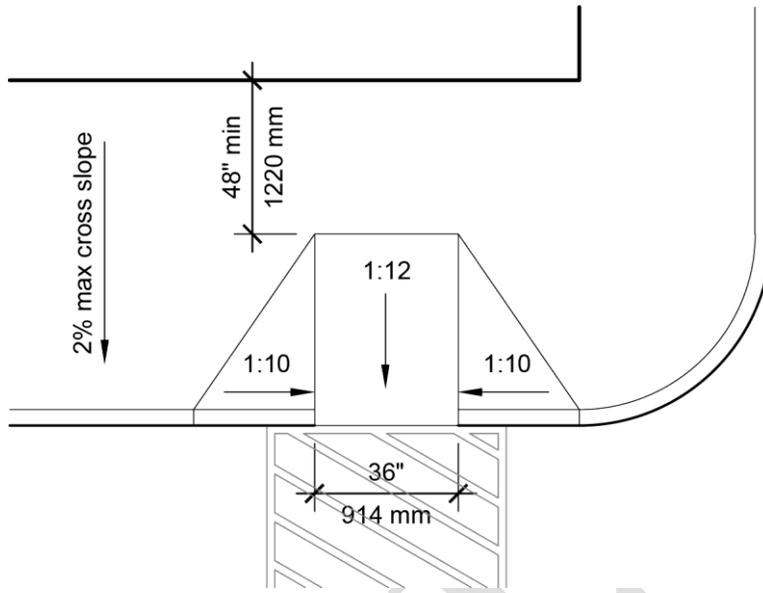
Grading and drainage shall be designed to minimize pooling of water, accumulation of ice, or flow of water across the base of the *curb cut*.

### 13.6 WIDTH

The minimum width of a *curb cut* shall be 36 inches (914 mm), exclusive of flared sides. .

13.6.1 Landing width: Where a perpendicular *curb cut* is provided, a landing the width of the *curb cut* shall be provided at the top of the *curb cut*. The landing shall be 48 inches (1219 mm) in length. The slope of said landing shall not exceed one-to-fifty (1:50) (2 percent) in any direction. See **Figure 13.6a**

**Figure 13.6a**



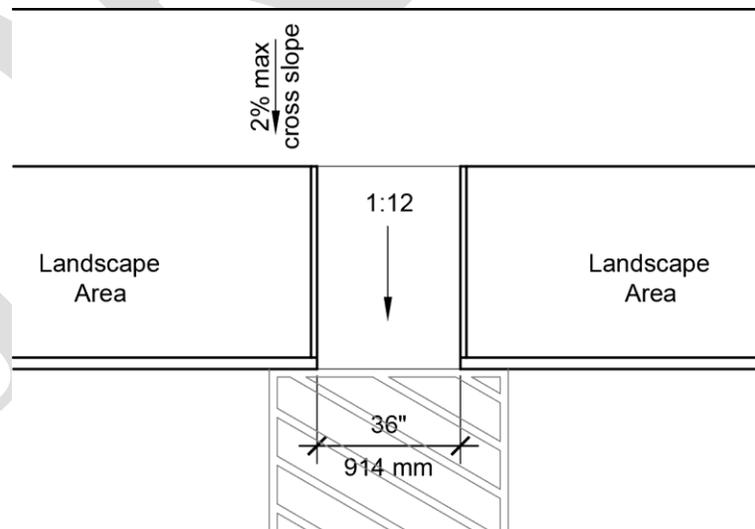
**13.7 FLARED SIDES**

Sides of *curb cuts* shall extend a minimum of 24 inches (610 mm) at the curb. The maximum slope of the flare is one-to-ten (1:10) (10 percent). Curbing at the flared sides must blend with the slope of the flared sides. See **Figure 13.6a**.

**13.8 RETURNED SIDES**

*Curb cuts* with returned sides are only permitted where they are protected by handrails pursuant to **521 CMR 12.6, Handrails**, or where pedestrian travel across the *ramp* is obstructed by permanently installed street hardware or landscaping. . See **Figure 13.8**.

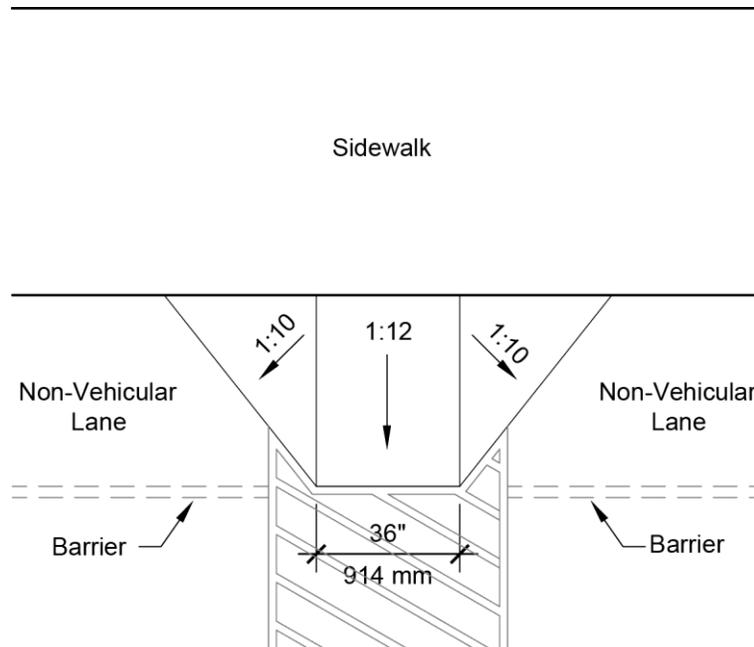
**Figure 13.8**



### 13.9 BUILT-UP CURB CUTS

Built-up *curb cuts* are allowed only where they do not project into vehicular traffic lanes. See **Figure 13.9**.

**Figure 13.9**



### 13.10 PEDESTRIAN STREET CROSSINGS

Where provided, pedestrian street crossings at, above, or below grade shall comply with the following:

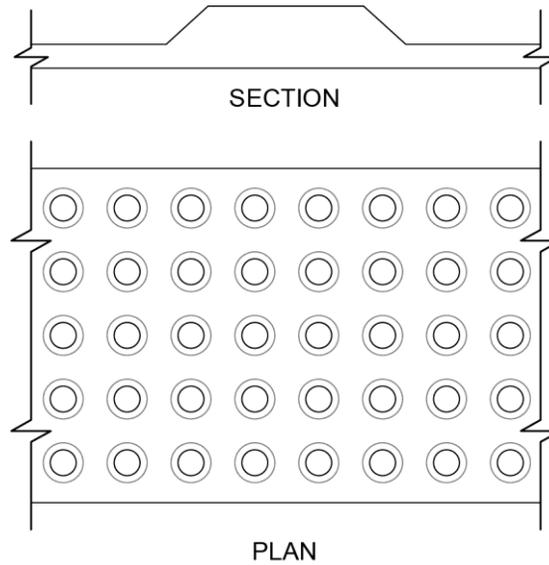
- Crossing controls shall be raised from or flush with their housings and shall be a minimum of 2 inches (51 mm) in the smallest dimension. The force required to activate controls shall be no greater than 5 lbs.
- Controls shall be located as close as practicable to the *curb cut* serving the controlled crossing and shall permit operation from a *clear floor or ground space*.
- Pedestrian-actuated crossing controls shall be a maximum of 42 inches (1067 mm) above the finished *sidewalk*.
- A stable and firm *space*, complying with **521 CMR 6.5, Forward Reach**, or **521 CMR 6.6, Side Reach**, shall be provided at the controls. Where a parallel approach is provided, controls shall be within 10 inches (254 mm) horizontally of and centered on the *clear floor or ground space*. Where a forward approach is provided, controls shall abut and be centered on the *clear floor or ground space*.

**13.11 DETECTABLE WARNINGS** - Where provided, *detectable warnings* shall consist of a surface of truncated domes (See **Figure 13.11**) and shall comply with the following:

- Truncated domes in a *detectable warning* surface shall have a base diameter of nine-tenths (9/10) of an inch (23 mm) minimum and 1 ¼ inches (32 mm) maximum, a top diameter of 50 percent of the base diameter minimum to 65 percent of the base diameter maximum, and a height of one-fifth (1/5) of an inch (5 mm).

- b. Truncated domes in a *detectable warning* surface shall have a center-to-center spacing of 1 3/5 inches (41 mm) minimum and 2 1/4 inches (57 mm) maximum, and a base-to-base spacing of 0.65 inch (17 mm) minimum, measured between the most adjacent domes on a square grid.
- c. *Detectable warning* surfaces shall contrast visually with adjacent walking surfaces either light-on-dark, or dark-on-light.

**Figure 13.11**



**13.12 ACCESSIBLE PEDESTRIAN SIGNALS - Reserved.**

## 521 CMR 14.00: ELEVATORS

### 14.1 GENERAL

In all multi-story *buildings* and *facilities*, each level including *mezzanines*, shall be served by a passenger elevator complying with **521 CMR 14.00: Elevators** and **524 CMR, Board of Elevator Regulations**. Elevators shall be on an *accessible route* and located within the *space* with which it is intended to serve. **Elevators are not required under the following exceptions.**

1. *Buildings* having only two (2) levels may provide an interior *accessible ramp* complying with **521 CMR 12.00: RAMPS** in lieu of an elevator.
2. *Buildings* having only two (2) levels, in which each level serves an unrelated *use* and in which there is no internal stair, do not require an elevator if each level is *accessible*.
3. Freight elevators shall not be required to meet the requirements of **521 CMR 14.00: ELEVATORS** unless the only elevators provided are used as combination passenger and freight elevators.
4. Elevator pits, elevator penthouses, mechanical rooms, and piping or equipment catwalks shall not be required to meet the requirements for elevator access.
5. Where platform lifts are allowed to be installed in lieu of an elevator as per **521 CMR 14.12, Wheelchair Lifts/Limited Use Elevators**.
6. *Multiple dwellings* where all *accessible* rooms and all *public use* and *common use spaces* are on the *accessible* level.
7. *Lodging facilities* of less than three (3) stories in height and where all *accessible* rooms and all *public use spaces* and *common use spaces* are on the *accessible* level.

14.1.2 The elevator exceptions set forth above do not obviate or limit in any way the obligation to comply with the other accessibility requirements of **521 CMR**. For example, floors above or below the *accessible ground floor* must meet the requirements of **521 CMR** except for elevator service. If toilet or bathing *facilities* are provided on a level not served by an elevator, then toilet or bathing *facilities* must be provided on the *accessible ground floor*.

14.1.3 A passenger elevator that provides service from a garage to only one (1) level of a *building* or *facility* is not required to serve other levels.

14.1.4 For elevators within transportation *facilities* please refer to **521 CMR 30.00: TRANSPORTATION TERMINALS**.

### 14.2 OPERATION

Elevator operation shall be automatic.

14.2.1 Self Leveling: Each car shall be equipped with a self-leveling feature that is automatic and independent of the operating device and shall correct any over-travel or under-travel.

14.2.2 The self-leveling feature shall bring the car to a position *level* with floor landings under all loading conditions from zero (0) to the rated limit. A tolerance of one-half (½) of an inch (13 mm) shall be permitted.

### 14.3 CALL CONTROLS

Where elevator call buttons or key pads are provided, they shall comply with the following:

- a. Call controls shall be located within one of the reach ranges specified in **521 CMR 6.5, Forward Reach, and 521 CMR 6.6, Side Reach**, measured to the centerline of the highest *operable part*. See **Figure 14.3**.
- b. Call controls shall have visual signals to indicate when each call is registered and when each call is answered.
- c. Call controls shall be a minimum of three-quarters ( $\frac{3}{4}$ ) of an inch (19 mm) in the smallest dimension. The call control designating the up direction shall be on top. Call buttons shall be either raised or flush.
- d. *Clear floor or ground space* shall be provided at call controls. No objects shall be mounted on the wall or located on the floor beneath call controls.

### 14.4 HALL LANTERNS

A visible and audible signal shall be provided at each hoistway *entrance* to indicate which car is answering a call. Lanterns shall comply with the following:

14.4.1 Hall lantern fixtures shall be mounted so that their centerline is a minimum of 72 inches (1829 mm) above the lobby floor. See **Figure 14.3**.

14.4.2 Audible signals shall sound once for the up direction and twice for the down direction or shall have verbal announcements that say "up" and "down."

Exception:

Destination-oriented elevators shall not be required to comply with **521 CMR 14.4.2**, provided that the audible tone and verbal announcement is the same as those given at the call button or call button keypad.

14.4.3 Visible signals shall have the following features:

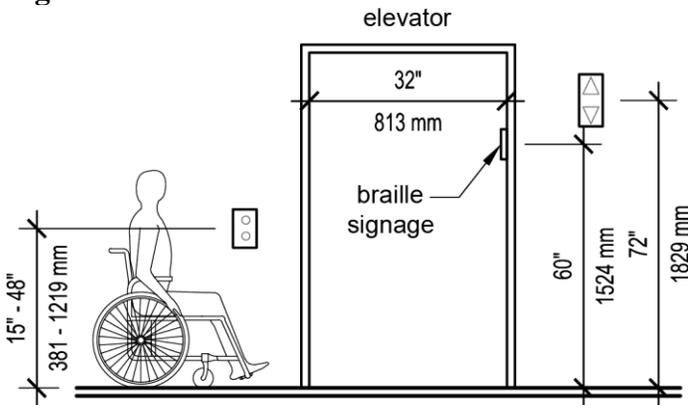
- a. Visual *elements* shall be a minimum of  $2\frac{1}{2}$  inches (64 mm) in the smallest dimension.
- b. Signals shall be visible from the vicinity of the hall call button. See **Figure 14.3**. In-car lanterns located in cars, visible from the vicinity of hall call buttons, and conforming to the above requirements, shall be acceptable.

### 14.5 DOOR JAMB MARKINGS

Floor designations complying with **521 CMR 21.2, Mounting Location and Height, and 521 CMR 21.5, Raised Brailed Characters**, shall be provided on both jambs of all elevator hoistway *entrances*. Floor designations shall be provided in both *tactile/raised* characters and *Braille* and shall be visible from within the car and the elevator lobby. *Tactile/raised* characters shall be 2 inches (51 mm) high minimum. A *tactile* star shall be provided on both jambs at the main entry level. See **Figure 14.5**.

14.5.1 Permanently applied plates are acceptable if they are secured to the jambs.

**Figure 14.5**



## 14.6 DOORS

Elevator doors shall open and close automatically and shall comply with the following:

- Elevator doors shall provide a *clear* opening that is a minimum of 36 inches (914 mm) wide.
- Doors shall close at a maximum speed of approximately 1 foot (305 mm) per second.
- The minimum time for elevator doors to remain fully open in response to a car call shall be 3 seconds.

14.6.1 Reopening Device: A door reopening device shall be provided that will stop and reopen a car door and an adjacent hoistway door automatically if the car door becomes obstructed by an object or person while closing.

- The device shall be capable of completing these operations without requiring contact with the obstruction.
- The reopening device shall detect possible obstructions passing through the opening at heights of 5 inches and 29 inches (127 mm and 737 mm) above finish floor. c. Door reopening devices shall remain effective for at least 20 seconds. After such an interval, doors may close in accordance with the requirements of ASME A17.1-1990 and, if applicable, with 524 CMR: the Board of Elevator Regulations.

14.6.2 Door and Signal Timing for Hall Calls: Doors and signals shall be coordinated to comply with the following:

- The minimum acceptable time from notification that a car is answering a call until the doors of that car start to close shall be calculated from the following equation:

$$T = D / (1.5 \text{ ft/s})$$

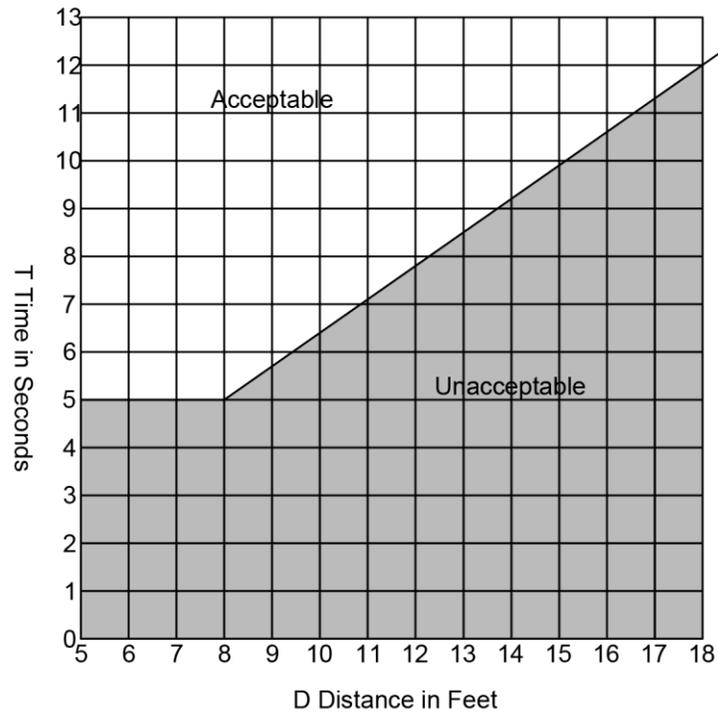
or

$$T = D / (457 \text{ mm/s})$$

T = total time in seconds

D = distance (in feet or millimeters) from a point in the lobby or corridor 60 inches (1524 mm) directly in front of the farthest call button controlling that car to the centerline of its hoistway door. See **Figure 14.6**.

**Figure 14.6**



For cars with in-car lanterns, "T" begins when the lantern is visible from the vicinity of hall call buttons and an audible signal is sounded.

- b. The minimum acceptable notification time shall be five seconds

## 14.7 ELEVATOR CAR

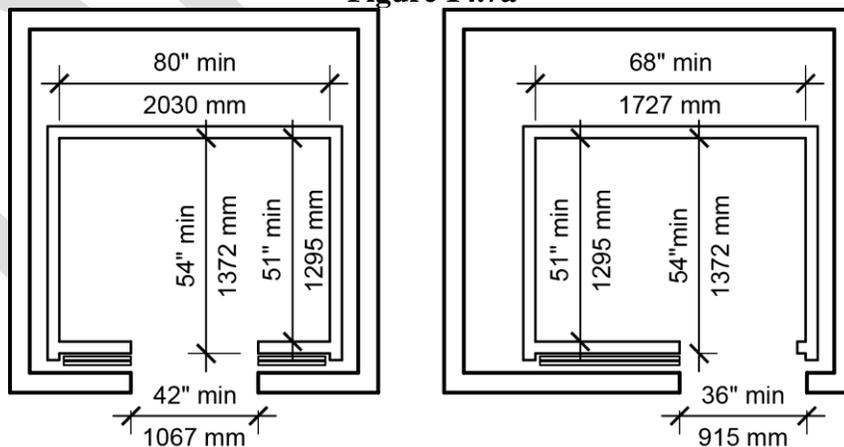
The elevator cab interior, door width and door location shall, at a minimum, meet the following dimensions:

Door Location	Door Clear Width	Inside Car, Side to Side	Inside Car, Back Wall to Front Return	Inside Car, Back Wall to Inside Face of Door
Centered See <b>Figure 14.7a</b>	42 inches (1067 mm)	80 inches (2032 mm)	51 inches (1296 mm)	54 inches (1372 mm)
Side (off-centered) See <b>Figure 14.7a</b>	36 inches (914 mm)	68 inches (1727 mm)	51 inches (1295 mm)	54 inches (1372 mm)
Any	36 inches (914 mm)	54 inches (1372 mm)	80 inches (2032 mm)	80 inches (2032 mm)
Any	36 inches (914mm)	60 inches (1524 mm)	80 inches (2032 mm)	60 inches (1524 mm)

### Exception:

In existing *buildings*, where existing shaft configuration prohibits strict compliance with **521 CMR 14.7, Elevator Car**, the maximum car size allowable for the existing shaft shall be provided, but in no case shall the inside *space* be smaller than 48 inches by 48 inches (1219 mm by 1219 mm), wall-to-wall and wall-to-door.

**Figure 14.7a**



- a. The horizontal clearance between the car platform sill and the edge of any hoistway landing shall be no greater than 1¼ inch (32 mm).

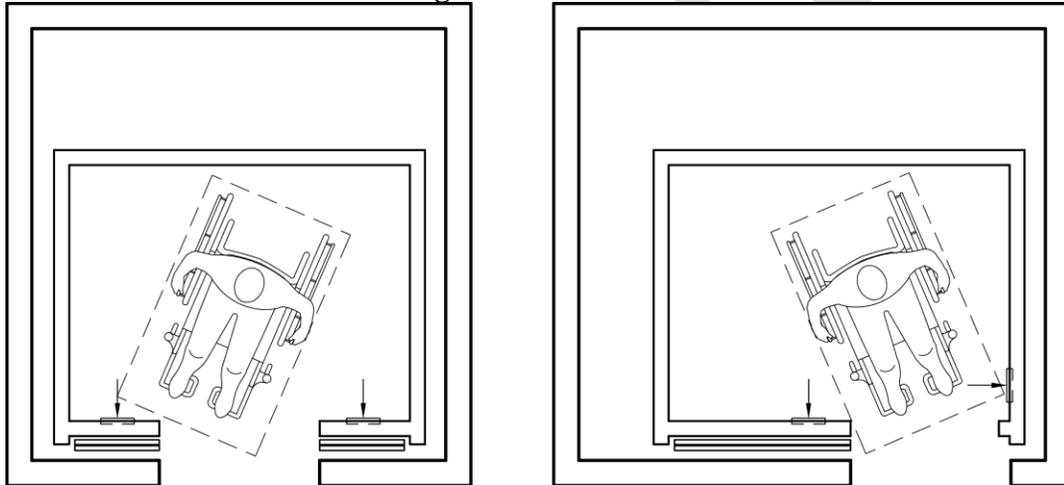
- b. Handrails shall be located on at least one (1) wall in every elevator between 32 and 36 inches ( 813 mm and 914 mm) above the car floor, with a 1½ inch (38 mm) clearance from the wall.
- c. Floor surfaces shall comply with **521 CMR 7.00: GROUND AND FLOOR SURFACES**.

**14.8 CAR CONTROLS**

Elevator control panels shall have the following features:

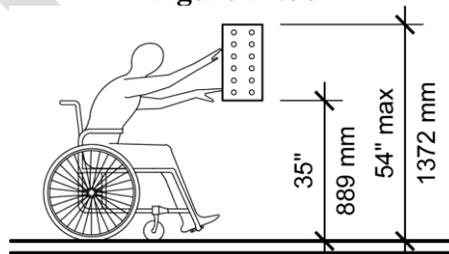
- a. If cars have center opening doors, controls shall be located on the same wall or walls. If cars have side opening doors, controls shall be located at the side wall or at the front wall next to the door. See **Figure 14.8a**.

**Figure 14.8a**



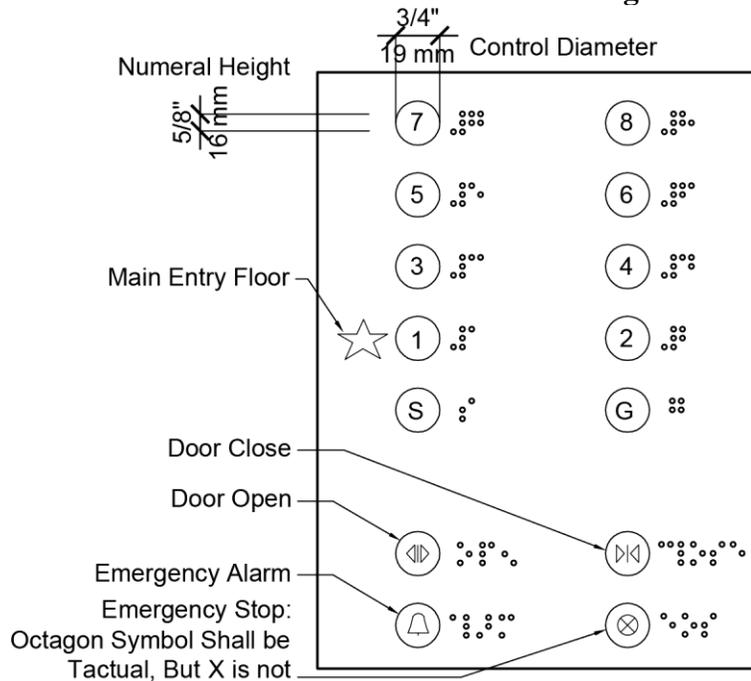
- b. All floor buttons shall be no higher than 54 inches (1372mm) above the finish floor for side approach and 48 inches (1219 mm) for front approach. Emergency controls, including the emergency alarm and emergency stop, shall be grouped at the bottom of the panel and shall have their centerlines no less than 35 inches (889 mm) above the finish floor. See **Figure 14.8b**.

**Figure 14.8b**



- c. All control buttons shall be a minimum of three-quarters (¾) of an inch (19 mm) in their smallest dimension. They shall be raised or flush. See **Figure 14.8c**.

**Figure 14.8c**



- d. The control button for the emergency stop, alarm, door open, door close, main entry floor, and phone, shall be identified with *tactile* symbols as shown in **Figure 14.8c** and **Figure 14.8d**.

**Figure 14.8d**

Control Button	Tactile Symbol	Braille Message	
Emergency Stop			"ST"OP Three cells
Alarm			AL"AR" M four cells
Door Open			OP"EN" three cells
Door Close			CLOSE five cells
Main Entry Floor			MA"IN" three cells
Phone			PH"ONE" four cells

- e. *Tactile, Braille, and Visual Control Indicators*: All control buttons shall be designated by *Braille* and by raised standard alphabet characters for letters, Arabic characters for numerals, or standard symbols as shown in **Figure 14.8d**.
  - i. Raised and *Braille* characters and symbols shall comply with **521 CMR 21.00: SIGNAGE**.
  - ii. The call button for the main entry floor shall be designated by a raised star at the left side of the floor designation. See **Figure 14.8c** and **Figure 14.8d**.
  - iii. All raised designations for control buttons shall be placed immediately to the left of the button to which they apply.
  - iv. Applied plates, permanently attached, are an acceptable means to provide raised control designations.
  - v. Floor buttons shall be provided with visual indicators to show when each call is registered. The visual indicators shall be extinguished when each call is answered.
- f. Keypads shall be identified by characters complying with **521 CMR 21.5, Raised and Braille Characters**, and shall be centered on the corresponding keypad button. The number five key shall have a single raised dot. The dot shall be 0.118 inch (3 mm) to 0.120 inch (3.05 mm) base diameter.

#### 14.9 CAR POSITION INDICATORS

In elevator cars, a visual car position indicator shall be provided in compliance with the following:

- a. Location: The car position indicator shall be located above the car control panel or over the door to show the position of the elevator in the hoistway.
- b. Visual and Audible: As the car passes or stops at a floor served by the elevators, the corresponding numerals shall illuminate and an audible signal shall sound.
  - i. Numerals shall be a minimum of one-half (1/2) of an inch (13 mm) high and shall be illuminated on a contrasting background.
  - ii. The audible signal shall be no less than 20 decibels with a frequency no higher than 1500 Hz.
  - iii. An automatic verbal announcement of the floor number at which a car stops or which a car passes may be substituted for the audible signal.

#### 14.10 EMERGENCY COMMUNICATIONS

If a service location is maintained in a *building*, a two-way emergency communication system shall be provided between the elevator car and the service location. If a service location is not located within the *building* or is not staffed 24 hours a day by authorized personnel, the two-way emergency communication system shall automatically be directed (within 30 seconds) to an additional on- or off-*site* location, staffed by authorized personnel.

- 14.10.1 The highest *operable part* of a two-way communication system shall be a maximum of 48 inches (1219 mm) from the floor of the car.
- 14.10.2 It shall be identified by a raised symbol and lettering complying with **521 CMR 21.00: SIGNAGE**, and located adjacent to the device.

Exception:

The emergency intercommunication system shall not require voice communication. Lights that indicate that emergency contact has been made and is being responded to would meet this requirement.

- 14.10.3 If the system uses a handset, the length of the cord from the panel to the handset shall be a minimum of 29 inches (737 mm). Said handsets shall be equipped with hearing amplification.
- 14.10.4 If the system is located in a closed compartment the compartment door hardware shall conform to **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
- 14.10.5 Where keypads are provided, keypads shall be in a standard telephone keypad arrangement and shall comply with **521 CMR 14.8f**.

#### **14.11 ILLUMINATION LEVELS**

The level of illumination at the car controls, platform, car threshold and landing sill shall be at least five (5) foot-candles (53.8 lux).

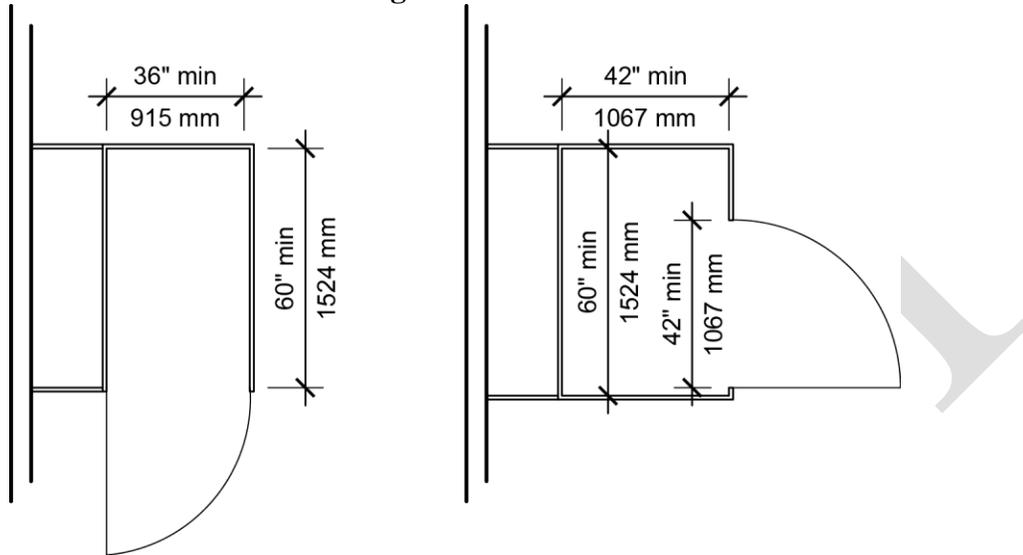
#### **14.12 WHEELCHAIR LIFTS/ LIMITED USE ELEVATORS:**

Platform lift devices, shall comply with the following:

- 14.12.1 General: Vertical wheelchair lift devices and Limited use elevators may be used as a part of an *accessible route* of travel in lieu of an elevator under any of the following circumstances.
- a. In existing *buildings* only, to provide an *accessible route* to a performing area (stage) in an assembly occupancy.
  - b. In existing *buildings* only, to comply with the wheelchair viewing position line-of-sight and dispersion requirements of **521 CMR 26.4, Integration and Disbursement of Accessible Seating / Wheelchair Spaces**.
  - c. In existing *buildings* where no other work is being performed, except for the installation of a vertical wheelchair lift.
  - d. In existing *buildings* of less than three (3) *stories* in height or that have less than 3,000 square feet (279 m<sup>2</sup>) per *story* unless the *building* is a shopping center, a shopping mall, or the professional office of a health care provider.
  - e. In existing *buildings* only, to provide vertical access where the distance between floors is less than a full *story* and where a *ramp* is deemed not feasible by the building official having jurisdiction.
  - f. To provide an *accessible route* to the primary level of a press box or filming platform that is less than 500 square feet (46 m<sup>2</sup>).
  - g. To provide *accessible routes* to load and unload *spaces* serving *amusement rides*.
  - h. To provide *accessible routes* to *play components* or *soft contained play structures*, required by **521 CMR 59.4, Accessible Routes**.
  - i. To provide an *accessible route* between levels within *accessible* lodging guest rooms or *accessible* residential *dwelling units* required by **521 CMR 33.00: LODGING FACILITIES, and 521 CMR 34.00: MULTIPLE DWELLINGS**.
- 14.12.2 Limited-use elevators shall comply with the following:
- a. The cab size shall be a minimum of 36 inches wide by 60 inches deep (914 mm by 1524 mm) with the door opening on the 36 inch (914 mm) side. Where the *entrance* or exit to the elevator is provided on the 60 inch (1524 mm) side of the cab, the cab size shall be a minimum of 42 inches wide by 60 inches deep (1067 mm by 1524 mm). See **Figure 14.12a**.
  - b. The interior elevator door or gate shall be automatic.

- c. The exterior doors shall comply with **521 CMR 11.00: DOORS AND DOORWAYS**.
- d. The elevator shall meet all other requirements of **521 CMR 14.2, Operation**, through **521 CMR 14.6, Doors**, and **521 CMR 14.8, Car Controls**, through **521 CMR 14.11, Illumination Levels**.

**Figure 14.12a**



14.12.3

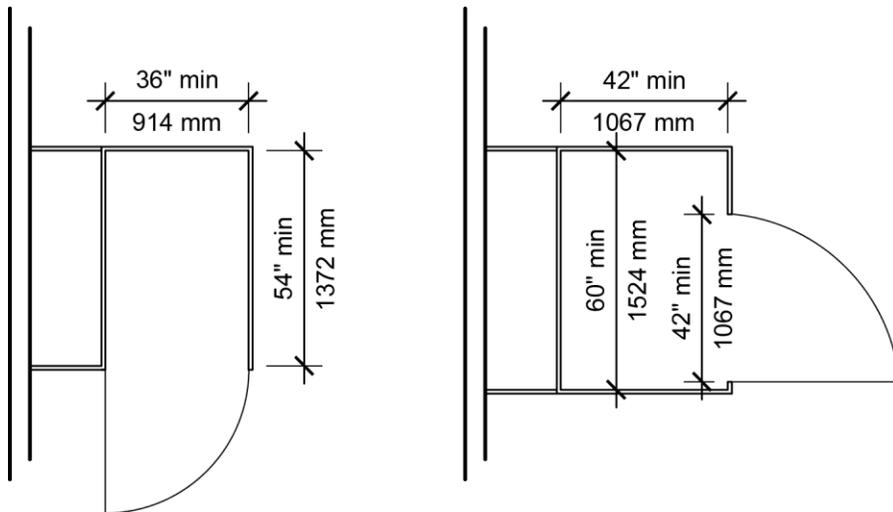
Vertical wheelchair lifts shall comply with the following:

- a. **521 CMR 12.5, Landings, 521 CMR 7.00: GROUND AND FLOOR SURFACES, and 521 CMR 41.00: CONTROLS / OPERABLE PARTS;**
- b. Interior platform size shall be a minimum of 36 inches wide by 54 inches deep (914 mm by 1372 mm).

Exception:

Where the door to the lift is provided on the wide side of the platform, the platform size shall be a minimum of 42 inches wide by 60 inches deep (1067 mm by 1524 mm). See **Figure 14.12b**.

Figure 14.12b



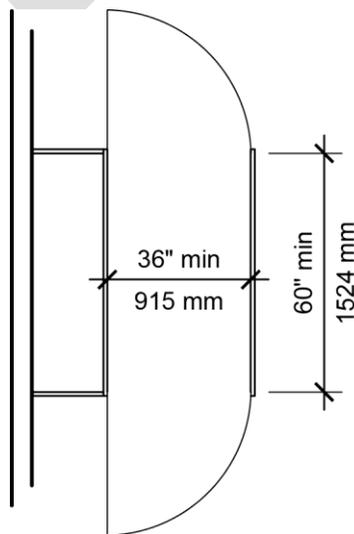
- c. The wheelchair lift shall be recessed into the floor, at all levels, so that it is flush with the finished floor or grade. Where recessing the lift is not possible and a *ramp* must be used, the *ramp*, and *level* landings, shall comply with **521 CMR 12.00: RAMPS**.
- d. Vertical wheelchair lifts shall provide *unassisted access*. See **524 CMR**.
- e. Wheelchair lifts shall have *automatic doors* complying with **521 CMR 11.6, Maneuvering Clearance**, through **521 CMR 11.12, Door Hardware**, which shall remain open for 20 seconds minimum.

Exception:

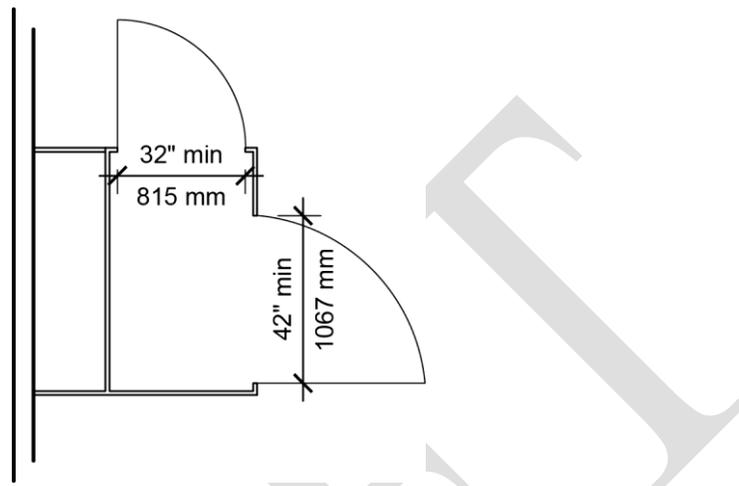
Wheelchair lifts serving two (2) landings maximum and having doors or gates on opposite sides shall be permitted to have self-closing manual doors or gates.

- f. Doors or gates shall provide a minimum *clear* width of 36 inches (914 mm) and side doors and gates shall provide a *clear* opening of 42 inches (1067 mm) minimum. All doors or gates shall comply with the applicable requirements of **521 CMR 11.6, Maneuvering Clearance**, through **521 CMR 11.12, Door Hardware**. See **Figure 14.12c** and **14.12d**.

Figure 14.12c



**Figure 14.12d**



g. Wheelchair lifts must be permanently installed and maintained in operating condition at all times.

- 14.12.4 Inclined wheelchair lifts may be used as a part of an *accessible route* of travel in lieu of an elevator only under the following circumstances.
- To provide an *accessible route* to a performing area (stage) in an assembly occupancy
  - In an existing *building* where no other work is being performed and no other alternative is available such as a vertical wheelchair lift, limited use elevator or a *ramp*, and the Local Building Inspector concurs with the lack of an alternative method of accessibility at the location in question.
- 14.12.5 Inclined chairlifts that do not provide platforms are not permitted in any circumstance.
- 14.12.6 Inclined wheelchair lifts shall comply with the following:
- The platform shall be a minimum of 30 inches wide by 48 inches long (762 mm by 1219 mm). The platform shall allow for a straight on-and-off boarding. Side entry is not permitted on incline wheelchair lifts.
  - A permanent folding seat shall be provided on the lift.
  - Incline wheelchair lifts shall provide unassisted entry, operation, and exit from the lift.
  - All controls and operating mechanisms shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
  - Inclined wheelchair lifts must be permanently installed and maintained in operating condition at all times.
  - Clear floor or ground space* must be provided at all entry and exit locations to the inclined wheelchair lift in accordance with the *clear floor or ground space* requirement as cited in **521 CMR 11.6.3, Pull Side Clearance**, and **521 CMR 11.6.4, Push Side Clearance**.

# **PART D**

# **GENERAL SITE AND BUILDING ELEMENTS**

**521 CMR 15.00: PARKING AND PASSENGER LOADING ZONES**

**15.1 GENERAL**

Off-street parking, including temporary parking areas, shall comply with **521 CMR**. For parking related to residential and *lodging facilities*, See **521 CMR 33.00: LODGING FACILITIES** and **521 CMR 15.4, Parking Spaces**.

Exception:

Parking spaces used exclusively for buses, trucks, other delivery vehicles, law enforcement vehicles, or vehicular impound shall not be required to comply with **521 CMR 15.00: PARKING AND PASSENGER LOADING ZONES**, provided that lots accessed by the public are provided with a passenger loading zone complying with **521 CMR 15.8, Passenger Loading Zones**.

**15.2 NUMBER**

*Accessible* parking spaces shall be provided as follows:

<u>15.2.1 Total Parking in Lot</u>	<u>Required Minimum Number of Accessible Spaces</u>
15-25	1
26-50	2
51-75	3
76- 100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1,000	2 percent of total
1,001 and over	20 plus 1 for each 100 over 1000

15.2.2 For every six (6), or fraction of six (6), parking spaces required by **521 CMR 15.2, Number**, at least one (1) shall be *van accessible*, See **521 CMR 15.4g**.

15.2.3 Spaces required by the table in **521 CMR 15.2.1** need not be provided in a particular lot. They may be provided in a different location if equivalent or greater accessibility, in terms of distance from an *accessible entrance*, cost and convenience, is ensured.

15.2.4 *Specialized Medical Facilities*: At *facilities* providing medical care for persons with mobility impairments, parking spaces shall comply with the following:

- a. At all inpatient and outpatient *facilities* that are associated with a hospital, 10 percent of the total number of parking spaces provided that are intended for patients and visitors shall be *accessible* in accordance with **521 CMR 15.00: PARKING AND PASSENGER LOADING ZONES**.
- b. At all *facilities* providing medical care and other services for persons with mobility impairments (as defined in **521 CMR 37.00: MEDICAL CARE FACILITIES**), 20 percent of the total number of parking spaces provided serving such *facility* shall be *accessible* in accordance with **521 CMR 15.00: PARKING AND PASSENGER LOADING ZONES**.

- c. At least one (1) passenger loading zone complying with **521 CMR 15.8, Passenger Loading Zones**, shall be provided at an *accessible entrance* to licensed medical care and licensed long-term care facilities.

### 15.3 LOCATION

*Accessible* parking spaces shall be located as follows:

15.3.1 *Accessible* parking spaces serving a particular *building, facility* or *temporary* event shall be located on the shortest *accessible route* of travel from adjacent parking to an *accessible entrance*.

15.3.2 In parking *facilities* that do not serve a particular *building, accessible* parking shall be located on the shortest *accessible route* of travel to an *accessible pedestrian entrance* of the parking *facility*.

15.3.3 In *buildings* with multiple *accessible entrances* with adjacent parking, *accessible* parking spaces shall be dispersed and located closest to the *accessible entrances*, but in no case, more than (3) spaces from the *accessible entrance*.

Exception:

Where *accessible* parking spaces cannot be located within 200 feet (60960 mm) of an *accessible entrance*, an *accessible* passenger drop-off area shall be provided within 100 feet (30480 mm) of an *accessible entrance*.

15.3.4 Garages: In multi-level garages where no elevator is provided, such parking spaces shall be permitted to be grouped on one (1) level, and shall all be located near the *accessible entrance*. If multiple *accessible entrances* are provided at that level, the parking spaces shall also comply with **521 CMR 15.3.3**. See special van requirement in **521 CMR 15.4g**.

Exceptions:

1. All van parking spaces shall be permitted to be grouped on one (1) level within a multi-story parking *facility*.
2. Parking spaces shall be permitted to be located in different parking *facilities* if substantially equivalent or greater accessibility is provided in terms of distance from an *accessible entrance* or *entrances*, parking fee, and user convenience.

### 15.4 PARKING SPACES

Shall comply with the following:

- a. *Accessible* parking spaces shall be a minimum of 8 feet (2438 mm) wide, plus the *access aisle*. The width of the parking space shall be measured from the center of the markings.
- b. The length of *accessible* parking spaces shall be at least the same as for parking spaces generally in accordance with local zoning requirements. Parked vehicles shall not reduce the *clear* width of an *accessible route* by overhanging or protruding into it.
- c. Parking spaces shall be *level* with surface slopes not exceeding one-to-fifty (1:50) (2 percent) in all directions.

Exception:

When *temporary accessible parking* is located within a field or otherwise unpaved *space*, when such *site* has not been improved in accordance with **521 CMR**, the spaces shall be located on the least sloping *space* of the parking lot.

- d. Spaces shall have a uniform, paved or hard packed smooth surface.

Exception:

*Temporary accessible parking* spaces shall have, at minimum, a hard packed, smooth surface with a minimum amount of pooling or draining water.

- e. *Accessible parking spaces* shall be marked by high contrast painted lines or other high contrast delineation.

Exception:

*Temporary accessible parking* spaces shall be easily identifiable, such as lined with field markings, paint or field tape. Traffic cones or barrels may be used to identify parking spaces where field markings, paint, or field tape cannot be used given the surface condition.

- f. All *accessible parking spaces* shall have *access aisles* that comply with the following:
  - i. *Parking access aisles* shall be part of an *accessible route* to the *building* or *facility entrance* and shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**.

Exception:

For *temporary accessible parking*, *directional signage* along the entire *accessible route*, using the international symbol of accessibility and an arrow, shall be used to direct people to the closest *accessible entrance*.

- ii. *Access aisles* adjacent to *accessible parking spaces* shall be 5 feet (1524 mm) wide minimum, except adjacent to van *accessible parking spaces* the *access aisle* shall be a minimum of 8 feet (2438 mm) wide. The width of the *access aisles* shall be measured from the center of the markings.

Exception:

When *temporary accessible parking* is located within a field or otherwise unpaved *site*, when such *space* has not been improved in accordance with **521 CMR**, the parking spaces shall be located on the least sloping *space* of the parking lot in conjunction with the *temporary accessible parking spaces*.

- iii. Two (2) *accessible parking spaces* may share a common *access aisle*. See **Figure 15.4a** and **15.4b**.

**Figure 15.4a**

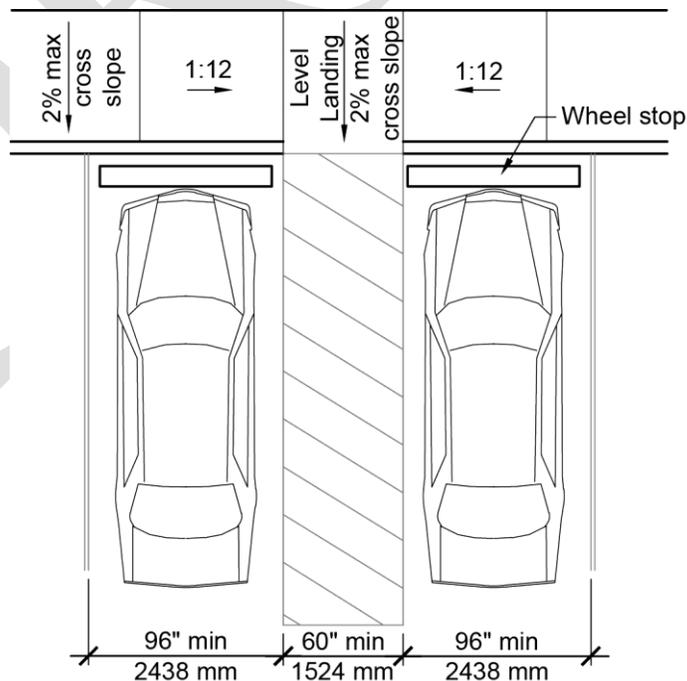
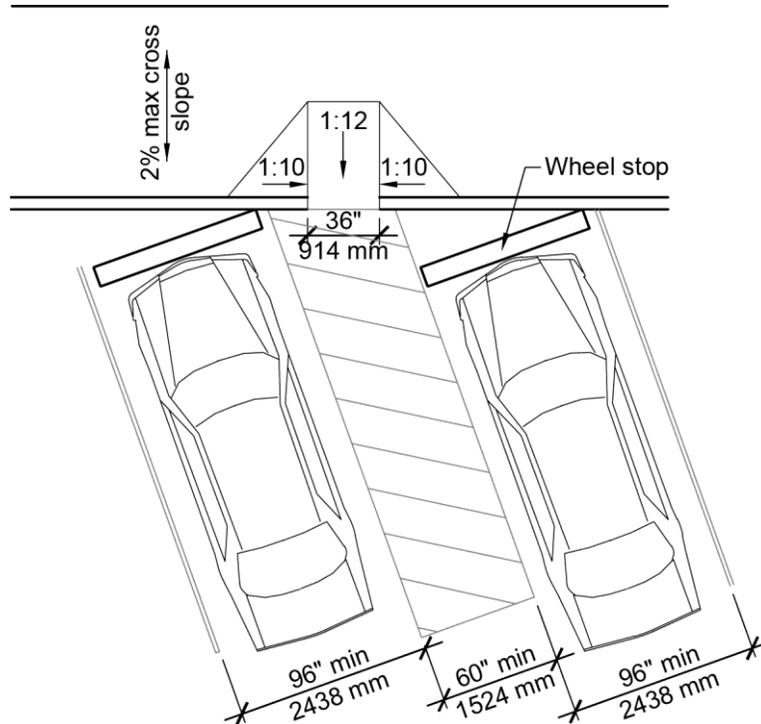
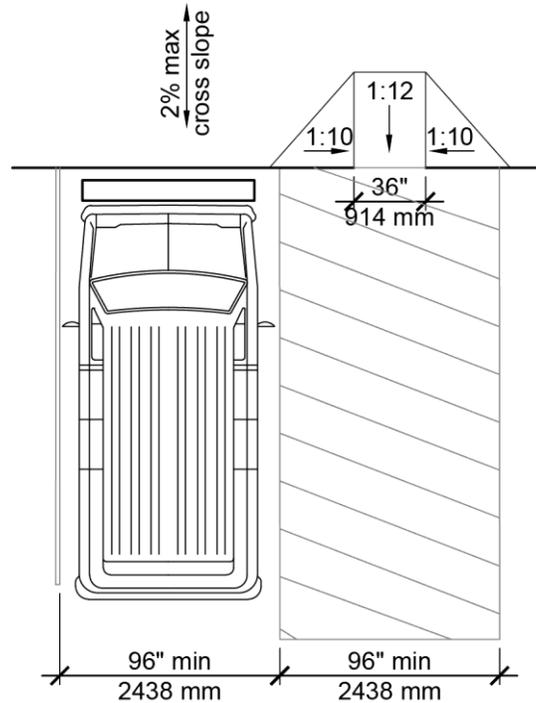


Figure 15.4b



- iv. *Access aisles* shall be *level* with surface slopes not exceeding one-to-fifty (1:50) (2 percent) in all directions.
- v. *Access aisles* shall be clearly marked by means of diagonal stripes.
- g. Van *Accessible* parking spaces shall comply with the following:
  - i. Provide minimum vertical clearance of 8 feet, 2 inches (2489 mm) at the parking space and along at least one (1) vehicle *access route* to such spaces from *site entrance(s)* and exit(s). See **Figure 15.4c**.

Figure 15.4c



- ii. Each parking space shall have a sign designating it "Van Accessible" as required by **521 CMR 15.6, Signage**.
- iii. All such parking spaces may be grouped on one (1) level of a parking structure.
- iv. 8 foot minimum (2438mm) wide parking space.
- v. Provide an *access aisle* of 8 feet (2438 mm).

Exception:

Van *accessible* parking spaces do not have to be separately provided if all required *accessible* parking spaces are 11 feet wide (3353 mm) with a 5 foot (1524 mm) *access aisle*.

## 15.5 SIDEWALKS

Where *sidewalks* are provided at *accessible* parking spaces, a *curb cut* shall be installed at the *access aisle* of each *accessible* parking space or pair of spaces. See **Figure 15.4a** and **15.4b**.

Exception:

Where *walkways* and *sidewalks* are provided at *temporary accessible parking* spaces, there shall be a firm, stable path of travel, not less than 36 inches (914 mm) wide, from the *temporary accessible parking* spaces to said *walkway* or *sidewalk*. There shall be no abrupt changes in level greater than one-half (1/2) of an inch (13 mm). If there is a change of level greater than one-half (1/2) of an inch (13 mm), then vertical access shall be provided either via *temporary curb ramps* or via a *temporary ramp*.

## 15.6 SIGNAGE

*Accessible* parking spaces shall be identified by signs indicating that they are reserved.

- 15.6.1 A sign shall be located at the head of each space, at a maximum of 10 feet (3048 mm) away, and at *accessible* passenger loading zones and may also include wording identifying its *use*.

Exception:

Signs for *temporary accessible parking* spaces located within a field or otherwise unpaved *space* shall be located at the head of each parking space if there are no attendants directing people to park, or signs indicating a general *space* designated for *accessible* vehicles if parking attendants are directing people to park.

15.6.2 The sign shall show the international symbol of *accessibility*. See **Figure 15.6(a)**.

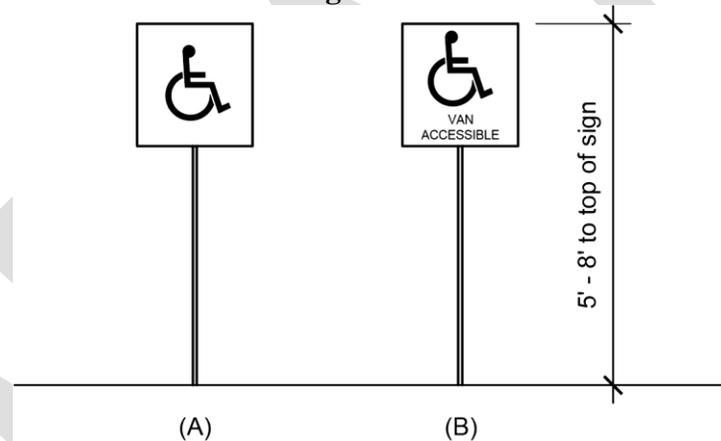
15.6.3 Van *accessible* parking spaces shall include the words: "Van Accessible". See **Figure 15.6(b)**.

15.6.4 Such signs shall be permanently located at a height of not less than 5 feet (1524 mm), or more than 8 feet (2438 mm) to the top of the sign. See **Figure 15.6**.

Exception:

*Signage for temporary accessible parking* spaces may be permanently attached to a pole within a bucket.

**Figure 15.6**



**15.7 BUS LOADING ZONES**

In bus loading zones restricted to *use* by designated or specified public transportation vehicles (i.e. buses, vans or shuttles), each bus bay, bus stop, or other *spaces* designated for lift or *ramp* deployment shall comply with **521 CMR 30.17, Bus Boarding and Alighting Areas**.

**15.8 PASSENGER LOADING ZONE**

If passenger loading zones are provided, at least one (1) of them shall comply with the following:

15.8.1 Wherever a passenger loading zone, parking area, or bus loading zone is provided, an *accessible route* to an *accessible entrance* is required.

15.8.2 Passenger loading zones shall provide an *access aisle* a minimum of 60 inches (1524 mm) wide and 20 feet (6096 mm) long, adjacent and parallel to the vehicle pull-up space.

15.8.3 If there are curbs between the *access aisle* and the vehicle pull-up space, then a *curb cut* complying with **521 CMR 13.00: CURB CUTS**, shall be provided.

15.8.4 Vehicle standing spaces and *access aisles* shall be *level* with surface slopes not exceeding one-to-fifty (1:50) (2 percent) in all directions.

15.8.5 Vertical Clearance: A minimum of 9 feet, 6 inches (2896 mm) of vertical clearance shall be provided at *accessible* passenger loading zones and along at least one (1) vehicle access *route* to such areas from *site entrance(s)* and exit(s).

## 15.9 VALET PARKING

Valet parking *facilities* shall provide a passenger loading zone complying with **521 CMR 15.8, Passenger Loading Zone** located on an *accessible route* to the *entrance* of the *facility*.

Exception:

**521 CMR 15.2 Number** and **521 CMR 15.4g**, do not apply to valet parking *facilities*.

## 521 CMR 16.00: STAIRS

### 16.1 GENERAL

All stairs are required to comply with the following:

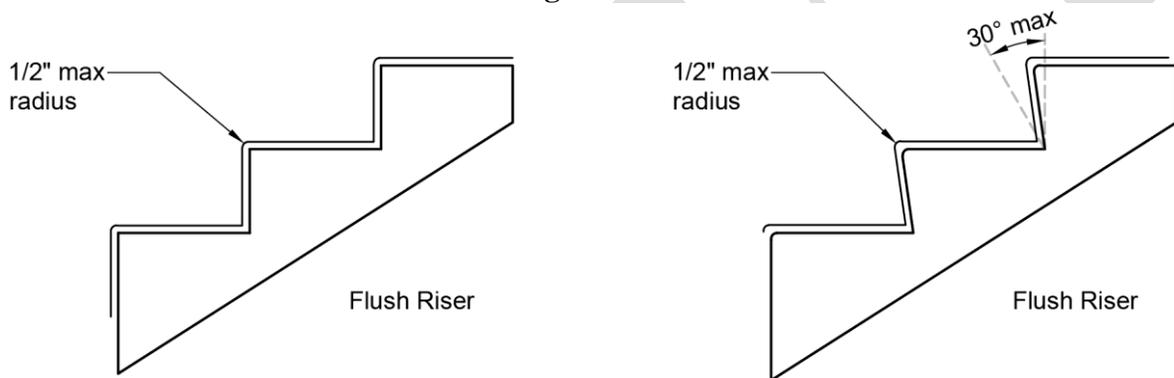
### 16.2 TREADS AND RISERS

On any given flight of stairs, all steps shall have uniform riser heights and uniform tread depths. See **Figure 16.2**.

16.2.1 The risers may be set at a 90 degree angle to the tread, or they may be sloped. If sloped, the slope under the tread shall be at an angle of 30 degrees maximum from vertical.

16.2.2 Open risers are not permitted.

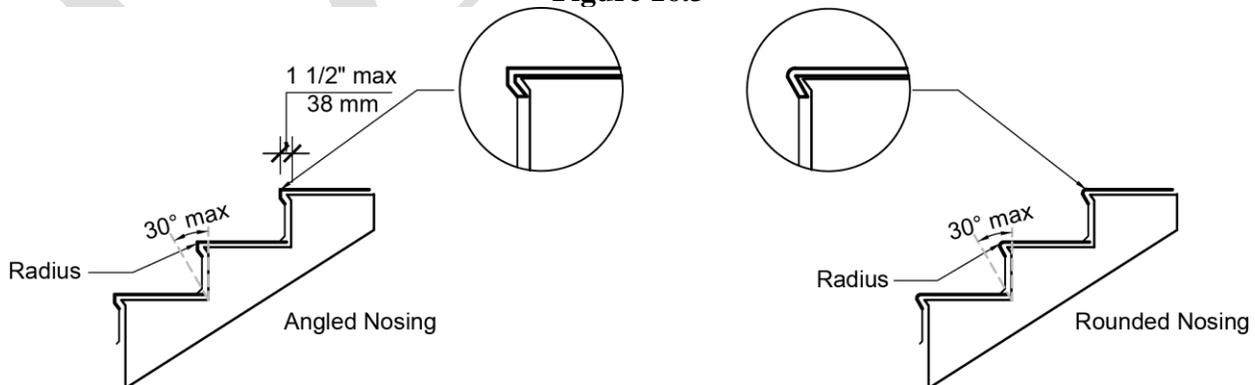
**Figure 16.2**



### 16.3 NOSINGS

The undersides of nosings shall not be abrupt. The radius of curvature at the leading edge of the tread shall be no greater than one-half (1/2) of an inch (13 mm). Nosings shall project a maximum of 1 1/2 inches (38 mm) over the tread below. See **Figure 16.2** and **16.3**.

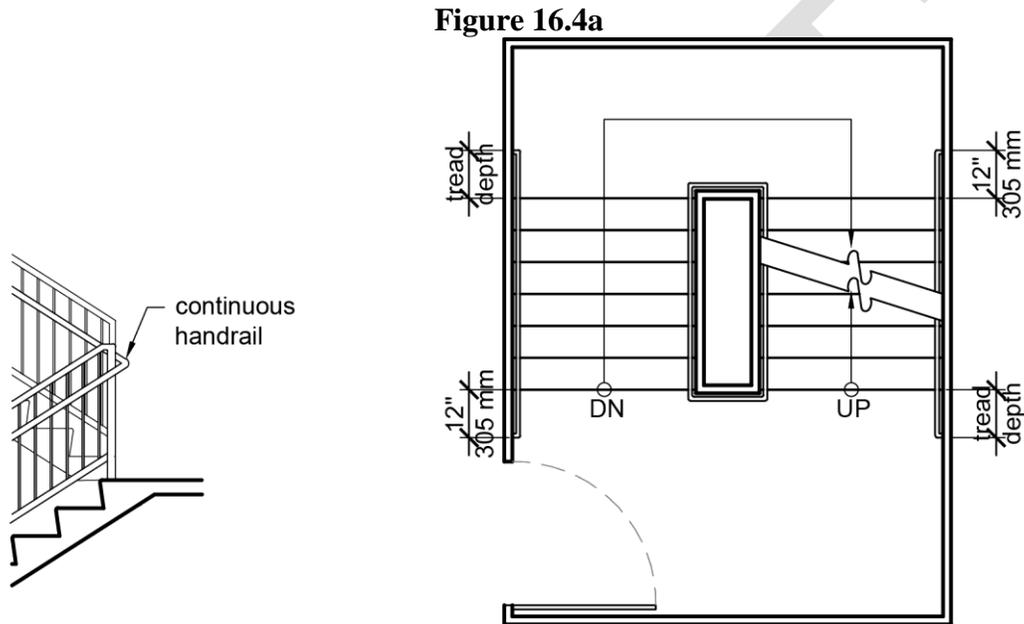
**Figure 16.3**



## 16.4 HANDRAILS

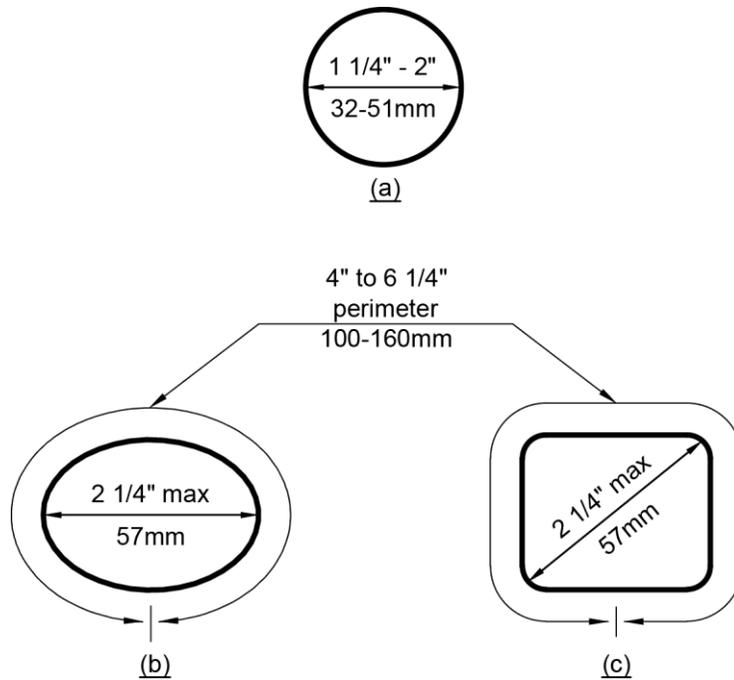
Handrails shall have the following features:

- a. Location: Stairways shall have continuous handrails at both sides of all stairs. The inside handrail on switchback or dogleg stairs shall always be continuous. See **Figure 16.4a**.



- b. Height: Top of handrail gripping surface shall be mounted between 34 inches (864 mm) and 38 inches (965 mm) above stair nosings. Handrails shall be measured, at a consistent height, vertically from the top of the gripping surface of the handrails to the stair nosing.
- c. Cross Section: Handrail gripping surfaces shall have a cross-section complying with the following:
  - i. Circular Cross Section: Handrails shall have a circular cross-section dimension with an outside diameter of 1¼ inches (32 mm) minimum and 2 inches (51 mm) maximum.
  - ii. Non-Circular Cross Section: Handrails shall have a perimeter dimension of 4 inches (102 mm) minimum and 6¼ inches (159 mm) maximum, and a cross-section dimension of 2¼ inches (57 mm) maximum. See **Figure 16.4b**.

**Figure 16.4b**



- d. Surface: The gripping surface shall be continuous so that a hand can move from end to end without interruption by newel posts or other obstructions, and shall be free of any sharp or abrasive *elements*.

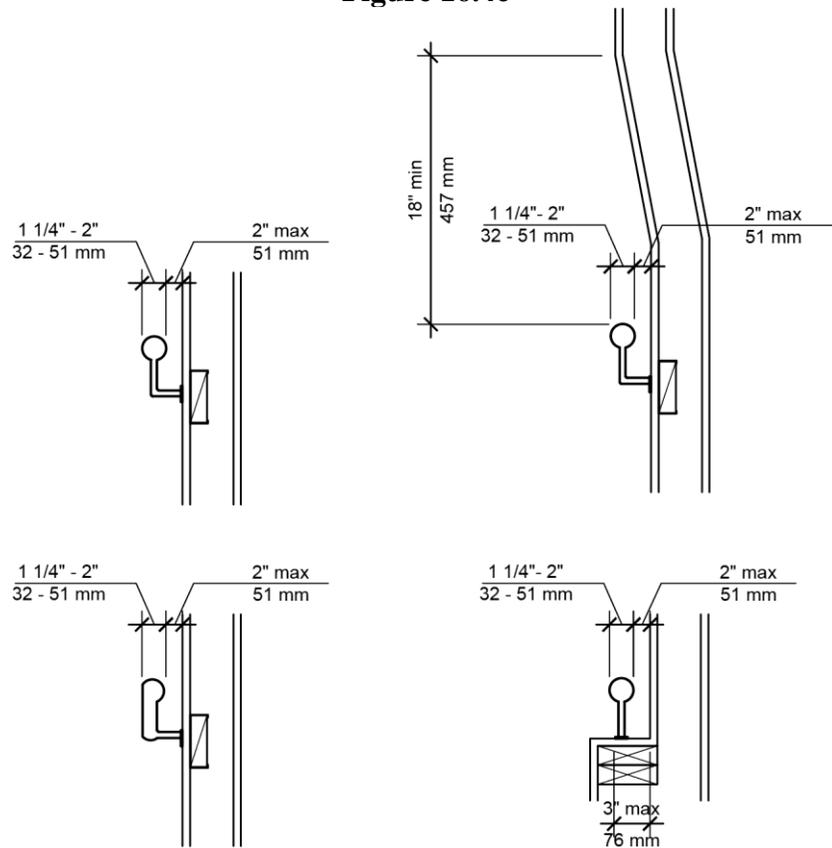
Exceptions:

Handrails shall not be continuous at the following locations:

1. Doorways
2. Openings
3. In places of assembly, at aisles serving seating.

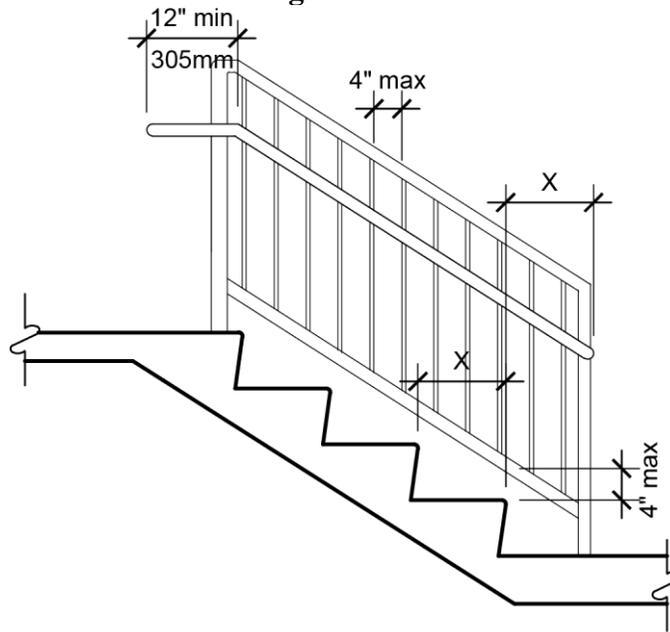
- e. Clearance: When a handrail is mounted adjacent to a wall or another adjacent surface, the *clear space* between the handrail and the wall shall be not less than one-and-a-half (1½) inches (38 mm). Handrails may be located in a wall recess if the recess is a maximum of 3 inches (76 mm) deep and extends a minimum of 18 inches (457 mm) above the top of the rail. See **Figure 16.4c**.

**Figure 16.4c**



- f. End condition: Ends of handrails shall be returned smoothly to floor, wall, or post. Extensions on handrails which are not attached to walls shall be returned smoothly to the floor or a post.
- g. Extensions: Where handrails terminate at the top and bottom of a stair run, they shall have extensions that comply with the following:
  - i. At the top, extend a minimum of 12 inches (305 mm) beyond the top riser and parallel with the floor or ground surface. See **Figure 16.4d**.
  - ii. At the bottom of a stair flight, handrails shall extend at the slope of the stair flight for a horizontal distance at least equal to one tread depth beyond the last riser nosing. The extension shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight. See **Figure 16.4d**.

**Figure 16.4d**



Note: X = tread depth min

h. Handrails shall not rotate within their fittings.

**16.5 DETECTABLE WARNINGS AT STAIRS:** Reserved until further notice.

**16.6 OUTDOOR CONDITIONS**

Outdoor stairs and their approaches shall be designed so that water will not accumulate on walking surfaces.

# **PART E**

# **PLUMBING ELEMENTS AND FACILITIES**

## 521 CMR 17.00: DRINKING FOUNTAINS

### 17.1 GENERAL

Drinking fountains shall include water coolers. Drinking fountains, when provided, shall comply with the following requirements.

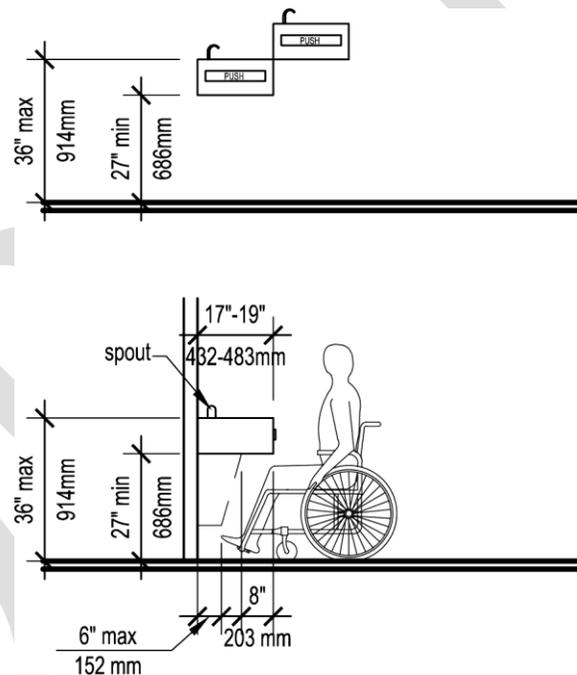
17.1.1 Where drinking fountains are provided they shall be *accessible* and shall be on an *accessible route*. See **Figure 17.1a**.

17.1.2 No fewer than two (2) drinking fountains shall be provided at each location. One (1) drinking fountain shall be provided that meets the requirements of **521 CMR 17.4, Spout Height**, and one (1) shall be provided for standing persons per **521 CMR 17.4.1**.

Exception:

Where a “high-low” fountain is provided on which the two (2) fountain heights meet the requirements noted above, a single fountain “high-low” fountain shall be permitted.

**Figure 17.1a**



### 17.2 CLEARANCES

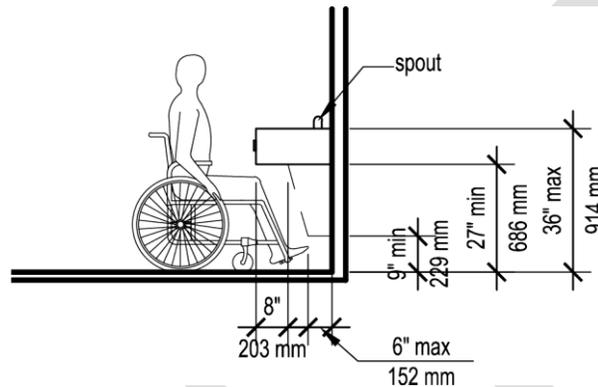
Shall comply with the following:

- 17.2.1 Wall and post-mounted cantilevered units allowing only a front approach shall have a knee clearance between the bottom of the apron and the floor or ground.
- The knee clearance shall comply with **521 CMR 6.3, Knee Clearances** and **521 CMR 6.4 Toe Clearances**.
  - These units shall also have a minimum *clear floor or ground space* to allow a person in a wheelchair to approach the unit facing forward. See **Figure 17.2a** and **Figure 17.2b**.

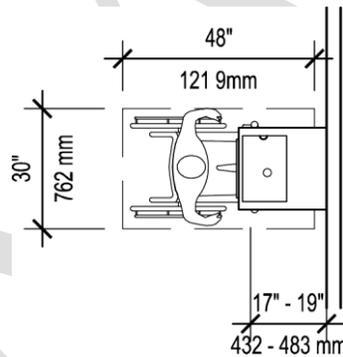
Exception:

A parallel approach complying with **521 CMR 6.1, Clear Floor or Ground Space for Wheelchairs**, shall be permitted at units for *children's use* where the spout is 30 inches (762 mm) maximum above the finish floor or ground and is 3 1/2 inches (89 mm) maximum from the front edge of the unit, including bumpers.

**Figure 17.2a**

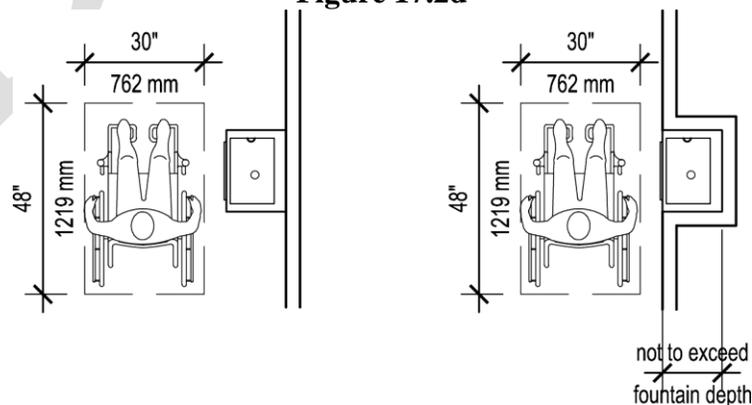


**Figure 17.2b**



17.2.2 Free-standing units not having a knee clearance under them shall have a *clear floor or ground space* that allows a person in a wheelchair to make a parallel approach to the unit. See **Figure 17.2d**. This *clear floor or ground space* shall comply with **521 CMR 6.6, Side Reach**.

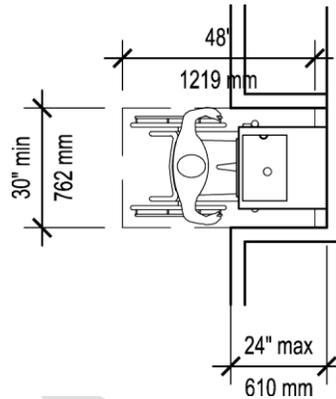
**Figure 17.2d**



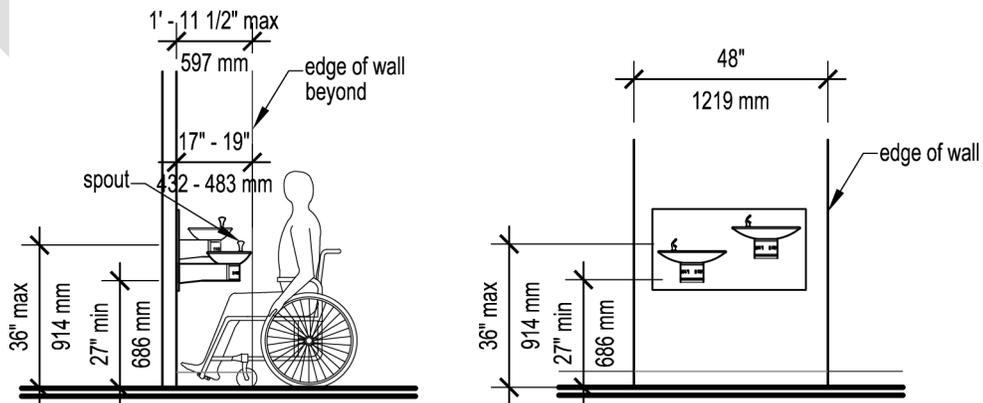
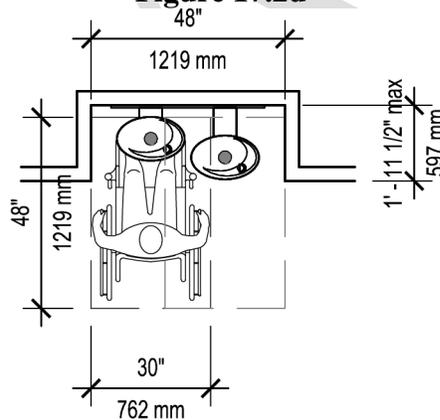
17.2.3 Built-in units shall comply with the following:

- a. Where a drinking fountain is cantilevered or wall mounted along an *accessible route* it shall comply with the requirements of **521 CMR 8.6, Protruding Objects**.
- b. Where a drinking fountain is cantilevered in a recess, the recess shall be not less than 30 inches (762 mm) wide, and the fountain shall comply with **521 CMR 17.2.1**. See **Figure 17.2e** and **17.2d**.

**Figure 17.2e**



**Figure 17.2d**



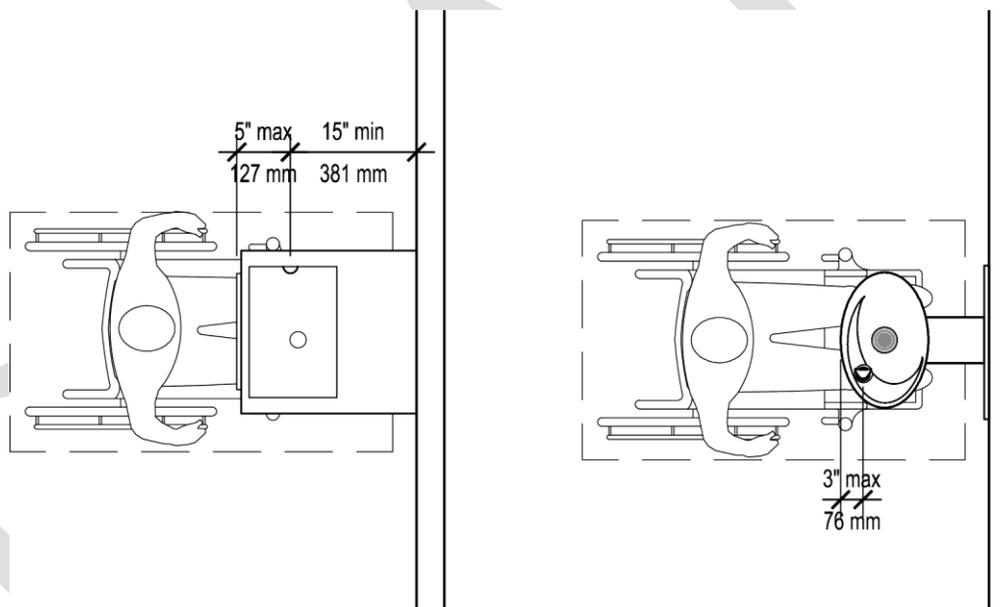
- c. Where a drinking fountain is located in a recess and has no knee clearance below, the recess depth shall not exceed the fountain depth and the fountain shall have a *clear floor or ground space* that allows a person in a wheelchair to make a parallel approach to the unit (See **Figure 17.2d**). This *clear floor or ground space* shall comply with **521 CMR 6.1, Clear Floor or Ground Space for Wheelchairs**.

### 17.3 SPOUT LOCATION

The spouts of drinking fountains and water coolers shall comply with the following:

- 17.3.1 Spouts shall be located at 15 inches (381 mm) minimum from the vertical support and 5 inches (127 mm) maximum from the front edge of the unit, including bumpers. See **Figure 17.3**.
- 17.3.2 The spout shall provide a flow of water a minimum of 4 inches (102 mm) high to allow the insertion of a cup or glass under the flow of water.
- 17.3.3 On an *accessible* drinking fountain with a round or oval bowl, the spout must be positioned so the flow of water is within 3 inches (76 mm) of the front edge of the fountain. See **Figure 17.3**.

**Figure 17.3**

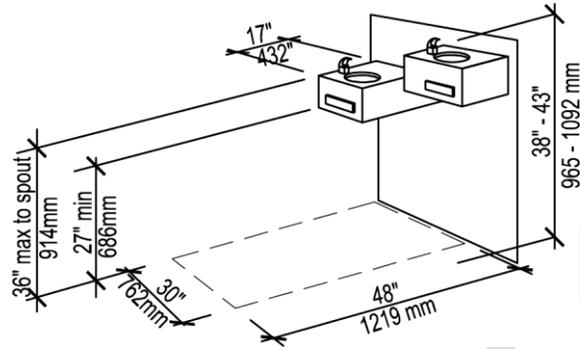


### 17.4 SPOUT HEIGHT

Spouts shall be no higher than 36 inches (914 mm), measured from the floor or ground surface to the spout outlet. See **Figure 17.4**.

- 17.4.1 Spouts of drinking fountains for standing persons shall be 38 inches (965 mm) minimum and 43 inches (1092 mm) maximum above the finish floor or ground. See **Figure 17.4**.

**Figure 17.4**



## 17.5 CONTROLS

Controls shall comply with the following:

- a. Controls shall be front-mounted or side-mounted near the front edge of the drinking fountain.
- b. Controls shall comply with **521 CMR 41.5, Operation**,
- c. Other types of controls may be installed in addition to, but not instead of, hand operated controls.

## 521 CMR 18.00: TOILET ROOMS AND COMPARTMENTS

### 18.1 GENERAL

Each toilet room provided on a *site* or in a *building* shall comply with **521 CMR**.

- a. In each adult toilet room, at least one (1) toilet and one (1) sink in each location shall be *accessible* to persons in wheelchairs. Adult toilet rooms shall comply with the provisions of **521 CMR.18.1, General**, through **521 CMR , 18.13, Controls and Receptacles**.
- b. Where a *building* contains an aggregate of six (6) or more male and female *common use* and/or *public use* toilet rooms, a *single-user toilet room* shall be provided in compliance with **521 CMR 18.2, Location**, and **18.6, Accessible Single-User Toilet Rooms**, thru **18.13, Controls and Receptacles**.
- c. Where children's toilet rooms are provided, at least one (1) toilet and one (1) sink in each location shall be *accessible* to children in wheelchairs, or a separate *accessible single-user toilet room* shall be provided at each location. Children's toilet rooms shall comply with the provisions of **521 CMR, 18.14, Children's Use Toilet Rooms** through **521 CMR 18.20, Children's Use Controls and Receptacles**. For purposes of **521 CMR**, pre-kindergarten school is defined as a school which serves children from infancy up until but not including kindergarten. Elementary school is defined as a school which serves grades kindergarten through six (6).

#### Exception:

In *alterations*, the installation of a *single-user toilet room* in lieu of fully *accessible* men's and women's room is permitted **521 CMR**. See also **521 CMR 18.2, Location**.

- 18.1.1 Portable Toilets: For single-user portable toilets *clustered* at a single location, at least 5 percent but not less than one (1) *accessible* toilet unit shall be installed at each *cluster*. *Accessible* units shall be identified by the International Symbol of Accessibility. Portable units at *construction sites* used exclusively by *construction* personnel are not required to be *accessible*.

### 18.2 LOCATION

*Accessible* toilet rooms shall be on an *accessible route*. Where *single-user toilet room(s)* are provided, they shall be located in the same area as other toilet rooms.

### 18.3 VESTIBULES

Where vestibules are provided, they shall comply with **521 CMR 11.7, Doors or Gates in Series**.

### 18.4 CLEAR FLOOR SPACE

An unobstructed turning *space* complying with **521 CMR 6.2, Wheelchair Turning Space** shall be provided within an *accessible* toilet room. The *clear floor space* at fixtures and controls, the *accessible route*, and the turning *space* may overlap.

- a. Doors shall not swing into the *clear floor space* or clearance required for any fixture. Doors shall be permitted to swing into the required turning *space*.
- b. Convenience fixtures and accessories, including but not limited to, trash receptacles, paper towel dispensers, baby changing stations when in any position, and the like, when provided, shall not reduce the required room or door maneuvering clearances, and they shall not restrict the path of travel to or clearances required at any *accessible* fixture. In addition, such accessories shall be placed in such as way so that they do not become protruding objects, in accordance with **521 CMR 8.6, Protruding Objects**. Baby changing stations, when in the open position, are exempted from the protruding object regulations.

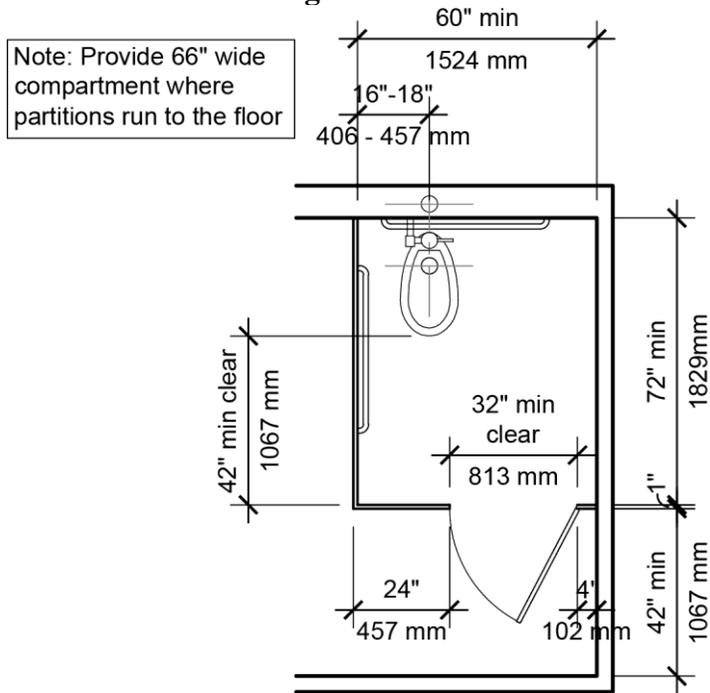
## 18.5 TOILET COMPARTMENTS

If toilet compartments are provided, then at least one (1) shall be a wheelchair *accessible* toilet compartment. Where six (6) or more compartments are provided in a toilet room, at least one (1) ambulatory *accessible* toilet compartment (See **Figure 18.5c**) shall be provided in addition to the standard wheelchair *accessible* toilet compartment. *Accessible* toilet compartments shall be on an *accessible route*.

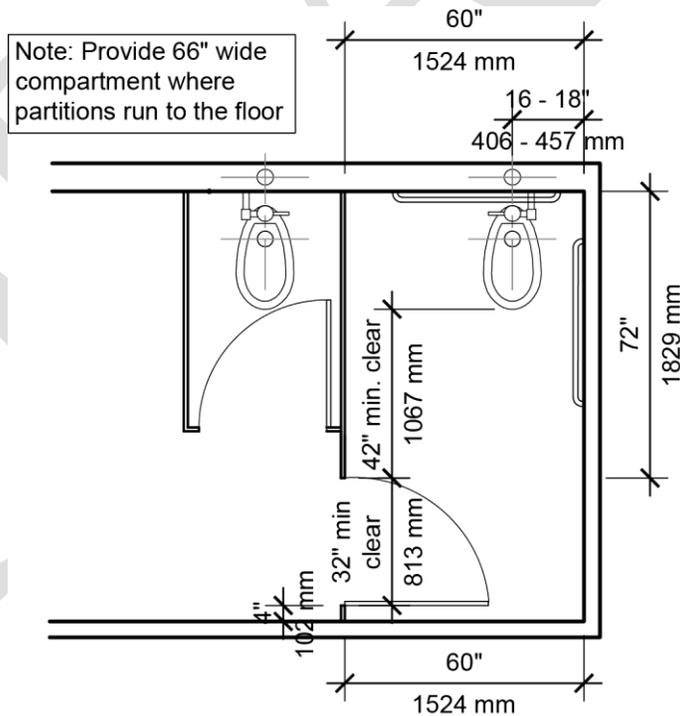
18.5.1 Wheelchair Accessible Compartments: Wheelchair *accessible* compartments shall comply with the following:

- a. Standard wheelchair *accessible* toilet compartments shall be a minimum of 60 inches (1524 mm) wide and 72 inches (1829 mm) deep. Toilet compartment doors shall not swing into the minimum required compartment area. See **Figures 18.5a** and **18.5b**. Arrangements shown for standard wheelchair *accessible* toilet compartments may be reversed to allow either a left- or right-hand approach. Toilet Rooms in *accessible* compartments shall be located on the 60 inch (1524 mm) wall and shall comply with **521 CMR 18.7, Toilets**.
- b. Toilet compartment partitions shall have a 12 inch (305 mm) high toe clearance at all sides, 6 inches (152 mm) deep minimum beyond the compartment-side face of the partition, exclusive of partition support members. If the partitions extend to the floor, the width of the stall shall be increased to a minimum of 66 inches (1676 mm).
- c. Standard wheelchair *accessible* toilet compartments shall have a door that has a 32 inch (813 mm) *clear* opening.
- d. Toilet compartment doors, including door hardware, shall comply with **521 CMR 11.00: DOORS AND DOORWAYS**. Doors shall be located in the front partition or in the side wall, or partition farthest from the toilet. Where located in the front partition, the door opening shall be 4 inches (102 mm) maximum from the side wall or partition farthest from the toilet. Where located in the side wall or partition, the door opening shall be 4 inches (102 mm) maximum from the front partition. The door shall have an automatic self-closing hinge device and a lock located at 36 inches (914 mm) above the floor.
- e. Compartments shall be arranged for left-hand or right-hand approach to the toilet.
- f. Toilets shall comply with **521 CMR 18.7, Toilets**.
- g. Coat hooks shall be located within one of the reach ranges specified in **521 CMR 6.00: SPACE ALLOWANCE AND REACH RANGES**.
- h. Shelves shall be located 40 inches (1016 mm) minimum and 48 inches (1219 mm) maximum above the finish floor.
- i. Convenience fixtures and accessories such as baby changing stations, when provided, shall not reduce the required clearances or stall size when in the closed position in accordance with **521 CMR 8.6, Protruding Objects**.

**Figure 18.5a**



**Figure 18.5b**

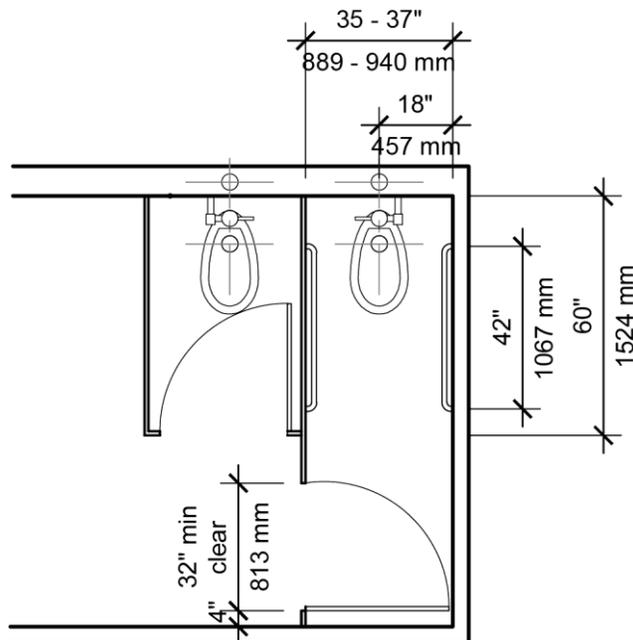


18.5.2 Ambulatory Accessible Compartments: Ambulatory *accessible* compartments (See **Figure 18.5c** and **Figure 18.5d**) shall comply with the following:

- a. Ambulatory *accessible* toilet compartments shall have a depth of 60 inches (1524 mm) minimum and a width of 35 inches (889 mm) minimum and 37 inches (940 mm) maximum.



**Figure 18.5d**

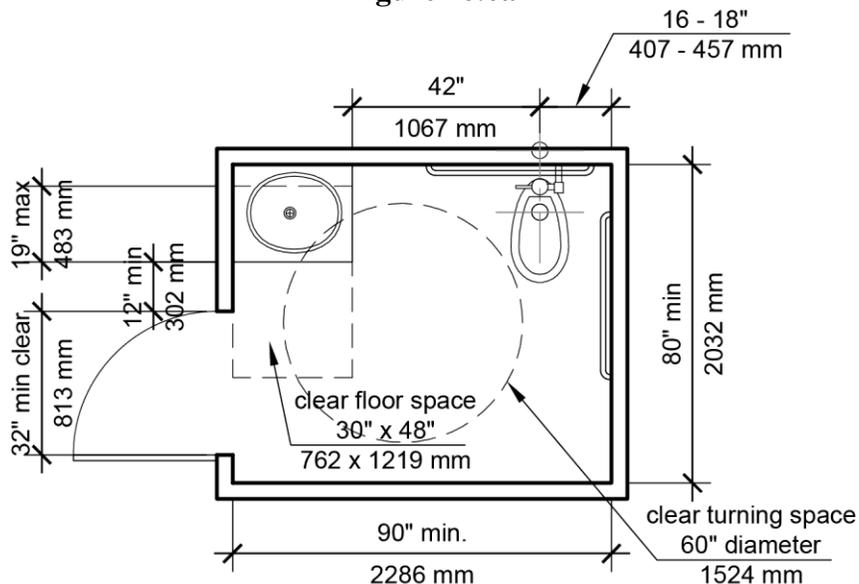


**18.6 Accessible Single-User Toilet Rooms**

Where *single-user toilet rooms* are provided, each toilet room shall comply with the following:

- a. The minimum dimensions of the *single-user toilet room* shall be 80 inches (2032 mm) by 90 inches (2286 mm). See **Figure 18.6a**.

**Figure 18.6a**

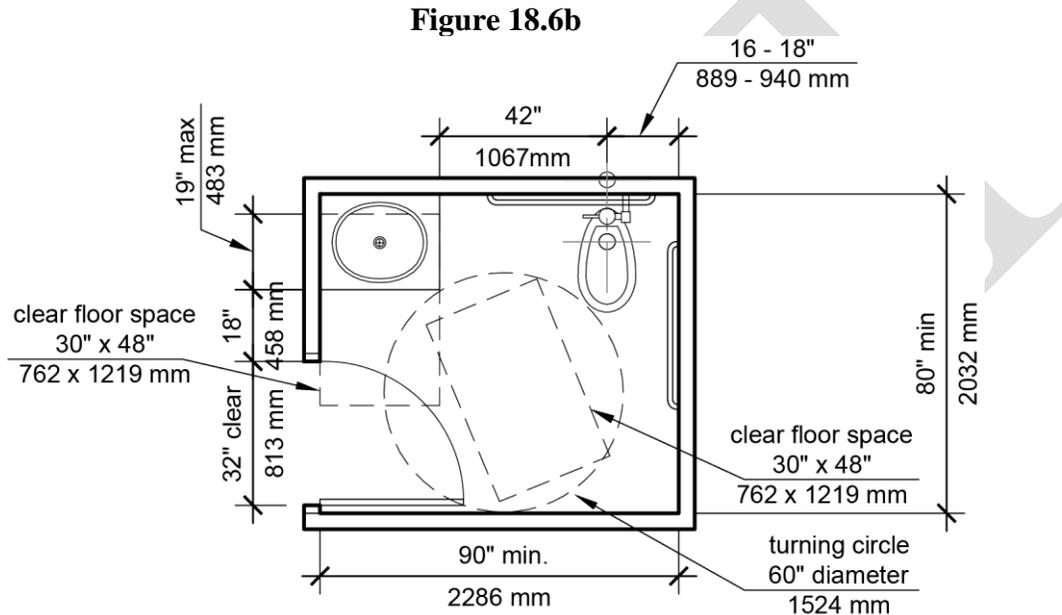


- b. Convenience fixtures and accessories such as trash receptacles, paper towel dispensers, baby changing stations (when in the closed position), and the like, when provided, shall not reduce the required room or door maneuvering clearances, nor shall they be placed in such as way as to become a protruding object.
- c. Doors to *single-user toilet rooms* shall comply with **521 CMR 11.00: DOORS AND DOORWAYS**, and shall be equipped with a privacy lock operable from within the room. Doors to

*single-user toilet rooms* may swing into the room if the door has a self-closing device and there is a *clear floor space* of 30 inches by 48 inches (762 mm by 1219 mm) beyond the swing of the door. See **Figure 18.6b**.

Exception:

Doors to a *single-user toilet room* accessed only through a private office and not for *common use* or *public use* shall be permitted to swing into the *clear floor space* or clearance provided the swing of the door can be reversed to comply with **521 CMR 18.6, Accessible Single-User Toilet Rooms**.

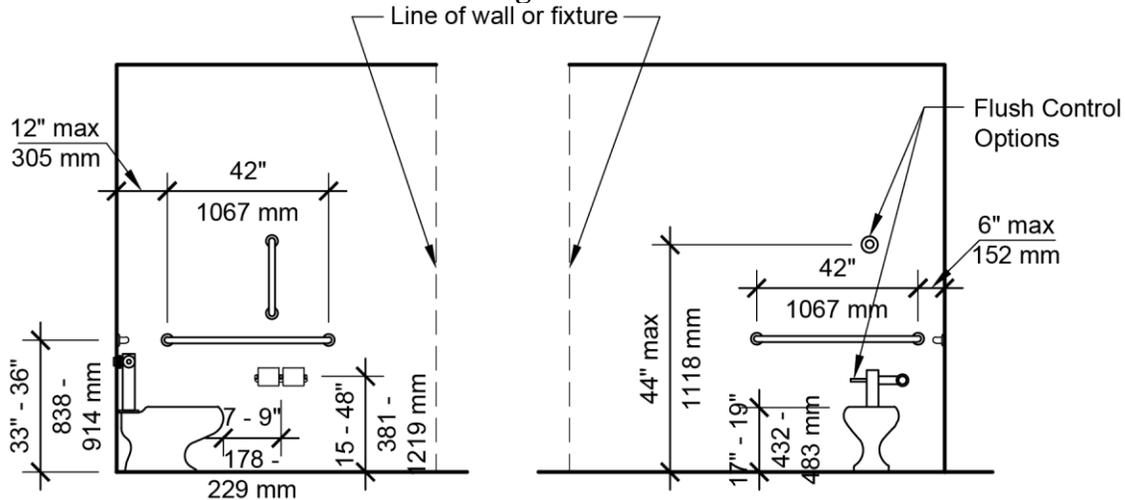


## 18.7 TOILETS

That are required to be *accessible* shall comply with the following:

- Clear floor space* for toilets not in compartments shall comply with Fig. 30d. *Clear floor space* may be arranged to allow either a left-handed or right-handed approach to the toilet.
- Clearance around a toilet shall be 60 inches (1524 mm) minimum measured perpendicular from the side wall and 72 inches (1829 mm) minimum measured perpendicular from the rear wall.
- The required clearance around the toilet shall be permitted to overlap the toilet associated grab bars, dispensers, sanitary napkin disposal units, coat hooks, shelves, *accessible routes*, *clear floor space* and clearances required at other fixtures, and the turning *space*. No other fixtures or obstructions shall be located within the required toilet clearance. See **Figure 18.6b**.
- The centerline of the toilet shall be located at a minimum of 16 inches (406 mm) to a maximum of 18 inches (457 mm) from the nearest side wall or partition and a minimum of 42 inches (1067 mm) from the farthest side wall, partition, or the closest edge of an adjacent fixture. There shall be a minimum of 42 inches (1067 mm) clearance between the front edge of the toilet and the nearest wall, fixture, or door swing. See **Figure 18.6b**.
- Toilets shall be 17 inches to 19 inches (432 mm to 483 mm) high, measured to the top of the toilet seat. See **Figure 18.7**.

**Figure 18.7**



- f. Toilet seats shall not be spring mounted to return to a lifted position.
- g. Flush controls shall be hand operated or automatic and shall comply with **521 CMR 41.5, Operation**. Controls for flush valves shall be mounted on the wide side of toilet a maximum of 44 inches (1118 mm) above the floor. Flush controls shall be located on the open side of the toilet except in ambulatory *accessible* compartments complying with **521 CMR 18.5.2**. See **Figure 18.7**.
- h. Toilet paper dispensers shall be located on the side wall closest to the toilet and shall be 7 inches (178 mm) minimum and 9 inches (229 mm) maximum in front of the toilet measured to the centerline of the dispenser. The outlet of the dispenser shall be 15 inches (381 mm) minimum and 48 inches (1219 mm) maximum above the finish floor and shall not be located behind grab bars, and no protruding part of the dispenser shall be within 12 inches (305 mm) above the grab bar. Dispensers that control delivery or that do not permit continuous paper flow are not allowed. See **Figure 18.7**.

## 18.8 GRAB BARS

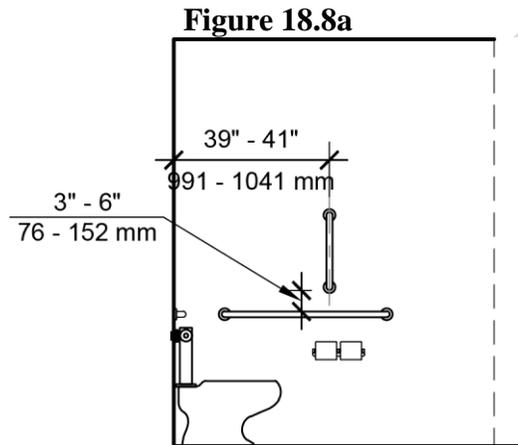
Grab bars for toilets shall comply with the following:

- a. For the standard wheelchair *accessible* toilet compartment and single-user toilet rooms the toilet shall have two (2) horizontal grab bars 42 inches (1067 mm) long, one (1) on the wall in back of the toilet and one (1) on the side wall closest to the toilet. In addition, an 18 inch (458 mm) vertical grab bar shall be provided on the side wall, above the required horizontal grab bar. See **Figure 18.5a, 18.5b, and 18.8a**.
- b. For the ambulatory *accessible* toilet compartment the toilet shall have two (2) parallel/side grab bars, 42 inches long (1067 mm) installed on the side walls. See **Figure 18.5c and 18.5d**.
- c. The side grab bar(s) shall be located a maximum of 12 inches (305 mm) from the interior corner. The rear grab bar shall be located a maximum of 6 inches (152 mm) from the interior corner.

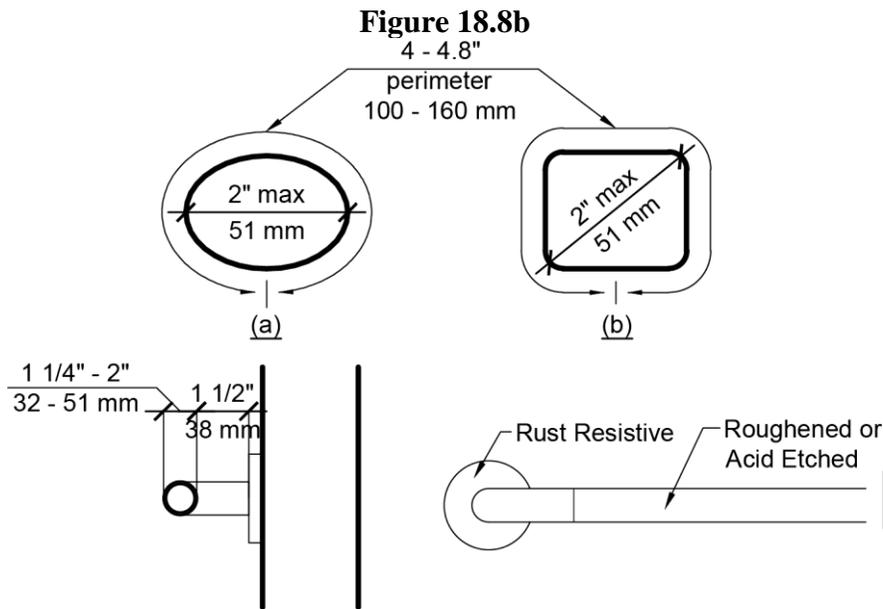
### Exceptions:

- 1. The rear grab bar shall be permitted to be 36 inches (914 mm) long minimum, centered on the toilet, where wall space does not permit a length of 42 inches (1067 mm) minimum due to the location of a recessed fixture adjacent to the toilet.
  - 2. Where an *administrative authority* requires flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, then the rear grab bar shall be permitted to be split or shifted to the open side of the toilet area.
- d. Horizontal grab bars shall be set at a height of 33 to 36 inches (838 mm to 914 mm), measured to the top of the grab bar, above and parallel to the floor. Where a tank prevents location of the rear grab

bar, a bar may be installed 3 inches (76 mm) above the tank. Where a flushometer prevents the location of a 42 inch (1067 mm) rear grab bar, one (1) grab bar, 36 inches (914 mm) shall be installed to the side of the flushometer, located 3 inches (76 mm) from the closest edge of the flushometer. The vertical grab bar shall be mounted with the centerline of the bar located 39 inches (991 mm) minimum and 41 inches (1041 mm) maximum from the rear wall, the bottom of the vertical grab bar shall be a minimum of 3 inches (76 mm) and a maximum of 6 inches (152 mm) above the corresponding horizontal grab bar. See **Figure 18.5a**, **18.5b**, and **18.8a**.



- e. Grab bars shall be between one and a quarter ( $1\frac{1}{4}$ ) inches and two (2) inches (32 mm to 51 mm) in outside diameter, and have a one and a half ( $1\frac{1}{2}$ ) inch (38 mm) clearance between the bar and the wall. See **Figure 18.8b**.
- f. Grab bars shall have a cross section complying with the following:
  - i. Circular Cross Section. Grab bars with circular cross sections shall have an outside diameter of  $1\frac{1}{4}$  inches (32 mm) minimum and 2 inches (51 mm) maximum.
  - ii. Non-Circular Cross Section. Grab bars with non-circular cross sections shall have a cross-section dimension of 2 inches (51 mm) maximum and a perimeter dimension of 4 inches (102 mm) minimum and 4.8 inches (122 mm) maximum. See **Figure 18.8b.g**. The *space* between the wall and the grab bar shall be  $1\frac{1}{2}$  inches (38 mm). The *space* between the grab bar and projecting objects below and at the ends shall be  $1\frac{1}{2}$  inches (38 mm) minimum. The *space* between the grab bar and projecting objects above shall be 12 inches (305 mm) minimum, with the exception of the vertical grab bar. See **Figure 18.8b**.



- h. Grab bars shall also be non-rusting and acid-etched or roughened. Grab bars shall comply with the *structural strength* defined in **521 CMR 5.00: DEFINITIONS**.

Exceptions:

1. Grab bars shall not be required to be installed in a toilet room for a single occupant accessed only through a private office and not for *common use* or *public use* provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with *structural strength*.
2. In psychiatric, detention or correction *facilities*, grab bars shall not be required to be installed in housing or holding cells that are specially designed without protrusions for purposes of suicide prevention.

## 18.9 LAVATORIES AND SINKS

Sinks, including vanities, shall comply with the following:

- a. A *clear floor space* complying with **521 CMR 6.2, Wheelchair Turning Space**, shall be provided in front of a sink to allow forward approach. The *clear floor space* shall be on an *accessible route* and shall extend no more than a maximum of 19 inches (483 mm) underneath the sink. See **Figure 18.9**.

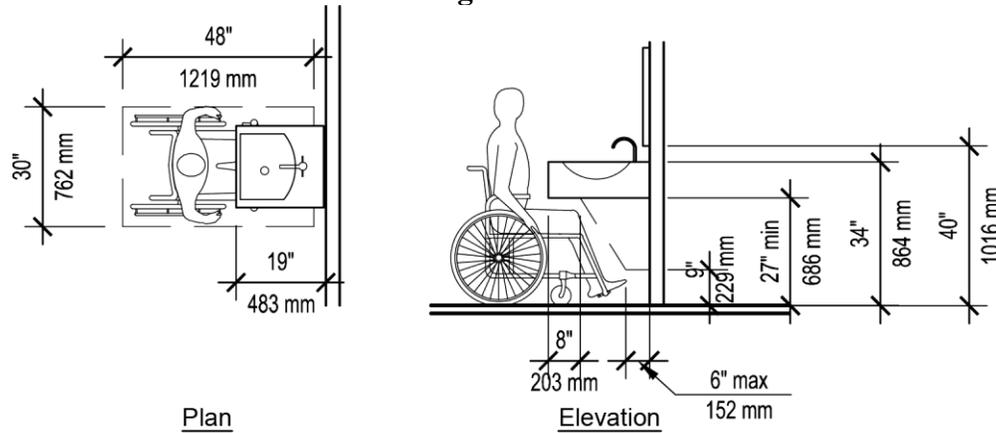
Note: A parallel approach is not permitted at sinks.

- b. Lavatories and sinks shall be installed with the front of the higher of the rim or counter surface 34 inches (864 mm) maximum above the finish floor or ground. See **Figure 18.9**.
- c. Sinks shall extend a minimum of 17 inches (432 mm) from the wall to the front of the sink or counter.

Exception:

A sink in a toilet *facility* for a single occupant accessed only through a private office and not for *common use* or *public use* shall not be required to comply with **521 CMR 18.9c**.

**Figure 18.9**



- d. A *clear floor space* complying with **521 CMR 7.00: GROUND AND FLOOR SURFACES** and positioned for a forward approach, and knee and toe clearance complying with **521 CMR 6.3, Knee Clearance**, and **521 CMR 6.4 Toe Clearance** shall be provided.

Exception:

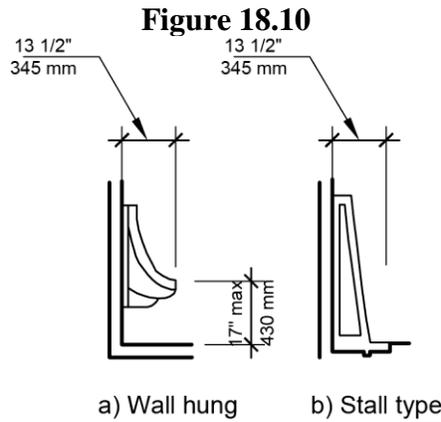
A sink in a toilet room or bathing *facility* for a single occupant accessed only through a private office and not for *common use* or *public use* shall not be required to provide knee and toe clearance complying with **521 CMR 18.9d**.

- e. Sink depth shall not exceed six and a half (6 ½) inches (165 mm).
- f. Sink traps and drains shall be located as close to rear walls as possible. Water supply and drain pipes exposed under sinks shall be recessed, insulated, or guarded. There shall be no sharp or abrasive surfaces under sinks.
- g. Faucets shall be operable with one (1) hand and shall not require tight grasping, pinching, or twisting of the wrist. Lever-operated, push-type, touch-type, or electronically controlled mechanisms are acceptable designs. If self-closing valves are used the faucet shall remain open for at least ten (10) seconds.

### 18.10 URINALS

Where one (1) or more urinals are provided, at least one (1) urinal shall comply with the following:

- a. *Accessible* urinals shall be the wall-hung type with the rim 17 inches (432 mm) maximum above the finish floor or ground. Urinals shall be 13 ½ inches (343 mm) deep minimum measured from the outer face of the urinal rim to the back of the fixture. See **Figure 18.10**.
- b. A *clear floor space* shall be provided in front of an *accessible* urinal to allow forward approach. This *clear space* shall adjoin or overlap an *accessible route* and shall comply with **521 CMR 6.2, Wheelchair Turning Space**. Urinal shields that do not extend beyond the front edge of the urinal rim may be provided with 29 inches (737 mm) clearance between them.
- c. Flush controls shall be hand operated or automatic, and shall comply with **521 CMR 41.5, Operation**, and shall be mounted no more than 44 inches (1118 mm) above the finish floor. See **Figure 18.13**.



### 18.11 MIRROR

The top of any shelf and or bottom of any mirror that is provided above a sink or countertop shall be set with the bottom edge of the reflecting surface no higher than 40 inches (1016 mm) above the finish floor. Mirrors not located above lavatories or countertops shall be installed with the bottom edge of the reflecting surface 35 inches (889 mm) maximum above the finish floor or ground. See **Figure 18.13**.

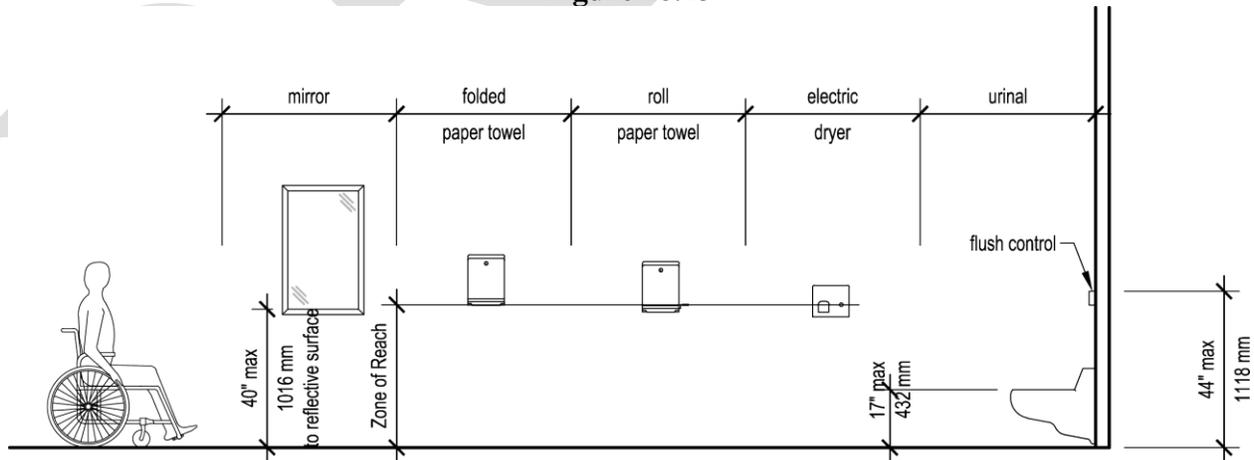
### 18.12 DISPENSERS

At least one (1) of each towel dispenser, drying device, or other types of devices and dispensers shall be located within the *zone of reach* of a person while using the *accessible* sink and shall comply with **521 CMR 41.5, Operation**. If additional devices are provided, at least one (1) of each device shall be mounted within the *zone of reach*. See **Figure 18.13**.

### 18.13 CONTROLS AND RECEPTACLES

If controls, receptacles, or other equipment is provided, then at least one (1) of each shall be on an *accessible route* and shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

**Figure 18.13**



### 18.14 CHILDREN'S USE TOILET ROOMS

Where provided, shall comply with the following. The dimensions should correspond to the age of the primary user group. The dimensional requirements of one age group should be applied consistently to the dimensions of a toilet and related *elements*.

18.14.1 *Children's use wheelchair accessible* compartments shall comply with the following:

- a. *Children's use accessible* compartments shall be 60 inches (1524 mm) wide minimum measured perpendicular to the side wall, and 59 inches (1499 mm) deep minimum for wall hung and floor mounted toilets measured perpendicular to the rear wall.
- b. Toilet compartment partitions shall have a 12 inch (305 mm) high toe clearance at all sides, 6 inches (152 mm) deep minimum beyond the compartment-side face of the partition, exclusive of partition support members. If the partitions extend to the floor, the width of the stall shall be increased to a minimum of 66 inches (1676 mm).
- c. *Clear floor space* for toilets shall comply with **521 CMR 18.4, Clear Floor Space**. *Clear floor space* may be arranged to allow either a left-handed or right-handed approach.
- d. Clearance around a toilet shall comply with **521 CMR 18.4, Clear Floor Space**.
- e. The toilet shall be located with a wall or partition to the rear and to one side. The centerline of the toilet shall be 12 inches (305 mm) minimum and 18 inches (457 mm) maximum from the side wall or partition, except that the toilet shall be 17 inches (432 mm) minimum and 19 inches (483 mm) maximum from the side wall or partition in the ambulatory *accessible* toilet compartment specified in 604.8.2. Compartments shall be arranged for left-hand or right-hand approach to the toilet. The specific dimensions for location of the toilet based on age group are as follows:

Pre-kindergarten:	12" (305mm)
Kindergarten to Third Grade:	12" to 15" (305mm to 380 mm)
Fourth Grade to Sixth Grade:	15" to 18" (380mm to 455mm)

- f. Toilets shall be set at a height measured from the floor to the top of the seat as follows:

Pre-kindergarten:	11" to 12" (280mm to 305mm)
Kindergarten to third grade:	12" to 15" (305mm to 381mm)
Fourth grade to sixth grade:	15" to 17" (381mm to 432mm)
- g. Flush controls shall be hand operated or automatic. Hand operated flush controls shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS** and shall be installed 36 inches (914 mm) maximum above the finish floor. Controls for flush valves on toilets used by children shall be mounted on the open side of toilet, except in ambulatory *accessible* compartments complying with **521 CMR 18.5.2**, and within 20 to 30 inches (508 mm to 762 mm) above the floor.

- h. Toilet paper dispensers: Toilet paper dispensers shall comply with **521 CMR 6.00: SPACE ALLOWANCE AND REACH RANGES** and shall be 7 inches (178 mm) minimum and 9 inches (229 mm) maximum in front of the toilet measured to the centerline of the dispenser. There shall be a clearance of 1 ½ inches (38 mm) minimum below the grab bar. Dispensers shall not be of a type that controls delivery or that does not allow continuous paper flow. The toilet paper dispensers used by children shall be centered above finished floor, as follows:

Pre-kindergarten:	14" (356mm)
Kindergarten to third grade:	14" to 17" (356mm to 432mm)
Fourth grade to sixth grade:	17" to 19" (432mm to 483mm)

## 18.15 CHILDREN'S USE GRAB BARS

The toilet shall have two (2) grab bars, 42 inches (1067 mm) long; one (1) mounted on the wall in back of the toilet and one (1) on the side wall closest to the toilet and located no more than 6 inches (152 mm) from the interior corner. Where a tank prevents location of the rear grab bar, a bar may be installed 3 inches (76 mm) above the tank. Where a flushometer prevents the location of a 42 inch (1067 mm) rear

grab bar, one (1) grab bar, 36 inches (914 mm) shall be installed to the side of the flushometer, located 3 inches (76 mm) from the closest edge of the flushometer.

a. Height: Grab bars shall be mounted from the floor to the top of the grab bar as follows:

Pre-kindergarten: 18" to 20" (457mm to 508mm)

Kindergarten to third grade: 20" to 25" (508mm to 635mm)

Fourth grade to sixth grade: 25" to 27" (635mm to 686mm)

b. Thickness: The outside diameter of grab bars shall be as follows:

Pre-kindergarten: 1" to 1 ¼" (25mm to 32mm)

Kindergarten to sixth grade: 1¼" to 1½" (32mm to 38mm)

## 18.16 CHILDREN'S USE SINK

Sinks including vanities shall comply with the following:

- a. A *clear floor space* complying with **521 CMR 18.4, Clear Floor Space**, shall be provided in front of a sink to allow a forward approach. The *clear floor or ground space* shall be on an *accessible route* and shall extend no more than a maximum of 19 inches (483 mm) underneath the sink.
- b. Sinks shall be mounted with the rim no higher than 30 inches (762 mm) above the finish floor. A clearance of at least 25 inches (635 mm) above the finish floor to the bottom of the apron shall be provided. Knee and toe clearance shall be at least 30 inches (762 mm) wide and 19 (483 mm) deep.

Note: A parallel approach is not permitted at sinks.

### Exception:

A knee clearance of 24 inches (610 mm) minimum above the finish floor or ground shall be permitted at lavatories and sinks used primarily by children 6 through 12 years where the rim or counter surface is 31 inches (787 mm) maximum above the finish floor or ground.

- c. Sink traps and drains shall be located as close to rear walls as possible. Water supply and drain pipes exposed under sinks shall be recessed, insulated, or guarded. There shall be no sharp or abrasive surfaces under sinks.
- d. Faucets shall be operable with one (1) hand and shall not require tight grasping, pinching, or twisting of the wrist. Lever-operated, push-type, touch-type, or electronically controlled mechanisms are acceptable designs. If self-closing valves are used, the faucet shall remain open for at least ten (10) seconds.

## 18.17 CHILDREN'S USE URINALS

Where one (1) or more urinal is provided, at least one (1) urinal shall be *accessible*.

- a. The *accessible* urinal shall be wall-hung with an elongated rim at a maximum of 15 inches (381 mm) above the finish floor.
- b. Flush controls shall be hand operated or automatic, and shall be mounted no more than 44 inches (1118 mm) above the finish floor.

## 18.18 CHILDREN'S USE MIRROR

The top of any shelf and or bottom of any mirror which is provided above a sink shall be set with the bottom edge of the reflecting surface no higher than 31 inches (787 mm) above the finish floor.

**18.19 CHILDREN'S USE DISPENSERS**

Towel dispensers, drying devices, or other types of devices and dispensers shall have at least one (1) of each device mounted within the *zone of reach*, and at least one (1) of each device shall be located within reach of a person using the *accessible* sink.

**18.20 CHILDREN'S USE CONTROLS AND RECEPTACLES**

If controls, receptacles, or other equipment are provided, then at least one (1) of each shall be mounted no higher than 36 inches (914 mm) above the floor to the centerline of the operable portion of the control

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## **521 CMR 19.00: BATHING ROOMS**

### **19.1 GENERAL**

Each bathing room provided on a *site* or in a *building* shall comply with **521 CMR**. Bathing rooms in *multiple dwellings* shall comply with **521 CMR 42.00: TYPE B BATHROOMS** and **521 CMR 44.00: TYPE A AND ACCESSIBLE DWELLING BATHROOMS** instead of **521 CMR 19.00: BATHING ROOMS**. Showers in hotels shall also comply with the requirements of **521 CMR 19.00: BATHING ROOMS**.

19.1.1 In each bathing room where a shower or bathtub is provided at least one (1) of each fixture shall be *accessible* or an *accessible* single-user bathing room shall be provided.

19.1.2 In *facilities* where separate-sex bathing rooms are provided, an *accessible* family or assisted-use bathing room shall be provided in the same area as the other bathing rooms and include the following:

- a. at least one (1) shower or bathtub fixture complying with **521 CMR 19.7, Shower Stalls**, or **521 CMR 19.9, Bathtubs**;
- b. one (1) toilet complying with **521 CMR 18.7, Toilets**;
- c. one (1) sink complying with **521 CMR 18.9, Lavatories and Sinks**; and
- d. storage *facilities*, complying with **521 CMR 40.00: STORAGE**, if storage *facilities* are provided for separate sex bathing rooms.

### **19.2 LOCATION**

*Accessible* bathing rooms shall be on *accessible routes*.

### **19.3 VESTIBULES**

Where vestibules are provided, they shall comply with **521 CMR 11.7, Doors or Gates in a Series**.

### **19.4 DOORS**

All doors to *accessible* bathing rooms shall comply with **521 CMR 11.00: DOORS AND DOORWAYS**. Doors shall not swing into the *clear floor space* required for any fixture.

#### Exception:

Doors to a single-user bathing room shall be permitted to swing into the *clear floor space* or clearance(s), provided all clearances are provided at the fixtures within the single-user bathing room, in accordance with **521 CMR 19.00: BATHING ROOMS**.

### **19.5 OTHER FIXTURES**

If bathing rooms have toilets and/or sinks, those fixtures shall comply with the requirements of **521 CMR 18.00: TOILET ROOMS AND COMPARTMENTS**.

### **19.6 CLEAR FLOOR SPACE**

The *accessible* fixtures and controls required in **521 CMR 19.00: BATHING ROOMS** shall be on an *accessible route*. An unobstructed wheelchair turning *space* complying with **521 CMR 6.2, Wheelchair Turning Space**, shall be provided. The *clear floor spaces* at fixtures and controls, the *accessible route*, and the wheelchair turning *space* may overlap.

### **19.7 SHOWER STALLS**

*Accessible* shower stalls shall comply with the following:

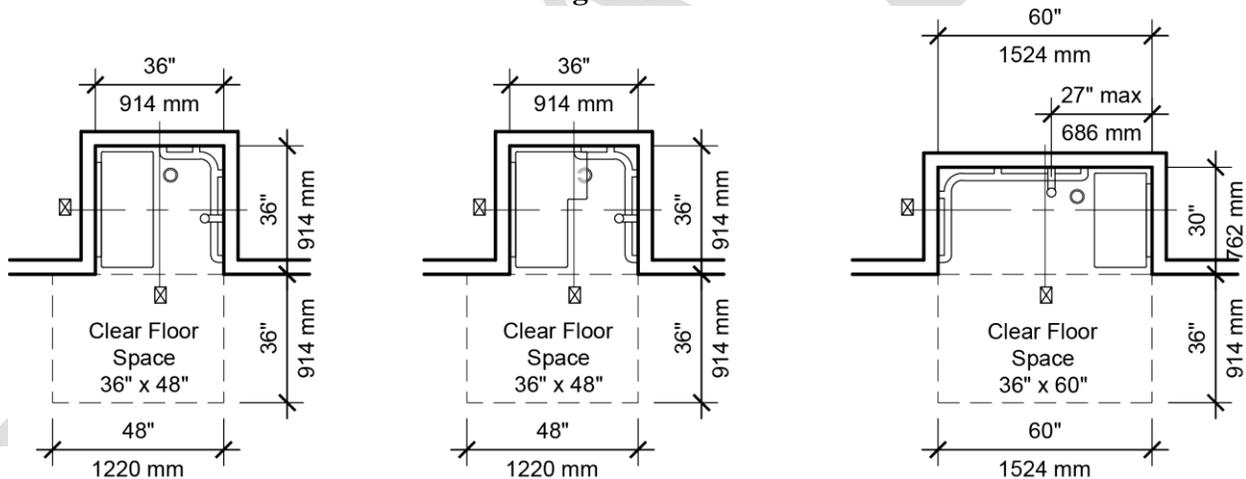
19.7.1 Transfer Type Shower Stalls: Transfer type shower stalls shall be 36 inches (914 mm) by 36 inches (914 mm) *clear* inside dimensions measured at the center points of opposing sides and shall have a 36 inch (914 mm) wide minimum entry on the face of the shower stall. Clearance of 36 inches (914 mm) wide minimum by 48 inches (1219 mm) long minimum measured from the control wall shall be provided. See **Figure 19.7a**.

19.7.2 Standard Roll-In Type Shower Stalls: Standard roll-in type shower stalls shall be 30 inches (762 mm) wide minimum by 60 inches (1524 mm) deep minimum *clear* inside dimensions measured at center points of opposing sides and shall have a 60 inches (1524 mm) wide minimum entry on the face of the shower stall. See **Figure 19.7a**.

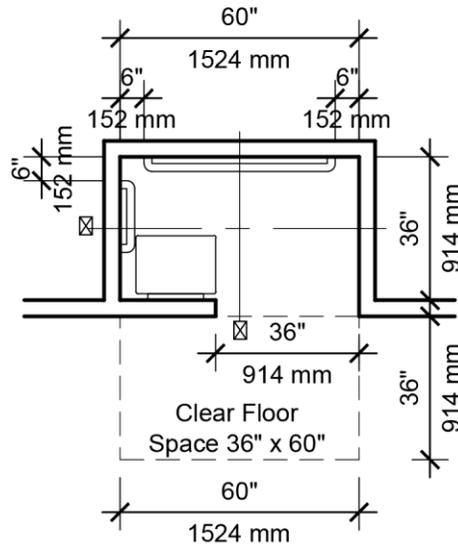
19.7.3 Alternate Roll-In Type Shower Stalls: Alternate roll-in type shower stalls shall be 36 inches (914 mm) wide minimum by 60 inches (1524 mm) deep minimum *clear* inside dimensions measured at center points of opposing sides. A 36 inch (914 mm) wide minimum entry shall be provided at one end of the long side of the compartment. See **Figure 19.7b**.

19.7.4 *Clear Floor Space*: *Clear floor space* shall comply with **521 CMR 19.7.1, Transfer Type Shower Stalls** through **521 CMR 19.7.3, Alternate Roll-In Type Shower Stalls**.

**Figure 19.7a**

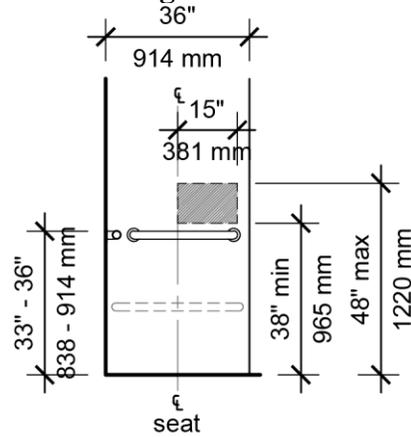


**Figure 19.7b**



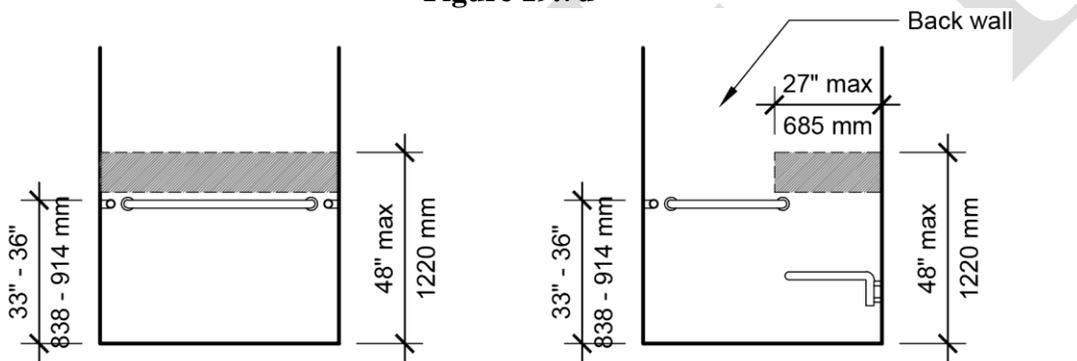
- 19.7.5 Floors shall be pitched to drain within the stall no steeper than one-to-fifty (1:50) or (2 percent). Floors shall be carborundum, grit-face tile, or other slip resistant surface.
- 19.7.6 Faucets and other controls shall be located as shown in **Figures 19.7c, 19.7d, and 19.7e**, and shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**. Showers shall operate by a single lever with a thermostatic and/or pressure balance mixing valve, and shall comply with the following:
- In transfer type shower compartments, the controls, faucets, and shower spray unit shall be installed on the side wall opposite the seat 38 inches (965 mm) minimum and 48 inches (1219 mm) maximum above the shower floor and shall be located on the control wall 15 inches (381 mm) maximum from the centerline of the seat toward the shower opening. See **Figures 19.7c**.
  - In standard roll-in type shower compartments, the controls, faucets, and shower spray unit shall be located above the grab bar, but no higher than 48 inches (1219 mm) above the shower floor. Where a seat is provided, the controls, faucets, and shower spray unit shall be installed on the back wall adjacent to the seat wall and shall be located 27 inches (686 mm) maximum from the seat wall. See **Figures 19.7d**.
  - In alternate roll-in type shower compartments, the controls, faucets, and shower spray unit shall be located above the grab bar, but no higher than 48 inches (1219 mm) above the shower floor. Where a seat is provided, the controls, faucets, and shower spray unit shall be located on the side wall adjacent to the seat 27 inches (686 mm) maximum from the side wall behind the seat or shall be located on the back wall opposite the seat 15 inches (381 mm) maximum, left or right, of the centerline of the seat. Where a seat is not provided, the control, faucets, and shower spray unit shall be installed on the side wall farthest from the compartment entry. See **Figure 19.7e**.

**Figure 19.7c**



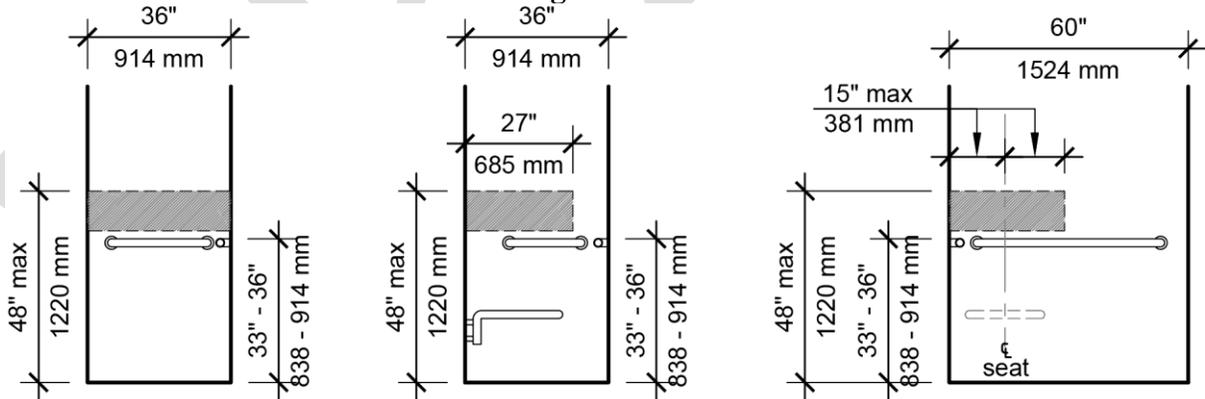
Transfer Type

**Figure 19.7d**



Standard Roll-In

**Figure 19.7e**



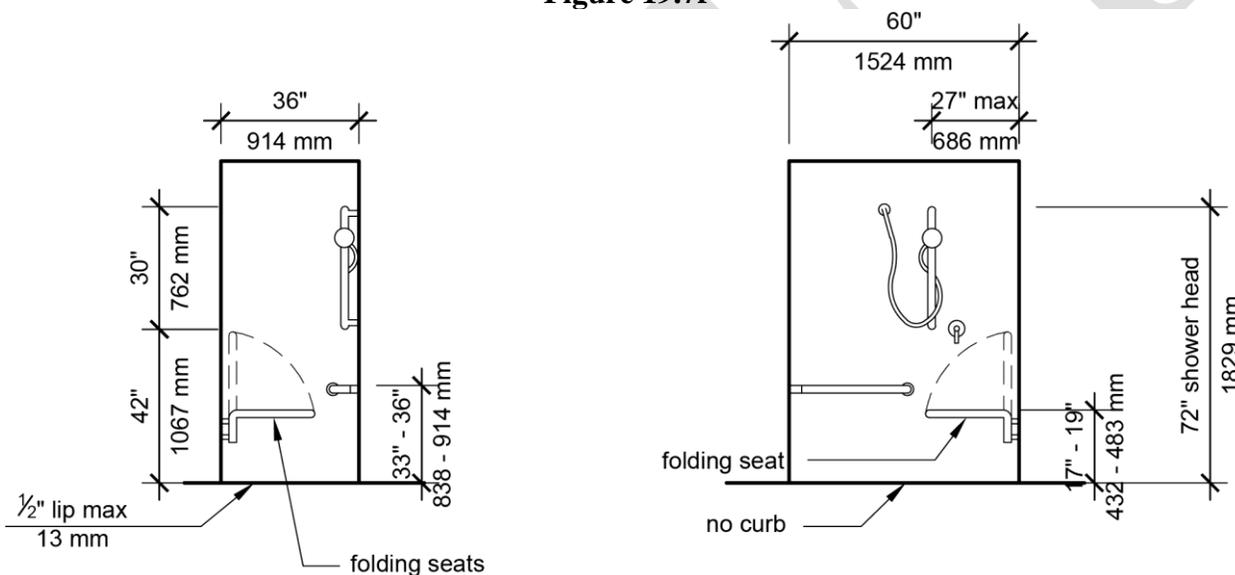
Alternate Roll-In

19.7.7 A folding seat shall be provided in the transfer type shower stalls and shall be as shown in **Figure 19.7f**. The seat shall be on the wall opposite the controls. In a roll-in type shower stall, a seat shall be provided. It shall be a folding type and shall be mounted on the wall adjacent to the controls as shown in **Figure 19.7f**.

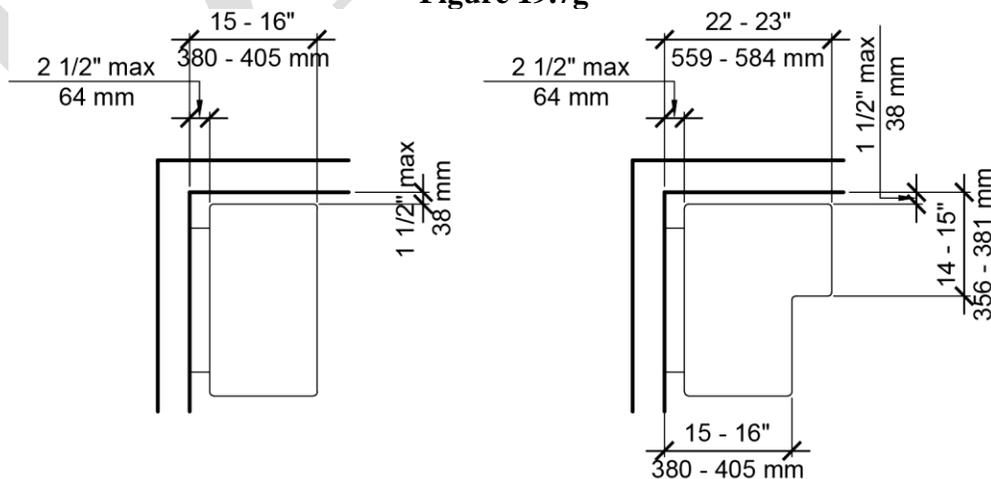
- a. The seat shall be mounted 17 inches to 19 inches (432 mm to 483 mm) above the *bathroom* floor and shall extend the full depth of the stall.

- b. The *structural strength* of seats and their attachments shall comply with the definition of *structural strength*.
- c. The seat shall be padded.
- d. Seat dimensions shall comply with the following:
  - i. The rear edge of a rectangular seat shall be 2 1/2 inches (64 mm) maximum and the front edge 15 inches (381 mm) minimum and 16 inches (406 mm) maximum from the seat wall. The side edge of the seat shall be 1 1/2 inches (38 mm) maximum from the adjacent wall. See **Figure 19.7g**.
  - ii. The rear edge of an L-shaped seat shall be 2 1/2 inches (64 mm) maximum and the front edge 15 inches (381 mm) minimum and 16 inches (406 mm) maximum from the seat wall. The rear edge of the "L" portion of the seat shall be 1 1/2 inches (38 mm) maximum from the wall and the front edge shall be 14 inches (356 mm) minimum and 15 inches (381 mm) maximum from the wall. The end of the "L" shall be 22 inches (559 mm) minimum and 23 inches maximum (584 mm) from the main seat wall. See **Figure 19.7g**.

**Figure 19.7f**



**Figure 19.7g**



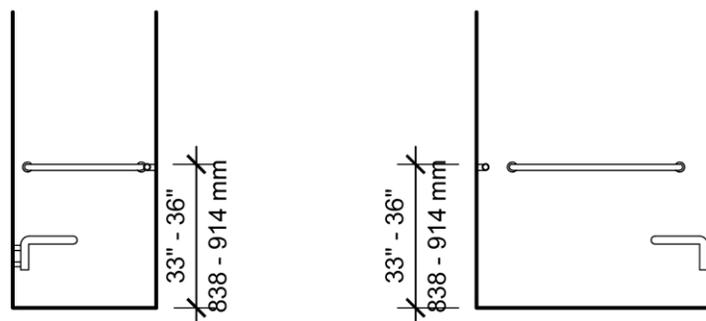
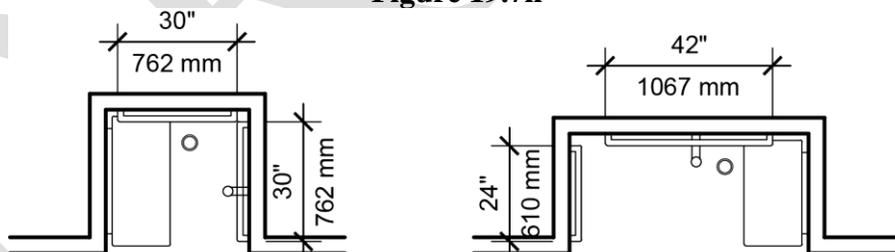
19.7.8 Two (2) grab bars shall be provided as shown in **Figures 19.7h** and **19.7i**.

- a. They shall be placed horizontally between 33 and 36 inches (838 mm to 914 mm) above the floor line. In a transfer type (stall, two (2) 30 inch (762 mm) grab bars shall be provided, one (1) on the back wall and one (1) on the wall opposite the seat. In a roll-in type, two (2) grab bars, one (1) 42 inches (1067 mm) long and one (1) 24 inches (610 mm) long shall be installed on the long wall and the short wall opposite the seat. In the alternative, a continuous L-shaped grab bar in the shower is acceptable. See **Figures 19.7h**.
- b. The *structural strength* of grab bars and their attachments shall comply with *structural strength*.
- c. Grab bars shall be between 1¼ inches and 2 inches (32mm to 51 mm) in outside diameter, and have a 1½ inch (38 mm) clearance between the bar and the wall. The clearance between the bar and projecting objects below and at the ends shall be 1½ inches (38 mm) minimum. The *space* between the grab bar and projecting objects above shall be 12 inches (305 mm) minimum. See **Figures 19.7i**.
- d. Grab bars with non-circular cross sections shall have a cross-section dimension of 2 inches (51 mm) maximum and a perimeter dimension of 4 inches (102 mm) minimum and 4.8 inches (122 mm) maximum. See **Figures 19.7i**.
- e. Grab bars shall also be non-rusting and acid-etched or roughened.
- f. Where multiple grab bars are used, required horizontal grab bars shall be installed at the same height above the finish floor.

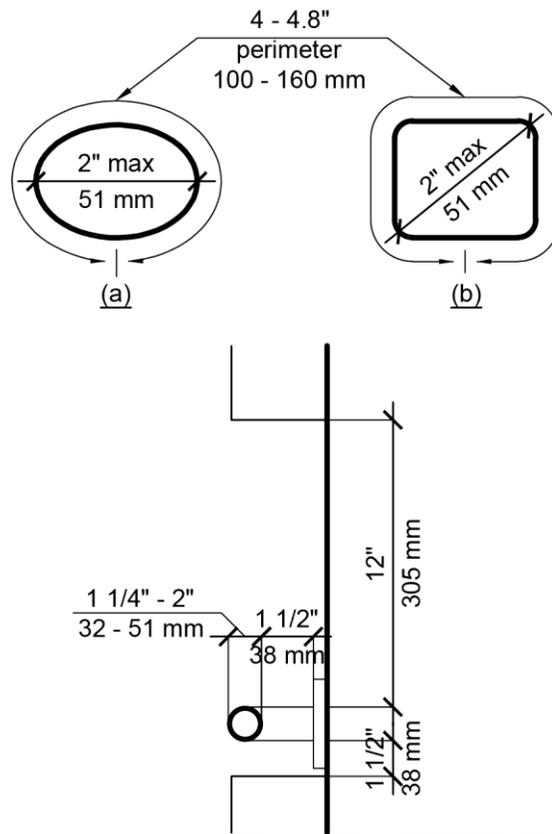
Exceptions:

1. Grab bars shall not be required to be installed in a shower located in a bathing *facility* for a single occupant accessed only through a private office, and not for *common use* or *public use* provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with **521 CMR 19.7.8**.
2. In residential *dwelling units*, grab bars shall not be required to be installed in showers located in bathing *facilities* provided that reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with **521 CMR 19.7.8**.

**Figure 19.7h**



**Figure 19.7i**



19.7.9 Soap trays shall not incorporate hand hold features unless they can support 250 pounds for five (5) minutes.

19.7.10 A shower spray unit attached to a flexible metal hose at least 60 inches (1524 mm) long and adjustable from 42 inches to 72 inches (1067 mm to 1829 mm) that can be used both as a fixed shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Shower spray units shall deliver water that is 120°F (49°C) maximum.

Exception:

In unmonitored *facilities* where vandalism is a consideration, that are not medical care *facilities*, long-term care *facilities*, *lodging facility* guest rooms, or residential *dwelling units*, a fixed shower head mounted at 48 inches (1219 mm) above the shower floor may be used in lieu of a hand-held shower head.

19.7.11 If provided, curbs in shower stalls 36 inches by 36 inches (914 mm by 914 mm) shall be no higher than one half (1/2) of an inch (13 mm), beveled at a slope no steeper than one-to-two (1:2) (50 percent). Shower stalls that are 30 inches by 60 inches (762 mm by 1524 mm) minimum shall not have curbs.

19.7.12 If provided, enclosures for shower stalls shall not obstruct controls, faucets, and shower spray units or obstruct transfer from wheelchairs onto shower seats.

## 19.8 GANG SHOWERS

Shall also comply with **521 CMR 19.00: BATHING ROOMS** except for the provisions contained in **521 CMR 19.7.4, Clear Floor Space**.

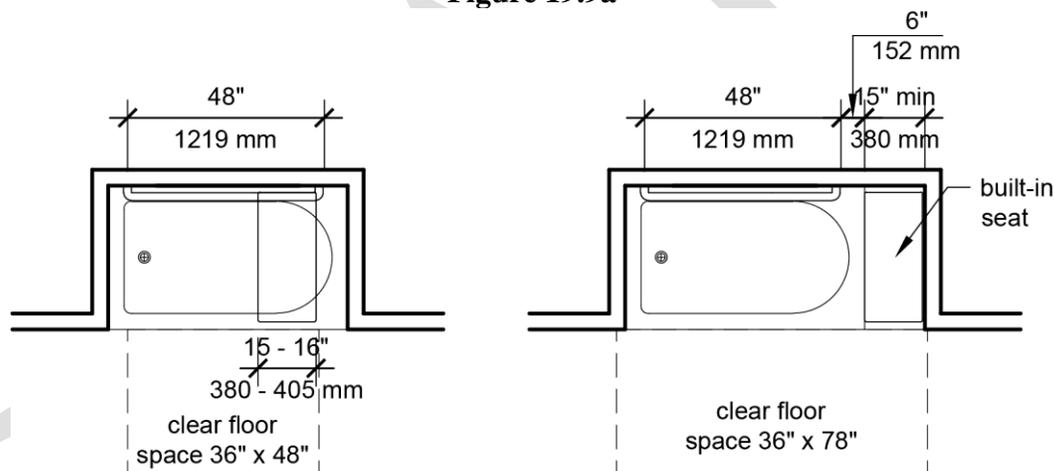
## 19.9 BATHTUBS

Accessible bathtubs shall comply with the following:

19.9.1 Clear floor space in front of bathtubs shall be as shown in **Figure 19.9a** and **19.9b**.

19.9.2 A removable in-tub seat or a built-in seat at the head end of the tub shall be provided as shown in **Figures 19.9a, 19.9b, and 19.9c**. Seats shall be mounted securely and shall not slip during use. The *structural strength* of seats and their attachments shall comply with *structural strength*. The top of bathtub seats shall be 17 inches (432 mm) minimum and 19 inches (483 mm) maximum above the *bathroom* finish floor. The depth of a removable in-tub seat shall be 15 inches (381 mm) minimum and 16 inches (406 mm) maximum. Permanent seats at the head end of the bathtub shall be 15 inches (381 mm) deep minimum and shall extend from the back wall to or beyond the outer edge of the bathtub. See **Figure 19.9a**.

**Figure 19.9a**



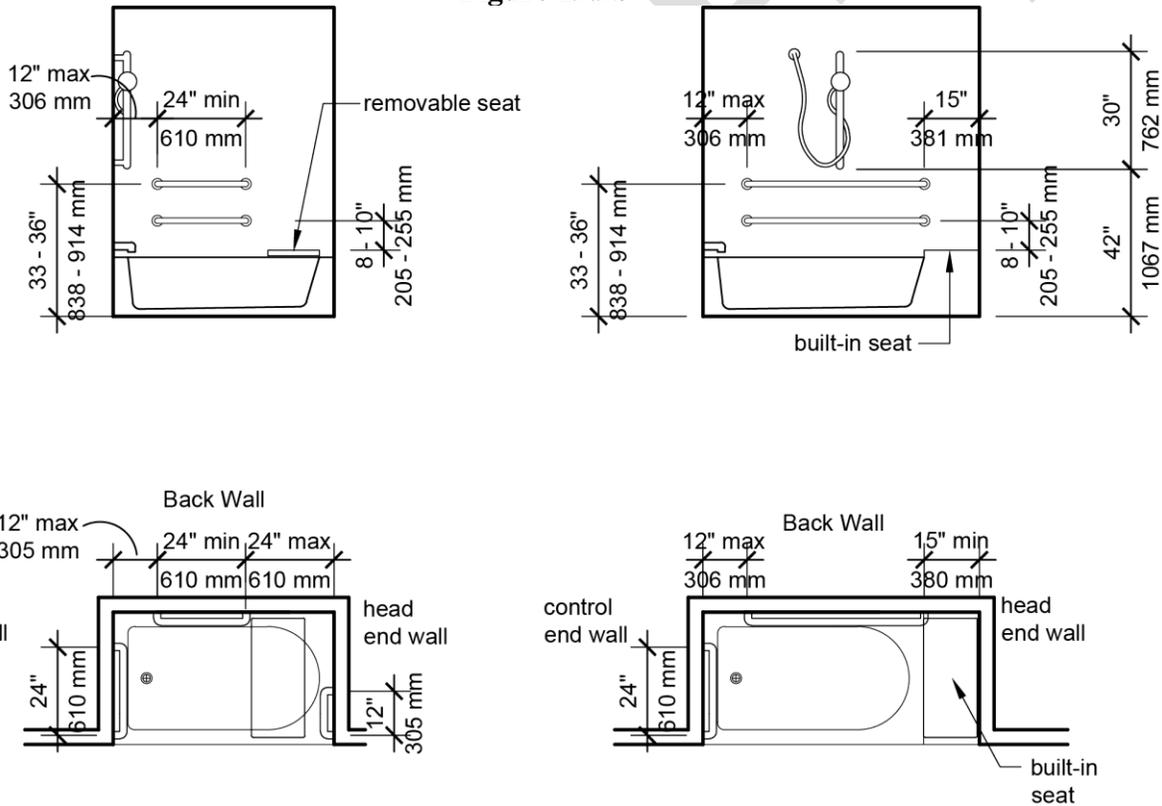
19.9.3 Grab bars shall be provided as shown in **Figures 19.9a** and **19.9b**.

- a. The *structural strength* of grab bars and their attachments shall comply with *structural strength*.
- b. Grab bars shall be between 1¼ inches and 2 inches (32 mm to 51 mm) in outside diameter, and have a 1½ inch (38 mm) clearance between the bar and the wall. The clearance between the bar and projecting objects below and at the ends shall be 1½ inches (38 mm) minimum. The *space* between the grab bar and projecting objects above shall be 12 inches (305 mm) minimum.
- c. Grab bars with non-circular cross sections shall have a cross-section dimension of 2 inches (51 mm) maximum and a perimeter dimension of 4 inches (100 mm) minimum and 4.8 inches (122 mm) maximum.
- d. Grab bars shall also be non-rusting and acid-etched or roughened.
- e. For bathtubs with permanent seats, grab bars shall be provided in accordance with the following (See **Figure 19.9b**):
  - i. Two grab bars shall be installed on the back wall, one (1) located 33 inches (838 mm) minimum and 36 inches (914 mm) maximum above the finish floor and the other located 8 inches (203 mm) minimum and 10 inches (254 mm) maximum above the rim of the bathtub. Each grab bar

shall be installed 15 inches (381 mm) maximum from the head end wall and 12 inches (305 mm) maximum from the control end wall.

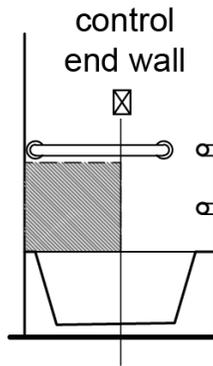
- ii. Control End Wall: A grab bar 24 inches (610 mm) long minimum shall be installed on the control end wall at the front edge of the bathtub.
- f. For bathtubs without permanent seats, grab bars shall be provided in accordance with the following (See **Figure 19.9b**):
  - i. Back Wall: Two grab bars shall be installed on the back wall, one located 33 inches (838 mm) minimum and 36 inches (914 mm) maximum above the finish floor and other located 8 inches (203 mm) minimum and 10 inches (254 mm) maximum above the rim of the bathtub. Each grab bar shall be 24 inches (610 mm) long minimum and shall be installed 24 inches (610 mm) maximum from the head end wall and 12 inches (305 mm) maximum from the control end wall.
  - ii. Control End Wall: A grab bar 24 inches (610 mm) long minimum shall be installed on the control end wall at the front edge of the bathtub.
  - iii. Head End Wall: A grab bar 12 inches (305 mm) long minimum shall be installed on the head end wall at the front edge of the bathtub.

**Figure 19.9b**



19.9.4 Controls, other than drain stoppers, shall be located on an end wall. Controls shall be between the bathtub rim and grab bar, and between the open side of the bathtub and the centerline of the width of the bathtub. In bathtubs with built in seats, controls shall be mounted on the short wall opposite the built in seat. See **Figure 19.9c**.

**Figure 19.9c**



19.9.5 Shower spray unit: A shower spray unit with a hose at least 60 inches (1524 mm) long that can be used both as a fixed shower head and as a hand-held shower shall be provided. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Bathtub shower spray units shall deliver water that is 120°F (49°C) maximum.

19.9.6 Soap trays shall not incorporate hand hold features unless they can support 250 pounds for five (5) minutes.

19.9.7 Bathtub Enclosures: If provided, enclosures for bathtubs shall not obstruct controls or transfer from wheelchairs onto bathtub seats or into tubs. Enclosures on bathtubs shall not have tracks mounted on the rim of the bathtub.

#### 19.10 MIRRORS AND SHELVES

If mirrors and shelves are provided, then at least one (1) of each shall be *accessible*. The top of any shelf and the bottom of any mirror which is provided above a sink shall be set with the bottom edge of the reflecting surface no higher than 40 inches (1016 mm) above the floor. A full length mirror is also allowed.

#### 19.11 CONTROLS AND DISPENSERS

If controls, dispensers, receptacles, or other equipment are provided, then at least one (1) of each shall be on an *accessible route* and shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

# **PART F**

# **COMMUNICATION ELEMENTS AND FEATURES**

## **521 CMR 20.00: ALARMS**

### **20.1 GENERAL**

If emergency warning systems are provided, then they shall include both audible alarms and visual alarms.

20.1.1 *Sleeping accommodations* for persons with hearing impairments (*See 521 CMR 34.6, Units with Accessible Communication Features for Persons who are Deaf or Hard of Hearing*) shall have an alarm system that complies with **521 CMR 20.4, Auxiliary Alarms**).

20.1.2 Emergency warning systems in medical care *facilities* may be modified to suit standard health care alarm design practice.

### **20.2 AUDIBLE ALARMS**

If provided, audible emergency alarms shall produce a sound that exceeds the prevailing equivalent sound level in the room or *space* by at least 15 dbA or exceeds any maximum sound level with a duration of 60 seconds by five (5) dbA, whichever is louder. If an audible alarm in an adjacent *space* provides the proper decibel level within a room, then only the visual alarm is needed. Sound levels for alarm signals shall not exceed 120 dbA.

### **20.3 VISUAL ALARMS**

At a minimum, visual signal appliances, if provided, shall be provided in *buildings* and *facilities* in each of the following areas: restrooms, meeting rooms, hallways, lobbies, classrooms, and any general usage areas open to the public.

20.3.1 Visual alarm signal appliances shall be integrated into the *building* or *facility* alarm system. If single station audible alarms are provided, then single station visual alarm signals shall be provided.

20.3.2 Visual alarm signals shall have photometric features in accordance with NFPA 72, as adopted by **780 CMR**.

20.3.3 Visual alarm signals shall be located in accordance with NFPA 72, as adopted by **780 CMR**.

### **20.4 AUXILIARY ALARMS**

Units and *sleeping accommodations* shall have a visual alarm connected to the *building* emergency alarm system or shall have a standard 110-volt electrical receptacle into which such an alarm can be connected and a means by which a signal from the *building* emergency alarm system can trigger such an auxiliary alarm.

20.4.1 When visual alarms are in place the signal shall be visible in all areas of the unit or room.

20.4.2 Instructions for use of the auxiliary alarm or receptacle shall be provided.

## 521 CMR 21.00: SIGNAGE

### 21.1 GENERAL

The following types of *signage* shall comply with **521 CMR 21.00: SIGNAGE**:

- a. Signs that designate permanent rooms and *spaces*. These include toilet room signs, room numbers, stair signs, etc. Such signs shall comply with requirements for **521CMR 21.2, Mounting Location and Height**, **521 CMR 21.5, Raised and Braille Characters and Pictorial Symbol Signs**, and **521 CMR 21.6a, Finish and Contrast**.
- b. Where both visual and *tactile* characters are required, either one (1) sign with both visual and *tactile* characters, or two (2) separate signs, one (1) with visual, and one (1) with *tactile* characters, shall be provided.

#### Exceptions:

1. *Building* directories, menus, seat and row designations in *assembly areas*, occupant names, *building* addresses and company names and logos.
  2. Signs that are *temporary* are not required to comply.
  3. In detention and correctional *facilities*, signs not located in *public use* areas shall not be required to comply.
- c. Signs that provide direction to, or information about, functional *spaces* of the *building* shall comply with **521 CMR 21.3, Character Proportion and Stroke Thickness**, **521 CMR 21.4, Character Height**, and **521 CMR 21.6a, Finish and Contrast**.
  - d. The following *elements* and *spaces* of *accessible facilities* shall be identified by the International Symbol of Accessibility (See **Figure 21.1**) and shall comply with **521 CMR 21.7, Pictograms and Pictorial Symbols** :
    - i. Parking spaces designated as reserved for individuals with disabilities;
    - ii. *Accessible* passenger loading zones;
    - iii. *Accessible entrances* when not all are *accessible* (inaccessible *entrances* shall have directional *signage* to indicate the route to the nearest *accessible entrance*);
    - iv. *Accessible* toilet and bathing *facilities* when not all are *accessible*.
    - v. Emergency egress signs: International Symbol of Accessibility to be not less than 6 inches (152 mm) high and incorporated into the illuminated *signage*.

**Figure 21.1**



## 21.2 MOUNTING LOCATION AND HEIGHT

Where permanent identification is provided for rooms and *spaces*, signs shall be installed on the wall adjacent to the latch side of the door. Where there is no wall *space* to the latch side of the door, including at double leaf doors, signs shall be placed on the nearest wall adjacent to the active leaf of the pair of doors. If there is no active leaf, the *signage* shall be placed to the right side of the door if possible.

- a. *Signage* mounting location shall allow a person to approach within 3 inches (76 mm) of *signage* without encountering protruding objects or standing within the swing of a door. Signs containing *tactile* characters shall be located so that a *clear floor or ground space* of 18 inches (457 mm) minimum by 18 inches (457 mm) minimum, centered on the *tactile* characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position.
- b. Mounting height of room and *space* identification signs, and all signs requiring *tactile* characters, shall be such that the bottom edge (baseline) of all required *tactile* characters is located between 48 inches (1219 mm) and 60 inches (1524 mm) above the finish floor.

### Exception:

*Tactile* characters for elevator car controls shall not be required to comply with **521 CMR 21.2b**.

## 21.3 CHARACTER PROPORTION AND STROKE THICKNESS

Letters and numbers on signs shall have a width-to-height ratio between three-to-five (3:5) and one-to-one (1:1), and a stroke-width-to-height ratio between one-to-five (1:5) and one-to-ten (1:10). Stroke thickness of the uppercase letter "I" shall be 15 percent maximum of the height of the character.

## 21.4 CHARACTER HEIGHT

Characters and numbers on signs shall be sized according to the viewing distance from which they are to be read.

21.4.1 The minimum height of suspended or overhead characters is 3 inches (76 mm) and is measured using an upper case X.

21.4.2 Lower case characters are permitted.

**21.5 RAISED AND BRAILLE CHARACTERS**

Where required by **521 CMR 21.00: SIGNAGE**, signs with raised and *Braille* characters shall not have sharp or abrasive edges and shall comply with the following (See **Figure 21.5a**):

- a. Letters and numerals shall be raised one thirty-second (1/32) of an inch (0.8mm) above their background surface, upper case, sans serif type. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.
- b. Characters shall be selected from fonts where the width of the uppercase letter "O" is 55 percent minimum and 110 percent maximum of the height of the uppercase letter "I".
- c. Character height measured vertically from the baseline of the character shall be five-eighths (5/8) of an inch (16 mm) minimum and 2 inches (51 mm) maximum based on the height of the uppercase letter "I".

Exception:

Where separate raised and visual characters with the same information are provided, raised character height shall be permitted to be one half (1/2) of an inch (13 mm) minimum.

- d. Character spacing shall be measured between the two closest points of adjacent raised characters within a message, excluding word spaces. Where characters have rectangular cross sections, spacing between individual raised characters shall be one-eighth (1/8) of an inch (3 mm) minimum and four (4) times the raised character stroke width maximum. Where characters have other cross sections, spacing between individual raised characters shall be one-sixteenth (1/16) of an inch (1.6 mm) minimum and four (4) times the raised character stroke width maximum at the base of the cross sections, and one-eighth (1/8) of an inch (3.2 mm) minimum and four (4) times the raised character stroke width maximum at the top of the cross sections. Characters shall be separated from raised borders and decorative *elements* three-eighths (3/8) of an inch (9.5 mm) minimum.
- e. Spacing between the baselines of separate lines of raised characters within a message shall be 135 percent minimum and 170 percent maximum of the raised character height
- f. Letters and/or numerals shall be accompanied with Grade 2 *Braille*. *Braille* dots shall have a domed or rounded shape. The indication of an uppercase letter or letters shall only be used before the first word of sentences, proper nouns and names, individual letters of the alphabet, initials, and acronyms.
- i. *Braille* shall be positioned below the corresponding text. If text is multi-lined, *Braille* shall be placed below the entire text. *Braille* shall be separated three-eighths (3/8) of an inch (9.5 mm) minimum from any other *tactile* characters and three-eighths (3/8) of an inch (9.5 mm) minimum from raised borders and decorative *elements*. See **Figure 21.5b**.

Exception:

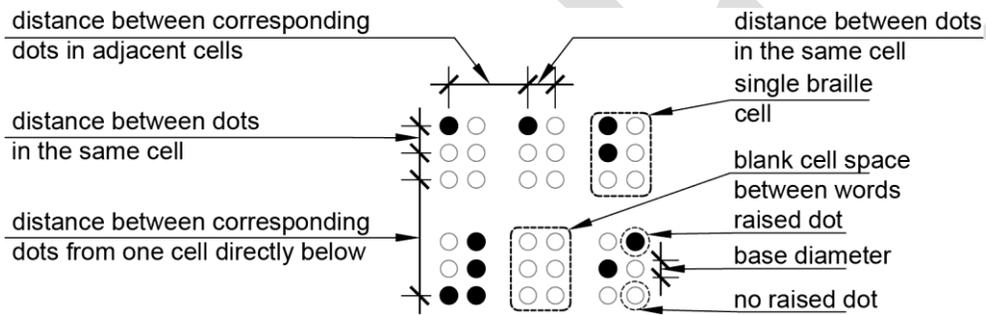
*Braille* provided on elevator car controls shall be separated three-sixteenths (3/16) inch (4.8 mm) minimum and shall be located either directly below or adjacent to the corresponding raised characters or symbols

**Table 21.1 Braille Dimensions**

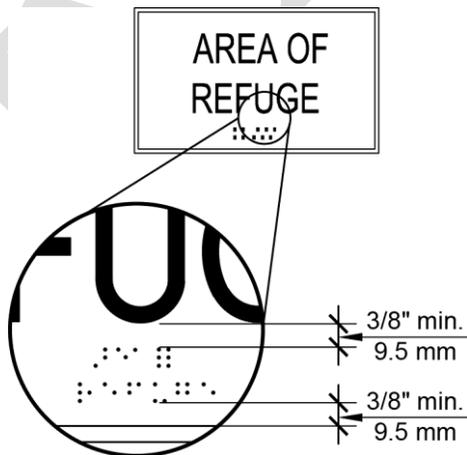
Measurement Range	Minimum (inches) to Maximum (inches)
Dot base diameter	0.059 (1.5 mm) to 0.063 (1.6 mm)
Distance between two dots in the	0.090 (2.3 mm)

Distance between two dots in adjacent cells <sup>1</sup>	same cell <sup>1</sup>	to
		0.100 (2.5 mm)
		0.241 (6.1 mm)
		to
		0.300 (7.6 mm)
Dot height		0.025 (0.6 mm)
		to
		0.037 (0.9 mm)
Distance between corresponding dots from one cell directly below <sup>1</sup>		0.395 (10 mm)
		to
		0.400 (10.2 mm)

**Figure 21.5a**



**Figure 21.5b**



**21.6 VISUAL CHARACTERS**

Visual characters shall comply with **521 CMR 21.6**.

Exception:

Where visual characters comply with **521 CMR 21.5, Raised and Braille Characters**, they shall not be required to comply with **521 CMR 21.6**.

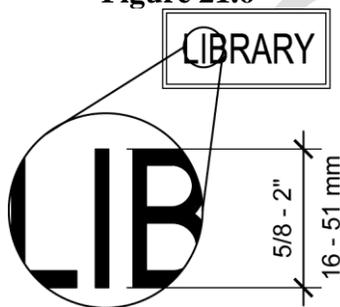
- a. The characters and background of signs shall be eggshell, matte, or other non-glare finish. Characters and symbols shall contrast with their background either light characters on a dark background or dark characters on a light background.
- b. Characters shall be uppercase or lowercase or a combination of both.
- c. Characters shall be conventional in form. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.
- d. Characters shall be selected from fonts where the width of the uppercase letter "O" is 55 percent minimum and 110 percent maximum of the height of the uppercase letter "I".
- e. Minimum character height shall comply with **Table 21.6.1**. Viewing distance shall be measured as the horizontal distance between the character and an obstruction preventing further approach towards the sign. Character height shall be based on the uppercase letter "I".

**Table 21.6.1 Visual Character Height**

<b>Height to Finish Floor or Ground From Baseline of Character</b>	<b>Horizontal Viewing Distance</b>	<b>Minimum Character Height</b>
40 inches (1016 mm) to less than or equal to 70 inches (1778 mm)	less than 72 inches (1829 mm)	5/8 inch (16 mm)
	72 inches (1829 mm) and greater	5/8 inch (16 mm), plus 1/8 inch (3 mm) per 1 foot (305 mm) of viewing distance above 72 inches (1829 mm) (See <b>Figure 21.6</b> )
Greater than 70 inches (1778 mm) to less than or equal to 120 inches (3048 mm)	less than 180 inches (4572 mm)	2 inches (51 mm)
	180 inches (4572 mm) and greater	2 inches (51 mm), plus 1/8 inch (3 mm) per 1 foot (305 mm) of viewing distance above 180 inches (4572 mm)
greater than 120 inches (3048 mm)	less than 21 feet (6401 mm)	3 inches (76 mm)
	21 feet (6401 mm) and greater	3 inches (76 mm), plus 1/8 inch (3 mm) per foot (305 mm) of viewing distance above 21 feet (6401 mm)

- f. Visual characters shall be 40 inches (1016 mm) minimum above the finish floor or ground.  
Exception:  
 Visual characters indicating elevator car controls shall not be required to comply.
- g. Stroke thickness of the uppercase letter "I" shall be 10 percent minimum and 30 percent maximum of the height of the character.
- h. Character spacing shall be measured between the two closest points of adjacent characters, excluding word spaces. Spacing between individual characters shall be 10 percent minimum and 35 percent maximum of character height.
- i. Spacing between the baselines of separate lines of visual characters within a message shall be 135 percent minimum and 170 percent maximum of the character height.

**Figure 21.6**



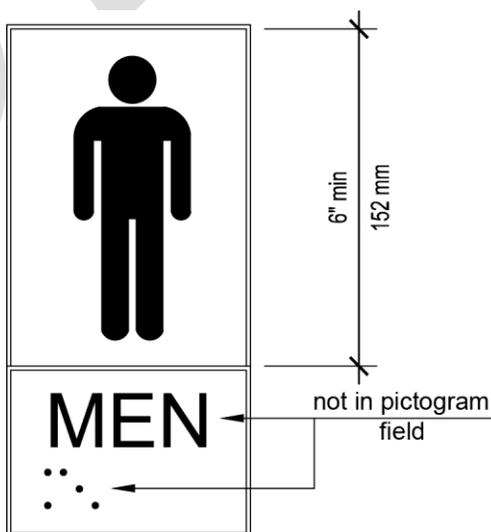
**21.7 PICTOGRAMS AND PICTORIAL SYMBOLS**

*Pictograms* and pictorial symbols shall comply with **521 CMR 21.7, Pictograms and Pictorial Symbols** and

shall be accompanied by the equivalent text description placed directly below the *pictogram*. Text shall comply with **521 CMR 21.00: SIGNAGE**.

- a. The border dimension of the *pictogram* shall be 6 inches (152 mm) minimum in height. See **Figure 21.7**. Characters and *Braille* shall not be located in the *pictogram* field.

**Figure 21.7**



- b. *Pictograms* and their field shall have a non-glare finish. *Pictograms* shall contrast with their field with either a light *pictogram* on a dark field or a dark *pictogram* on a light field.

## 21.8 SYMBOLS OF ACCESSIBILITY

*Facilities* and *elements* required to be identified as *accessible* by **521 CMR 21.1, General**, shall use the international symbol of *accessibility*. The symbol shall be displayed as shown in **Figure 21.1**.

## 21.9 VOLUME CONTROL TELEPHONES

Telephones required to have a volume control under **521 CMR 22.00: TELEPHONES**, shall be identified by a *pictogram* containing a depiction of a telephone handset with radiating sound waves on a square field such as shown in **Figure 21.9**.

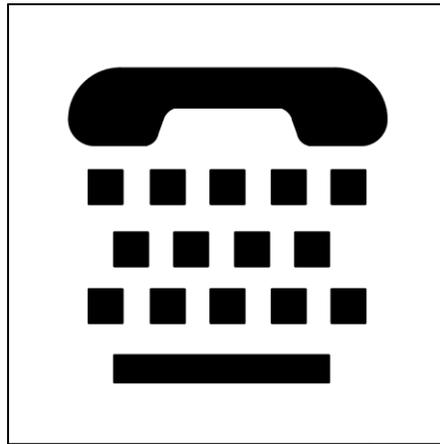
**Figure 21.9**



## 21.10 TEXT TELEPHONES (TTY)

*Text telephones (TTY)* required by **521 CMR 22.00: TELEPHONES**, shall be identified by the international *TTY* symbol (See **Figure 21.10**). In addition, if a *facility* has a public *text telephone (TTY)*, directional *signage* indicating the location of the nearest *text telephone (TTY)* shall be placed adjacent to all banks of telephones that do not contain a *text telephone (TTY)*. Such directional *signage* shall include the international *TTY* symbol. If a *facility* has no banks of telephones but a public *text telephone (TTY)* is available, the directional *signage* shall be provided at the *entrance* (e.g., in a *building directory*).

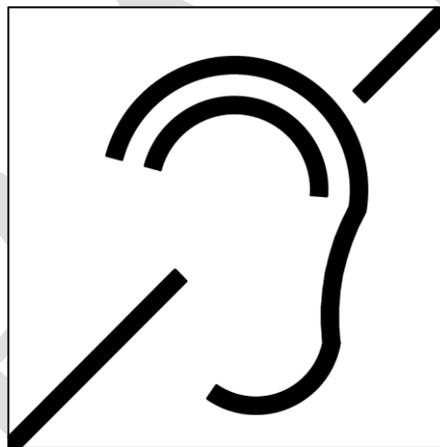
**Figure 21.1**



### 21.11 ASSISTIVE LISTENING SYSTEMS

In *assembly areas* where permanently installed *assistive listening systems* are required by **521 CMR 24.00: , ASSISTIVE LISTENING SYSTEMS** , the availability of such systems shall be identified with *signage* that includes the international symbol of access for hearing loss. See **Figure 21.11**.

**Figure 21.11**



### 21.12 ILLUMINATION LEVELS (reserved)

**521 CMR 22.00: TELEPHONES**

**22.1 GENERAL**

Wherever coin-operated public pay telephones, coinless public pay telephones, public closed-circuit telephones, public courtesy phones, or other types of public telephones are provided, they shall comply with the requirements of **521 CMR 22.00: TELEPHONES** for each type of public telephone provided. For purposes of this section, a bank of telephones shall be considered to be two (2) or more adjacent telephones.

**22.2 Number**

Wheelchair *accessible* telephones shall be provided in accordance to Table 22.2.

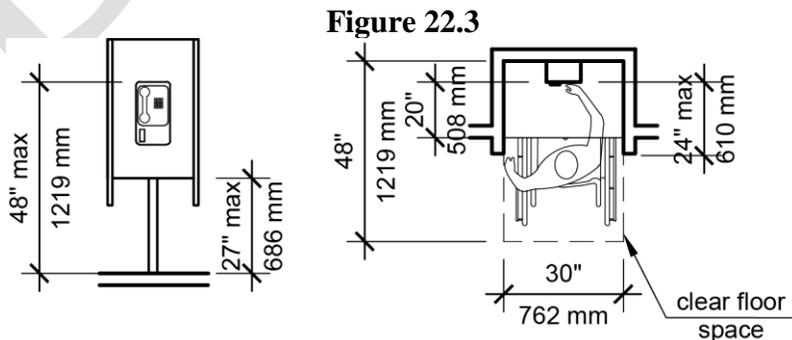
Table 22.2 – Wheelchair Accessible Telephones

Number of Telephones Provided on a Floor, Level or Exterior Site	Minimum Number of Required Wheelchair Accessible Telephones
1 or more single units	1 per floor, level and exterior site
1 bank	1 per floor, level and exterior site
2 or more banks	1 per bank

**22.3 CLEAR FLOOR OR GROUND SPACE**

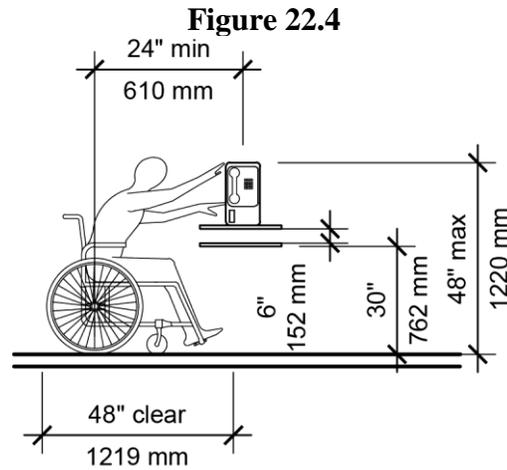
Unless otherwise specified, a *clear floor or ground space* that allows either a forward or parallel approach by a person using a wheelchair shall be provided at *accessible* telephones.

- a. The *clear floor or ground space* shall comply with **521 CMR 6.5 Forward Reach**, or **521 CMR 6.6 Side Reach**. If a front approach is provided and the *clear* floor area includes knee clearance under the telephone, the knee clearance shall be at least 30 inches (762 mm) wide and 30 inches (762 mm) high. See **Figure 22.3**.
- b. Bases, enclosures, and fixed seats shall not impede approaches to telephones by people who use wheelchairs.
- c. Where a parallel approach is provided, the distance from the edge of the telephone enclosure to the face of the telephone unit shall be 10 inches (254 mm) maximum.
- d. Where a forward approach is provided, the distance from the front edge of a counter within the telephone enclosure to the face of the telephone unit shall be 20 inches (508 mm) maximum.



## 22.4 MOUNTING HEIGHT

The highest *operable part* of the telephone, including dial, handset and coin deposit slots, shall be within the reach ranges specified in **521 CMR 6.5, Forward Reach**, or **521 CMR 6.6, Side Reach**. See **Figure 22.4**.



## 22.5 PROTRUDING OBJECTS

Accessible telephones shall be located on *accessible routes* and shall comply with **521 CMR 8.6, Protruding Objects**.

## 22.6 HEARING AID COMPATIBLE AND VOLUME CONTROL TELEPHONES

All telephones shall be hearing aid compatible and shall be equipped with a volume control.

- a. Volume controls, capable of a minimum of 12 dbA and a maximum of 18 dbA above normal, shall be provided. If an automatic reset is provided then 18 dbA may be exceeded.
- b. Instructions for use of the volume control shall be attached to or next to the telephone.

## 22.7 CONTROLS

Telephones shall have push button controls where service for such equipment is available and shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

## 22.8 TELEPHONE BOOKS

Telephone books, if provided, shall be located in a position that complies with the reach ranges specified in **521 CMR 6.5, Forward Reach**, and **521 CMR 6.6, Side Reach**.

## 22.9 TEXT TELEPHONE (TTY)

Telephone Distribution: Where required, the *text telephone (TTY)* shall be permanently affixed within the telephone enclosure. If an acoustic coupler is used, the telephone cord shall be at least 29 inches (737 mm) long to allow connection of the *text telephone (TTY)* to the telephone receiver. The distribution of *TTY* phones shall comply with the following:

- a. Where four (4) or more public pay telephones are provided at a bank of telephones, at least one (1) public *TTY*, complying with **521 CMR 22.9, Text Telephone (TTY)**, shall be provided at that bank.  
Exception:

*TTY*s shall not be required at banks of telephones located within 200 feet (6096 mm) of, and on the same floor as, a bank containing a public *TTY*.

- b. Where four (4) or more public pay telephones are provided on an exterior *site*, at least one (1) public *TTY* shall be provided on the *site*.
- c. Where at least one (1) public pay telephone is provided at a public rest stop, emergency roadside stop, or service plaza, at least one (1) public *TTY* shall be provided.
- d. Where at least one (1) public pay telephone is provided serving a hospital emergency room, hospital recovery room, or hospital waiting room, at least one (1) public *TTY* shall be provided at each location.
- e. In transportation *facilities*, in addition to the requirements of **521 CMR 22.1, General**, through **521 CMR 22.8, Telephone Books**, where at least one (1) public pay telephone serves a particular *entrance* to a bus or rail *facility*, at least one (1) public *TTY* shall be provided to serve that *entrance*. In airports, in addition to the requirements of **521 CMR 22.1, General**, through **521 CMR 22.8, Telephone Books**, where four (4) or more public pay telephones are located in a terminal outside the security areas, a concourse within the security areas, or a baggage claim area in a terminal, at least one (1) public *TTY* shall be provided in each location.
- f. In detention and correctional *facilities*, where at least one (1) pay telephone is provided in a secured area used only by detainees or inmates and security personnel, at least one (1) *TTY* shall be provided in at least one (1) secured area.

#### **22.10 TELEPHONES WITH SHELF AND OUTLET**

When three (3) or more public telephones are provided in a bank, one (1) shall be designed to accommodate a portable *text telephone (TTY)* and shall be equipped with a shelf and an electrical outlet within or adjacent to the telephone enclosure. The telephone handset shall be capable of being placed flush on the surface of the shelf. The shelf shall be at least 9 inches wide by 12 inches deep (229 mm by 305 mm) and shall have 6 inches (152 mm) minimum vertical clearance. See **Figure 22.4**.

##### Exceptions:

1. Secured areas of detention and correctional *facilities* where shelves and outlets are prohibited for purposes of security or safety shall not be required to comply.
2. The shelf and electrical outlet shall not be required at a bank of telephones with a *TTY*.

## **521 CMR 23.00: AUTOMATED TELLER MACHINES (ATM) AND FARE VENDING MACHINES**

### **23.1 GENERAL**

Where only one (1) automated teller machine (ATM) or fare machine is provided, it shall comply with **521 CMR 23.00: AUTOMATED TELLER MACHINES (ATM) AND FARE VENDING MACHINES**. Where two (2) or more are provided at a location, then at least one (1) of each type shall comply. If a bank provides both interior and exterior ATMs, each such installation is considered a separate location. Each machine required to be *accessible* shall be on an *accessible route*. Where bins are provided for envelopes, waste paper, or other purposes, at least one (1) of each type shall comply with the requirements of **521 CMR 40.00: STORAGE**.

### **23.2 CONTROLS**

Controls for user activation shall comply with the requirements of **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

### **23.3 CLEARANCES AND REACH RANGE**

A *clear floor or ground space* shall be provided in front that allows a forward or a parallel approach to the unit allowing a person in a wheelchair to access the controls and dispensers. The highest *operable part* of controls, dispensers, receptacles, and other operable equipment shall be placed within at least one (1) of the *reach ranges* specified in **521 CMR 6.5, Forward Reach**, and **521 CMR 6.6, Side Reach**.

Exception:

*Clear floor or ground space* shall not be required at drive-up only automatic teller machines and fare machines.

### **23.4 OPERABLE PARTS**

*Operable parts* shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**. Unless a *clear* or correct key is provided, each *operable part* shall be able to be differentiated by sound or touch, without activation.

### **23.5 PRIVACY**

Automatic teller machines shall provide the opportunity for the same degree of privacy of input and output available to all individuals.

### **23.6 SPEECH OUTPUT**

Machines shall be speech enabled. Operating instructions and orientation, visible transaction prompts, user input verification, error messages, and all displayed information for full use shall be *accessible* to and independently usable by individuals with vision impairments. Speech shall be delivered through a mechanism that is readily available to all users, including but not limited to, an industry standard connector or a telephone handset. Speech shall be recorded or digitized human, or synthesized.

Exceptions:

1. Audible tones shall be permitted instead of speech for visible output that is not displayed for security purposes, including but not limited to, asterisks representing personal identification numbers.
2. Advertisements and other similar information shall not be required to be audible unless they convey information that can be used in the transaction being conducted.

3. Where speech synthesis cannot be supported, dynamic alphabetic output shall not be required to be audible.

23.6.1 Speech shall be capable of being repeated or interrupted. Volume control shall be provided for the speech function.

Exception:

Speech output for any single function shall be permitted to be automatically interrupted when a transaction is selected.

23.6.2 Where receipts are provided, speech output devices shall provide audible balance inquiry information, error messages, and all other information on the printed receipt necessary to complete or verify the transaction.

Exceptions:

1. Machine location, date and time of transaction, customer account number, and the machine identifier shall not be required to be audible.
2. Information on printed receipts that duplicates information available on-screen shall not be required to be presented in the form of an audible receipt.
3. Printed copies of bank statements and checks shall not be required to be audible.

## 23.7 INPUT

At least one (1) *tactilely* discernible input control shall be provided for each function. Where provided, key surfaces not on active areas of display screens, shall be raised above surrounding surfaces. Where membrane keys are the only method of input, each shall be *tactilely* discernible from surrounding surfaces and adjacent keys.

23.7.1 Numeric keys shall be arranged in a 12-key ascending or descending telephone keypad layout. The number five (5) key shall be *tactilely* distinct from the other keys.

23.7.2 Function keys shall contrast visually from background surfaces consistent with the requirements of **521 CMR 21.6a**.

23.7.3 Function key surfaces shall have *tactile* symbols as follows: Enter or Proceed key: raised circle; Clear or Correct key: raised left arrow; Cancel key: raised letter "X"; Add Value key: raised plus sign; Decrease Value key: raised minus sign.

## 23.8 DISPLAY SCREEN

The display screen shall be visible from a point located 40 inches (1016 mm) above the center of the *clear floor or ground space* in front of the machine. Characters displayed on the screen shall be in a sans serif font. Characters shall be three-sixteenths (3/16) of an inch (4.8 mm) high minimum based on the uppercase letter "I". Characters shall contrast with their background with either light characters on a dark background or dark characters on a light background.

## 23.9 BRAILLE INSTRUCTIONS

*Braille* instructions for initiating the speech mode shall be provided. *Braille* shall comply with **521 CMR 21.5, Raised and Braille Characters**.

## 521 CMR 24.00: ASSISTIVE LISTENING SYSTEMS

### 24.1 GENERAL

In each *assembly area* where audible communication is integral to the *use* of the *space*, an *assistive listening system* shall be provided if any of the following conditions exist:

- The *assembly area* accommodates 50 persons or more; or
- Audio amplification is provided for the general audience; or
- In all courtrooms.

24.1.1 Number: Where a *building* contains more than one (1) *assembly area* and the *assembly areas* required to provide *assistive listening systems* are under one management, the total number of required receivers shall be permitted to be calculated according to the total number of seats in the *assembly areas* in the *building*, provided that all receivers are usable with all systems.

24.1.2 Where all seats in an *assembly area* are served by an induction loop *assistive listening system*, the minimum number of receivers required by the table below to be hearing-aid compatible shall not be required to be provided.

24.1.3 Otherwise, for all other *assembly areas*, a permanently installed *assistive listening system*, or other supplementary wiring necessary to support a portable *assistive listening system* shall be provided

### 24.2 RECEIVERS

Receivers complying with **521 CMR 24.2.1, Receiver Jacks**, and **521 CMR 24.2.2, Hearing-aid Compatible Receivers**, shall be provided for *assistive listening systems* in each *assembly area* in accordance with **Table 24.2**. Twenty-five percent minimum of receivers provided, but no fewer than two (2), shall be hearing-aid compatible in accordance with **521 CMR 24.2.2, Hearing-aid Compatible Receivers**.

**Table 24.2 – Receivers for Assistive Listening Systems**

Capacity of Seating in Assembly Area	Minimum Number of Required Receivers	Minimum Number of Required Receivers Required to be Hearing-aid Compatible
50 or less	2	2
51 to 200	2, plus 1 per 25 seats over 50 seats <sup>1</sup>	2
201 to 500	2, plus 1 per 25 seats over 50 seats <sup>1</sup>	1 per 4 receivers <sup>1</sup>
501 to 1000	20, plus 1 per 33 seats over 500 seats <sup>1</sup>	1 per 4 receivers <sup>1</sup>
1001 to 2000	35, plus 1 per 50 seats over 1000 seats <sup>1</sup>	1 per 4 receivers <sup>1</sup>
2001 and over	55, plus 1 per 100 seats over 2000 seats <sup>1</sup>	1 per 4 receivers <sup>1</sup>

<sup>1</sup> – or fraction thereof.

24.2.1 Receivers required for use with an *assistive listening system* shall include a one-eighth (1/8) of an inch (3.2 mm) standard mono jack.

- 24.2.2 Receivers required to be hearing-aid compatible shall interface with telecoils in hearing aids through the provision of neckloops or headsets that can be worn as neckloops.
- a. *Assistive listening systems* shall be capable of providing a sound pressure level of 110 dB minimum and 118 dB maximum with a dynamic range on the volume control of 50 dB.
  - b. The signal-to-noise ratio for internally generated noise in *assistive listening systems* shall be 18 dB minimum.
  - c. Peak clipping shall not exceed 18 dB of clipping relative to the peaks of speech.
- 24.2.3 Placement of Listening Systems: If the listening system serves individual fixed seats, then such seats shall be located within a 50 foot (15m) viewing distance of, and including the stage or playing area, and shall have a complete view of the stage or playing area.
- 24.2.4 *Signage* shall be installed to notify patrons of the availability of a listening system and shall comply with **521 CMR 41.00: SIGNAGE**.

## **521 CMR 25.00: TWO-WAY COMMUNICATION SYSTEMS**

### **25.1 GENERAL**

Two-way communication systems shall comply with the following:

### **25.2 AUDIBLE AND VISUAL INDICATORS**

The system shall provide both audible and visual signals.

### **25.3 HANDSETS**

Handset cords, if provided, shall be 29 inches (737 mm) long minimum.

### **25.4 RESIDENTIAL DWELLING UNIT COMMUNICATION SYSTEMS**

Communications systems between a residential *dwelling unit* and a *site, building, or floor entrance* shall comply with the following:

- a. The *common use* or *public use* system interface shall include the capability of supporting voice and *TTY* communication with the residential *dwelling unit* interface.
- b. The residential *dwelling unit* system interface shall include a telephone jack capable, or be capable of supporting voice and *TTY* communication with the *common use* or *public use* system interface.

# **PART G**

# **SPECIAL ROOMS AND OCCUPANCIES**

## 521 CMR 26.00: PLACES OF ASSEMBLY

### 26.1 GENERAL

*Assembly areas* shall comply with all parts of 521 CMR, except as specified or modified in **521 CMR 26.00: PLACES OF ASSEMBLY**. *Assembly areas* shall include, but are not limited to, classrooms, lecture halls, courtrooms, meeting rooms, hearing rooms, legislative chambers, movie theaters, auditoriums, theaters, playhouses, dinner theaters, concert halls, centers for the performing arts, amphitheaters, arenas, stadiums, grandstands, bleachers, or convention centers. Associated, support, or related areas, including but not limited to press boxes, lobbies, ticket offices, seating, stages, backstage areas, dressing rooms, toilet rooms, showers and green rooms, shall also be *accessible*. *Assembly areas* shall also include, but not be limited to, churches, chapels, temples, synagogues, mosques and other house of worship or religious *facilities*.

### 26.2 ACCESSIBLE SEATING

*Accessible* seating shall include wheelchair spaces, companion seating, and armless seating and shall comply with the following:

26.2.1 In places of assembly with fixed seating, the minimum number of *accessible* wheelchair spaces shall be computed in accordance with **Table 26.2**.

**Table 26.2 – Number of Wheelchair Spaces Required in Places of Assembly**

Total Seating	Wheelchair Spaces
4 to 25	1
26 to 50	2
51 to 300	4
301 to 500	6
501 to 5000	6 plus 1 for each 150, or fraction thereof, between 501 through 5000
5001 and over	36, plus 1 for each 200, or fraction thereof, over 5000

- a. Wheelchair spaces shall adjoin, but in no way interfere with, an *accessible route* that also serves as a means of egress in case of emergency. See **Figure 26.2**.
- b. In venues of more than 300; two (2) of the required wheelchair spaces shall be located side-by-side and comply with **521 CMR 26.3, Accessible Space**.
- c. Lawn seating areas and exterior overflow seating areas shall comply with all requirements of **521 CMR**, and where fixed seats are not provided, shall connect to an *accessible route*.
- d. Where luxury boxes, club boxes, and private suits are provided in arenas, stadiums, and grandstands, *accessible* seating/wheelchair spaces complying with 521 CMR shall be provided in accordance with **Table 26.2**. *Accessible* seating/wheelchair spaces shall be provided in each such box or suite, and the number of *accessible* seats/wheelchair seats shall be calculated box by box and suite by suite.
- e. In boxes other than those included in **521 CMR 26.2.1d**, such as tiered boxes in performing arts auditoriums which are provided for spatial and acoustical purposes, the total quantity of *accessible* seating/wheelchair seats in such boxes shall be calculated based on the total number of seats provided in such boxes, and in compliance with **Table 26.2**. The required seating for such boxes shall be distributed proportionally among not less than 20 percent of all such boxes provided. The

boxes containing *accessible* seating/wheelchair seats shall also be located according to seating dispersion requirements in **521 CMR 26.4.1d and 26.4.1e**.

- f. At least one (1) wheelchair space complying with **521 CMR** shall be provided in team or player seating areas serving *areas of sport activity*.

Exception:

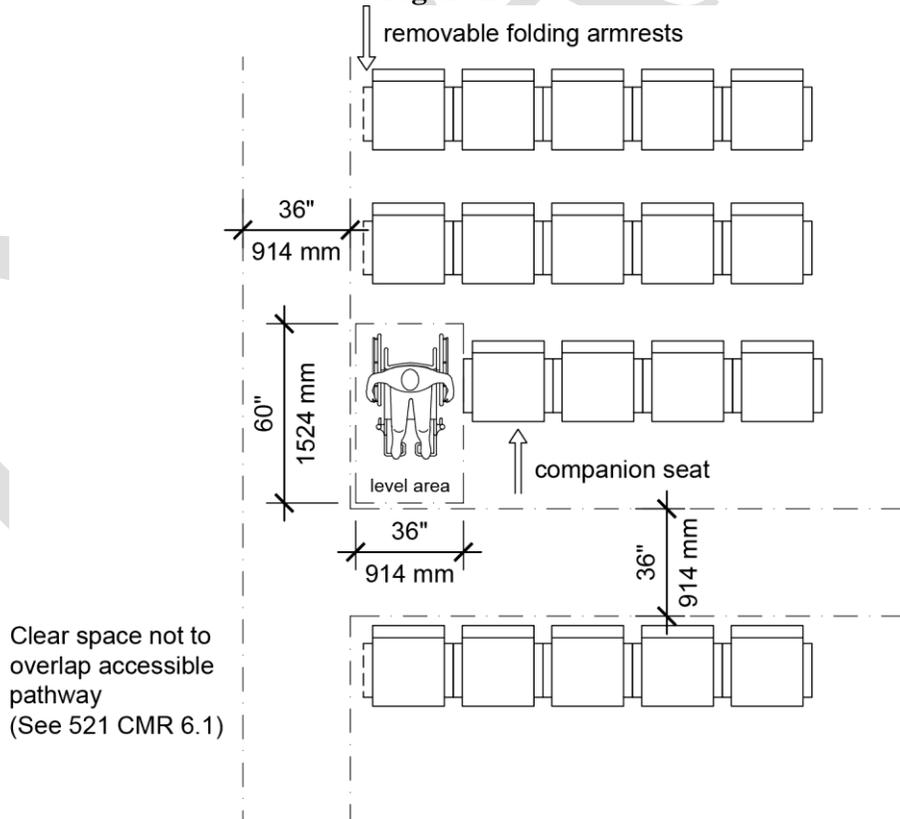
Wheelchair spaces shall not be required in team or player seating areas serving bowling lanes not required to be on an *accessible route*.

26.2.2 At least one (1) companion fixed seat or portable seat, shall be provided next to each wheelchair seating space, for designated use by a companion. Companion seats must be comparable to the seats for the general audience, *i.e.*, comfort, cup holders, etc. Companion seats must have *signage* installed indicating that the seats are reserved as companion seating for the *accessible* seating areas. See **Figure 26.2**.

26.2.3

In addition to wheelchair seating locations, at least 5 percent of the total number of aisle seats provided shall be armless, located closest to *accessible routes*, and comply with **521 CMR 26.2.3**. Armless aisle seats shall have removable, retractable, or folding armrests, or shall have no armrests at all, on the aisle side of the seat. Each such seat shall be identified by a sign or marker. *Signage* notifying patrons of the availability of such seats shall be posted at the entries to the *assembly area* or at the ticket office. Aisle seats are not required to be on a *level surface*. See **Figure 26.2**.

**Figure 26.2**

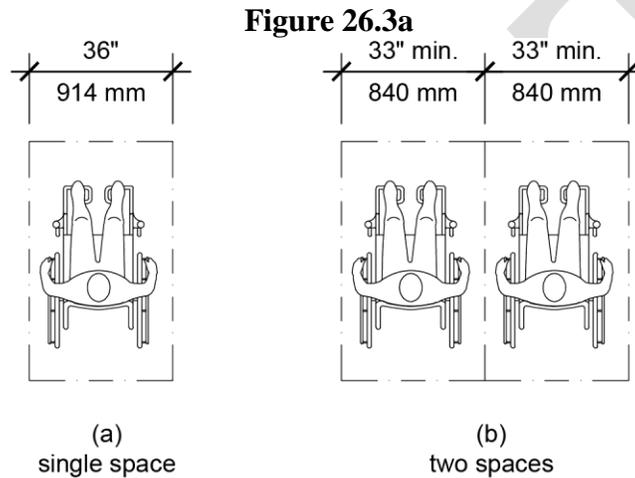


## 26.3 WHEELCHAIR SPACES, COMPANION SEATS, AND DESIGNATED AISLE SEATS

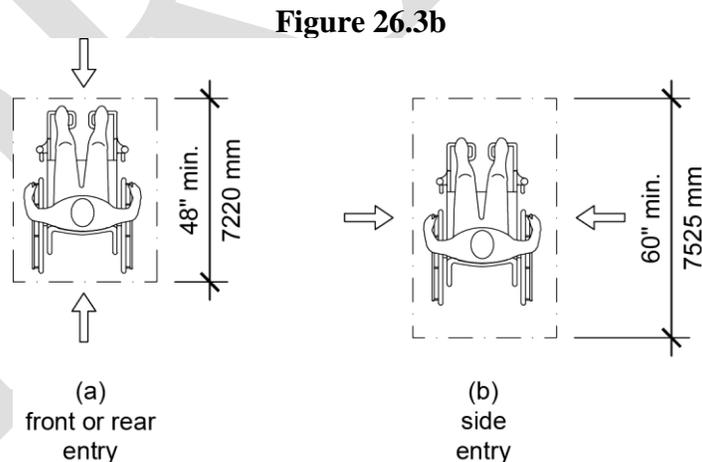
Wheelchair Spaces, companion seats and designated aisle seats shall comply with the following:

26.3.1 Where provided, wheelchair spaces shall comply with the following:

- The floor or ground surface of wheelchair spaces shall comply be *level* and comply with **521 CMR 7.00: GROUND AND FLOOR SURFACES**. Changes in level are not permitted.
- A single wheelchair space shall be 36 inches (914 mm) wide minimum. Where two (2) adjacent wheelchair spaces are provided, each wheelchair space shall be a minimum of 33 inches (838 mm) wide. (See **Figure 26.3a**).



- Where a wheelchair space can be entered from the front or rear, the wheelchair space shall be 48 inches (1219 mm) deep minimum. Where a wheelchair space can be entered only from the side, the wheelchair space shall be a minimum of 60 inches (1524 mm) deep. See **Figure 26.3b**.



- Wheelchair spaces shall adjoin *accessible routes*. If the adjacent *accessible routes* also serve as a means of egress in case of emergency, said *accessible routes* shall not overlap wheelchair spaces. The *accessible route* to any wheelchair space cannot be through another wheelchair space.
- Wheelchair spaces shall not overlap *circulation paths*. Where the *circulation path* provided is wider than the required aisle width, the wheelchair space may intrude into that portion of the *circulation path* that is provided in excess of the required aisle width.

26.3.2 Readily removable seats may be installed in wheelchair spaces when the spaces are not required to accommodate wheelchair users.

## 26.4 INTEGRATION AND DISBURSEMENT OF ACCESSIBLE SEATING/ WHEELCHAIR SPACES

Required *accessible* seating and wheelchair spaces shall be an integral part of any fixed seating plan. Such seating shall be placed within this footprint of the seating area, shall not be segregated from the general seating areas, and shall be distributed in accordance with the following:

- a. Whenever more than 150 total seats are provided, wheelchair spaces must be provided in more than one (1) location. Wheelchair spaces shall be dispersed throughout all seating areas so as to provide a choice of admission prices and views comparable to those for the general audience. Wheelchair spaces shall also be provided in all areas including sky boxes and specialty areas. Where 150 or less total seats are provided, wheelchair spaces may be provided in one (1) location. In movie theaters, *accessible* seating locations shall not be located in the front third of the theater.
- b. *Accessible* seats/wheelchair spaces shall be dispersed evenly horizontally in the general seating area, meaning side to side, or in the case of an arena or stadium, around the field of play.

### Exception:

Horizontal dispersion shall not be required in *assembly areas* of less than 150 total seats as long as the required *accessible* seats/wheelchair seats are located in the 2<sup>nd</sup> or 3<sup>rd</sup> quartile of the row length.

- c. Vertical Dispersion: *Accessible* seats/wheelchair spaces shall be dispersed evenly vertically in the general seating area, meaning different locations front to back so that the distance from the screen, stage, playing field, area of sports activity, or other focal point is varied among such seats.

### Exceptions:

1. Vertical dispersion shall not be required in *assembly areas* of less than 150 total seats as long as the required *accessible* seats/wheelchair seats provide viewing angles that are equivalent to, or better than, the average viewing angle provided in the *facility*.
2. In bleacher seating, *accessible* seats/wheelchair seats shall not be required to be provided in rows other than rows at points of entry to bleacher seating. Points of entry to bleacher seating may include, but are not limited to, cross aisles, concourses, vomitories, and *entrance ramps* and stairs. Vertical, center, or side aisles adjoining bleacher seating that are stepped or tiered are not considered entry points.

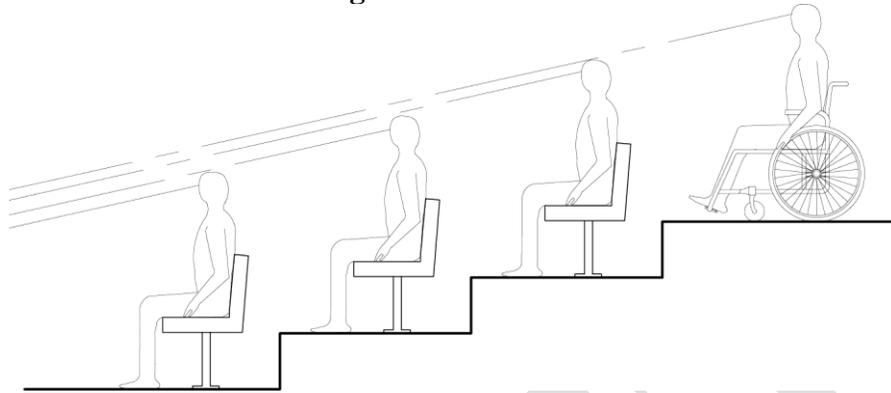
## 26.5 LINES OF SIGHT FOR ACCESSIBLE SEATING/WHEELCHAIR SPACES

Lines of sight to the screen, performance area, or playing field for spectators in wheelchair spaces shall comply with the following:

26.5.1 Where spectators are expected to remain seated during events, spectators in wheelchair spaces shall be afforded lines of sight complying with the following:

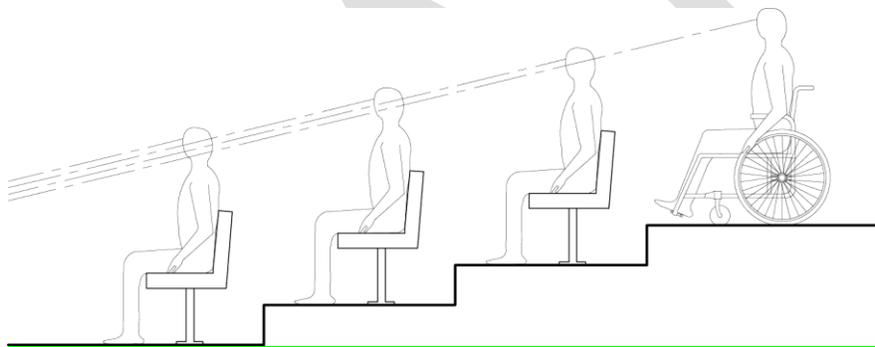
- a. Where spectators are provided lines of sight over the heads of spectators seated in the first row in front of their seats, spectators seated in wheelchair spaces shall be afforded lines of sight over the heads of seated spectators in the first row in front of wheelchair spaces. See **Figure 26.5a**.

**Figure 26.5a**



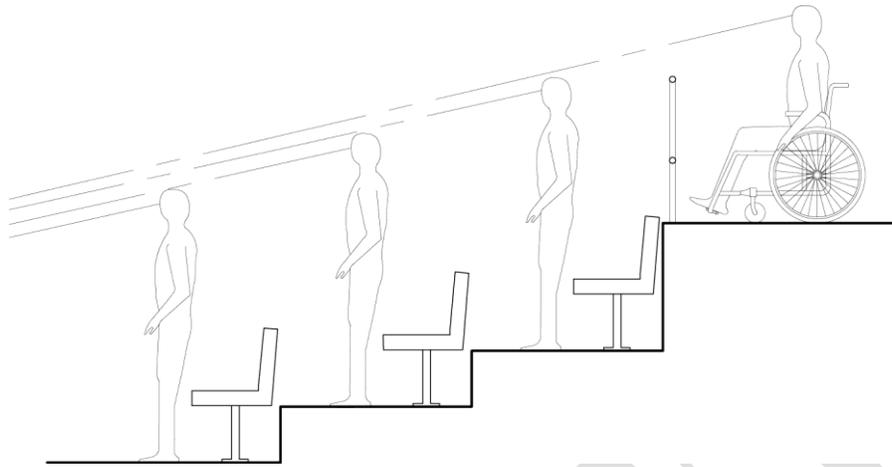
- b. Where spectators are provided lines of sight over the shoulders and between the heads of spectators seated in the first row in front of their seats, spectators seated in wheelchair spaces shall be afforded lines of sight over the shoulders and between the heads of seated spectators in the first row in front of wheelchair spaces. See **Figure 26.5b**.

**Figure 26.5b**



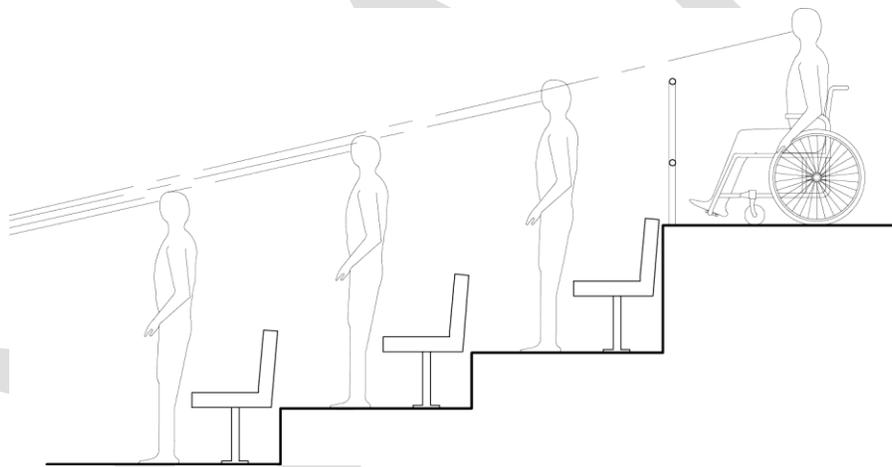
- 26.5.2 Where spectators are expected to stand during events, spectators in wheelchair spaces shall be afforded lines of sight complying with the following:
- Where standing spectators are provided lines of sight over the heads of spectators standing in the first row in front of their seats, spectators seated in wheelchair spaces shall be afforded lines of sight over the heads of standing spectators in the first row in front of wheelchair spaces. See **Figure 26.5c**.

**Figure 26.5c**



- b. Where standing spectators are provided lines of sight over the shoulders and between the heads of spectators standing in the first row in front of their seats, spectators seated in wheelchair spaces shall be afforded lines of sight over the shoulders and between the heads of standing spectators in the first row in front of wheelchair spaces. See **Figure 26.5d**.

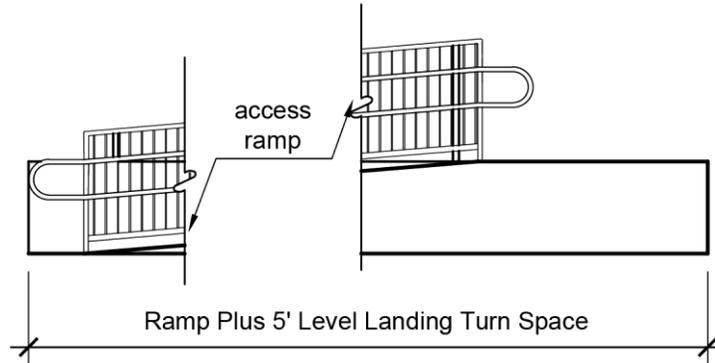
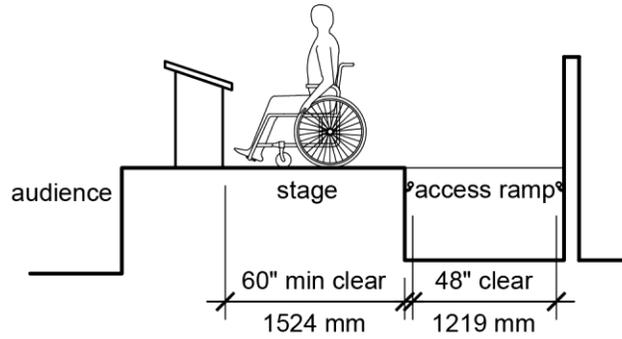
**Figure 26.5d**



**26.6 ACCESS TO PERFORMING AREAS**

Where access is provided to the stage from within the place of assembly, an *accessible route*, within the place of assembly, from the wheelchair seating locations, to the stage/performing area must be provided. See **Figure 26.6**. In addition, an *accessible route* that coincides with the route for performers must be provided to the backstage area.

**Figure 26.6**



26.6.1 Access to the stage may be by the following:

- a. a ramp complying with **521 CMR 12.00: RAMPS**. See **Figure 26.6**.
- b. a wheelchair lift complying with **521 CMR 14.12, Wheelchair Lifts / Limited Use Elevators**.

**26.7 BOX OFFICE TICKET COUNTERS AND CONCESSION STANDS**

When provided, box office ticket counters and concession stands shall be on an *accessible route* and shall comply in all respects with **521 CMR 6.00: SPACE ALLOWANCES AND REACH RANGES** and **521 CMR 32.2, Sales Service and Information, or Teller Windows**.

**26.8 DRESSING ROOMS**

Where provided, shall comply with **521 CMR 27.00: DRESSING, FITTING AND CHANGING ROOMS**

**26.9 SLOPE IN AUDITORIUMS/ASSEMBLY AREAS (Reserved)**

## 521 CMR 27.00: DRESSING, FITTING AND CHANGING ROOMS

### 27.1 DRESSING, FITTING AND CHANGING ROOMS

Where provided, dressing, fitting and changing rooms shall comply with the following:

### 27.2 DISTRIBUTION

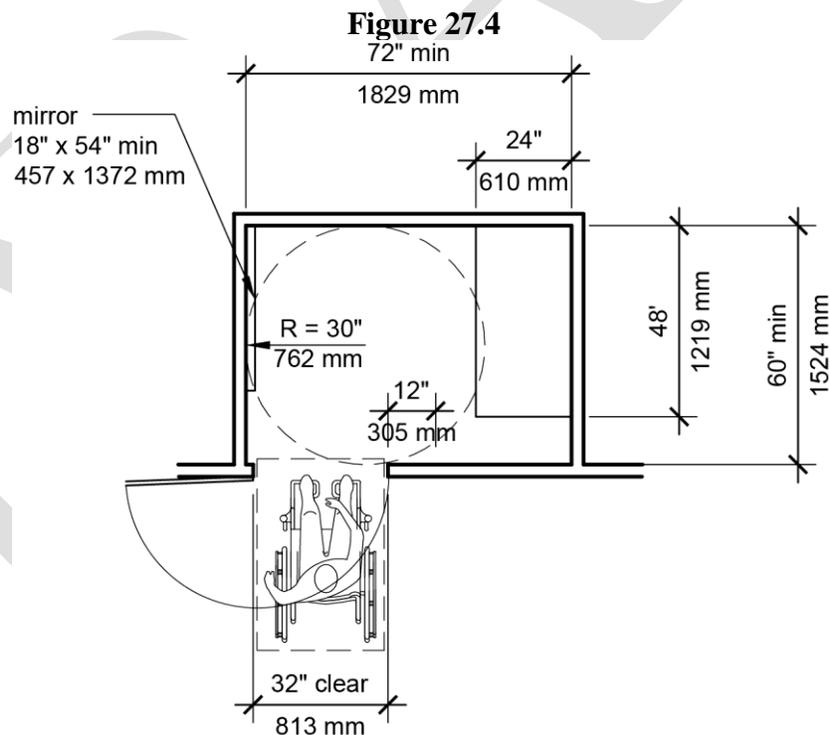
Where dressing rooms, fitting rooms, or locker rooms are provided, at least 5 percent, but never less than one (1), in each *cluster* of dressing, fitting and changing rooms shall be *accessible*. Where separate sex dressing, fitting or changing rooms are provided, at least one (1) such room for each sex shall be provided.

### 27.3 LOCATION

*Accessible* dressing, fitting and changing rooms shall be on an *accessible route* complying with **521 CMR 8.00: ACCESSIBLE ROUTES**. A wheelchair turning space complying with **521 CMR 6.2, Wheelchair Turning Space**, shall be provided in every *accessible* dressing, fitting and changing room entered through a swinging door, sliding door or curtain.

### 27.4 SIZE

The *accessible* dressing, fitting or changing room should be a minimum of 5 feet by 6 feet (1524 mm by 1829 mm). A *clear floor space* of 60 inches in diameter (1524 mm), measured at 12 inches (305 mm) above the floor, shall be provided in every *accessible* dressing, fitting or changing room. See **Figure 27.4**.



### 27.5 COAT HOOKS AND SHELVES

Where coat hooks and shelves are provided within the dressing, fitting or changing room at least one (1) of each type shall be provided within the reach ranges outlined in **521 CMR 6.5, Forward Reach**, and **521 CMR 6.6, Side Reach**. Where coat hooks or shelves are provided in individual compartments at least one (1) of each type shall be provided in individual compartments in dressing, fitting, or locker rooms required to comply with **521 CMR 27.00: DRESSING, FITTING AND CHANGING ROOMS**.

## 27.6 DOORS

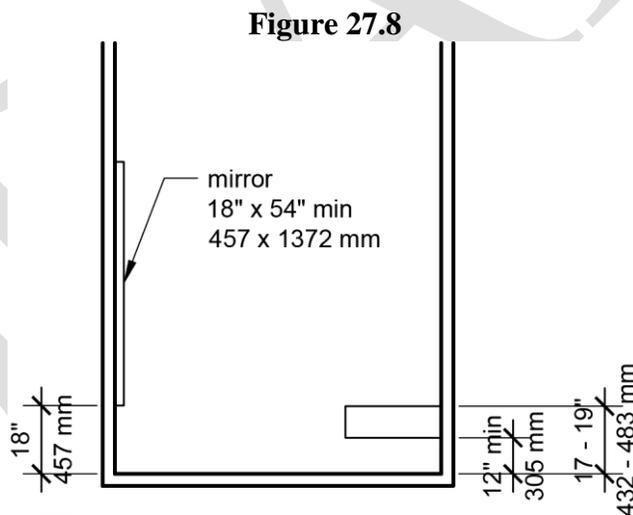
All doors to *accessible* dressing, fitting and changing rooms shall be in compliance with **521 CMR 11.00: DOORS AND DOORWAYS**.

## 27.7 SEAT

Every *accessible* dressing, fitting and changing room shall have a seat/bench that complies with **521 CMR 39.00, BENCHES**.

## 27.8 MIRROR

Where mirrors are provided in changing rooms a full-length mirror measuring at least 18 inches wide by 54 inches high (457 mm by 1372 mm), shall be mounted 18 inches (457 mm) above the finish floor, in a position affording a view to a person on the bench as well as to a person in a standing position. See **Figure 27.8**.



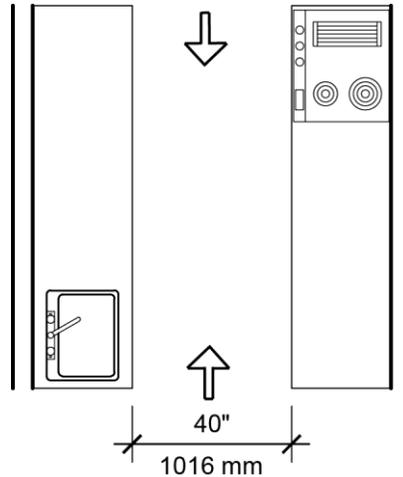
## 521 CMR 28.00: KITCHENS

### 28.1 GENERAL

Non-commercial kitchens in *facilities* such as classrooms and community rooms shall provide a *clear floor space* of 60 inches (1524 mm) in diameter, measured 12 inches (305 mm) above the floor. In pass through kitchens where counters, appliances or cabinets are on two (2) opposing sides, or where counters, appliances or cabinets are opposite a parallel wall, clearance between all opposing base cabinets, counter tops, appliances, or walls within kitchen work areas shall be 40 inches (1016 mm) minimum. Pass through kitchens shall have two (2) entries. See **Figure 28.1**. A *clear floor space*

complying with **521 CMR 6.1, Clear Floor or Ground Space for Wheelchairs**, shall be provided at each kitchen appliance. *Clear floor spaces* shall be permitted to overlap. For requirements for kitchens in *multiple dwellings*, see **521 CMR 43.00: TYPE B KITCHENS** and **521 CMR 45.00: TYPE A AND ACCESSIBLE DWELLING KITCHENS**.

**Figure 28.1**



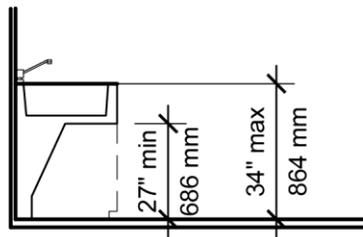
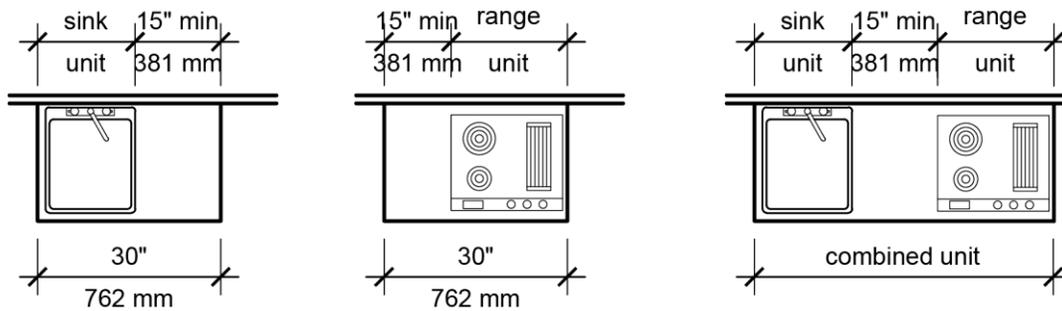
## 28.2 COUNTER TOPS

Counter tops that contain sinks and cooking units shall provide a minimum of 15 inches (381 mm) of *clear* countertop on at least one (1) side of the cooking unit and on at least one (1) side of the sink and shall have a *clear space* underneath that complies with **521 CMR 28.6, Knee Clearances**. Countertops shall be mounted no higher than 34 inches (864 mm) above the finish floor. See **Figure 28.2**.

### Exceptions:

1. Cabinetry shall be permitted under the kitchen work surface provided that all of the following conditions are met:
  - a. the cabinetry can be removed without removal or replacement of the kitchen work surface;
  - b. the finish floor extends under the cabinetry; and
  - c. the walls behind and surrounding the cabinetry are finished.
2. A counter that is adjustable to provide a kitchen work surface at variable heights, 29 inches (737 mm) minimum and 36 inches (914 mm) maximum, shall be permitted.

**Figure 28.2**



Cross Section - Sink Unit

### 28.3 WALL CABINETS

The bottoms of the wall cabinets shall comply with **521 CMR 6.5 Forward Reach** or **6.6 Side Reach**

### 28.4 PANTRY UNIT

A tall cabinet a minimum of 30 inches (762 mm) wide and 72 inches (1829 mm) in height may be installed in lieu of making overhead cabinets *accessible*. If a walk-in pantry is provided, the door to the pantry shall fully comply with **521 CMR 11.00: DOORS AND DOORWAYS**.

### 28.5 HARDWARE

Cabinet hardware shall be operable with a closed fist. Cabinet opening devices shall be located at the top of base cabinets and at the bottom of wall cabinets.

### 28.6 KNEE CLEARANCES

Access space for the knees and feet of wheelchair users, per **521 CMR 6.3, Knee Clearance**, and **521 CMR 6.4, Toe Clearance**, shall be provided under cooktops and sinks, and elsewhere as *space* and storage considerations permit.

28.6.1 All such spaces shall be a minimum of 30 inches (762 mm) wide, 27 inches (686 mm) high, and 19 inches (483 mm) deep.

28.6.2 Where sink and cooking units are within 15 inches (381 mm) of each other, access space under the counter shall be continuous at a height of 27 inches (686 mm) to the underside of the counter.

### 28.7 SINK

Sinks shall comply with the following:

28.7.1 A clear floor space, complying with **521 CMR 6.2, Wheelchair Turning Space**, shall be provided in front of a sink to allow forward approach. The clear floor space shall be on an accessible route and shall extend a maximum of 19 inches (483 mm) underneath the sink. See **Fig. 30g**.

28.7.2 Sinks shall be mounted with the rim no higher than 34 inches (864 mm) above the finish floor.

28.7.3 Sink traps and drains shall be located as close to rear walls as possible. Plumbing pipes shall be recessed, insulated, or guarded. There shall be no sharp or abrasive surfaces under sinks.

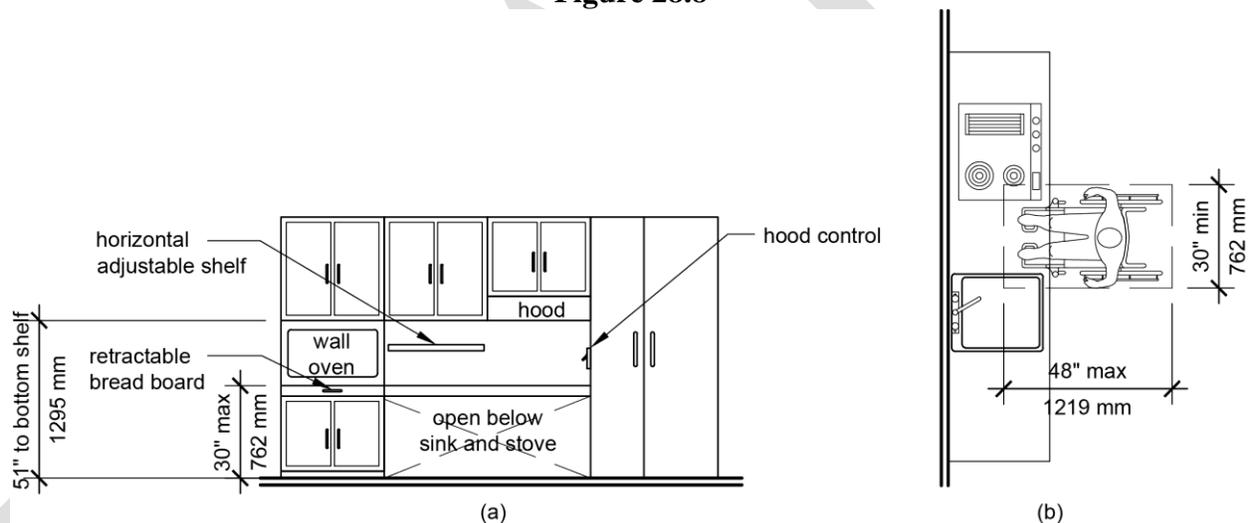
28.7.4 Faucets shall be operable with one (1) hand and shall not require tight grasping, pinching, or twisting of the wrist. Lever-operated, push-type, touch-type, or electronically controlled mechanisms are acceptable designs.

28.7.5 Garbage disposals, when provided, shall be controlled by switches under the counter at the front.

## 28.8 COOKING UNITS

Shall comply with the following (See **Figure 28.8**):

**Figure 28.8**



28.8.1 Cooktop controls shall be at a location that does not require reaching across burners. Where a forward approach is provided, the clear floor space shall provide knee and toe clearance complying with **521 CMR 6.3, Knee Clearance**, and **521 CMR 6.4, Toe Clearance**. Where knee and toe clearance is provided, the underside of the range or cooktop shall be insulated or otherwise configured to prevent burns, abrasions, or electrical shock.

28.8.2 Where hoods are provided above cooking units, controls shall be located within the zone of reach.

28.8.3 Ovens shall be the wall-oven type, set at a height such that bottoms of doors are 30 inches (762 mm) above the floor.

28.8.4 Side-hinged door ovens shall have the work surface required by **521 CMR 28.2, Countertops**, positioned adjacent to the latch side of the oven door. Bottom-hinged door ovens shall have the work surface required by **521 CMR 28.2, Countertops**, positioned adjacent to one (1) side of the door.

28.8.5 Ovens shall also be self-cleaning or continuous cleaning.

### 28.9 DISHWASHER

*Clear floor space* shall be positioned adjacent to the dishwasher door. The dishwasher door, in the open position, shall not obstruct the *clear floor space* for the dishwasher or the sink.

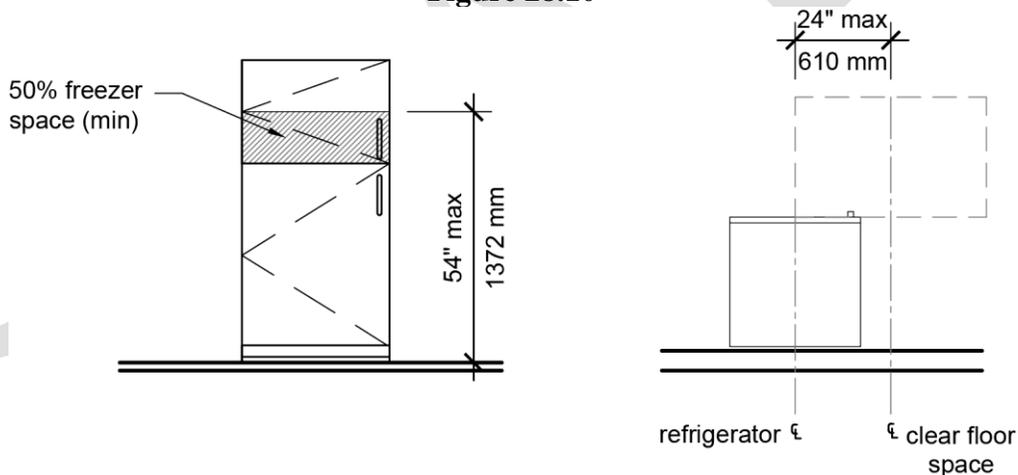
### 28.10 REFRIGERATORS

Combination refrigerators and freezers shall have at least 50 percent of the freezer space 54 inches (1372 mm) maximum above the finish floor or ground. The *clear floor space* shall be positioned for a parallel approach to the space dedicated to a refrigerator/ freezer with the centerline of the *clear floor space* offset 24 inches (610 mm) maximum from the centerline of the dedicated space. See **Figure 28.10**.

Exception:

In kitchenettes an undercounter type refrigerator is acceptable.

**Figure 28.10**



### 28.11 CONTROLS

All controls and switches shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

Exceptions:

1. Appliance doors and door latching devices shall not be required to comply with **521 CMR 41.5, Operation**.
2. Bottom-hinged appliance doors, when in the open position, shall not be required to comply with **521 CMR 41.3, Height**.

## 521 CMR 29.00: RESTAURANTS

### 29.1 GENERAL

Restaurants shall comply with 521 CMR, except as specified or modified in **521 CMR 29.00: RESTAURANTS**. Restaurants shall include, but not be limited to, cafeterias, lounges, bars, and other places where food or beverages are served.

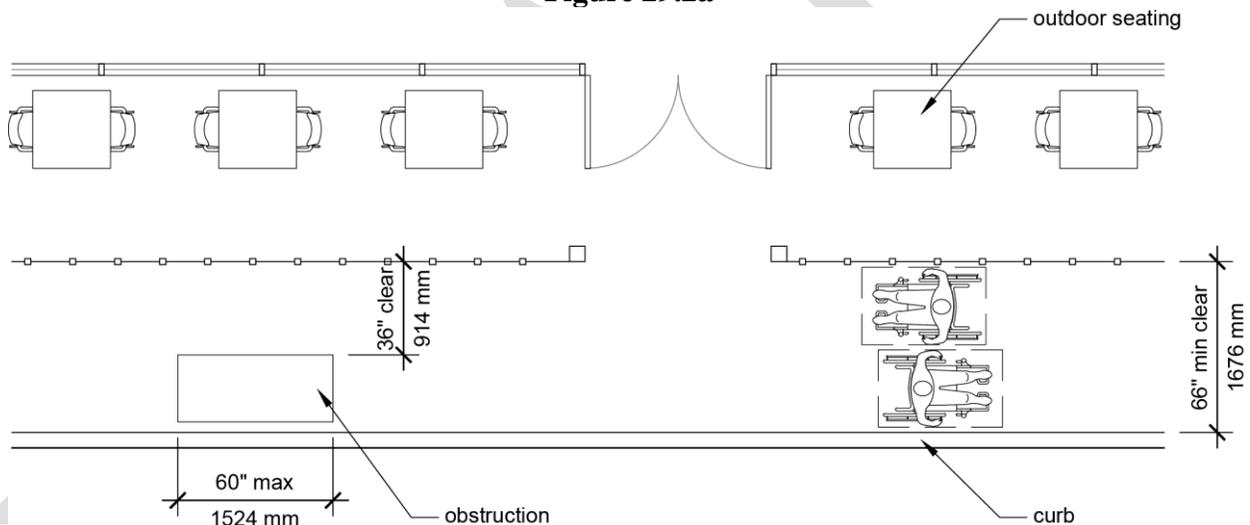
### 29.2 SEATING

All seating and dining areas, including but not limited to waiting areas, raised or sunken dining areas, bars, counters, *mezzanines*, loggias, and outdoor seating areas, shall be *accessible* and shall comply with **521 CMR 38.00: Tables and Seating**.

#### Exception:

Where outdoor seating is provided at the *sidewalk*, there shall be a minimum *clear* width of 66 inches (1676 mm) from the back of the curb to the seating area. An unobstructed path of travel shall be provided that is at least 36 inches (914 mm) *clear* for a distance not to exceed 60 inches (1524 mm), excluding the curb stone. See **Figure 29.2a**.

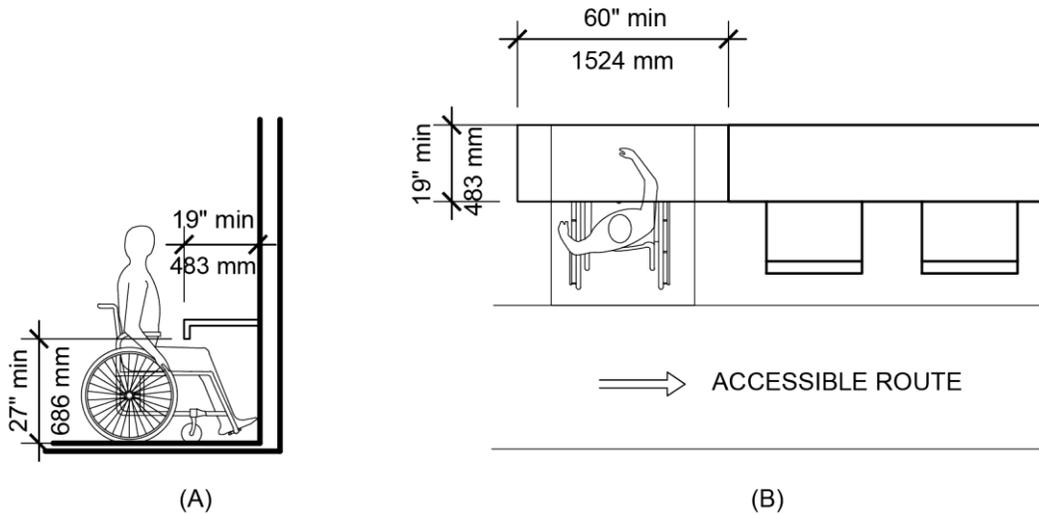
**Figure 29.2a**



### 29.3 DINING COUNTERS WITHOUT SERVICE

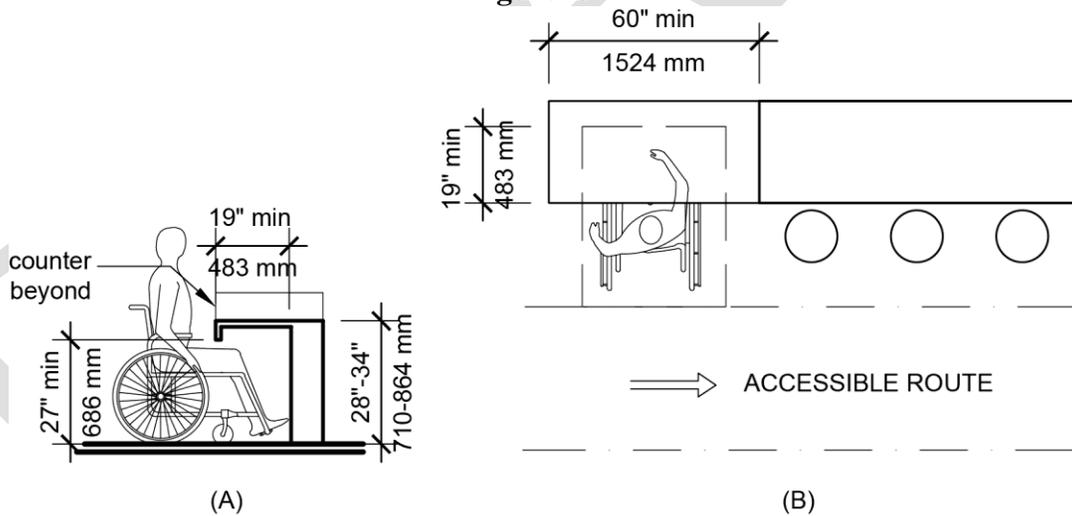
At counters where food is consumed but there is no service, a 60 inch (1524 mm) portion of the dining counter with a knee clearance of a minimum of 27 inches (686 mm) high and 19 inches (483 mm) deep shall be *accessible*, on an *accessible route*, and in compliance with **521 CMR 32.2c**. See **Figure 29.3**.

**Figure 29.3**



**29.4 COUNTERS AND BARS** Where counters and/or bars are provided for the service and/or consumption of food and/or drink a portion shall be *accessible* and in compliance with **521 CMR 32.2, Sales, Service and Information Counters, or Teller Windows**. At counters exceeding 34 inches (864 mm) in height, where food and/or drink is served for consumption by customers seated on stools or standing at the counter, a portion of the main counter shall be *accessible*. The *accessible* portion shall be a minimum of 60 inches (1524 mm) in length and comply with **521 CMR 38.5, Knee Clearances**, and **521 CMR 38.6, Height of Tables or Counters**. See **Figure 29.4**.

**Figure 29.4**



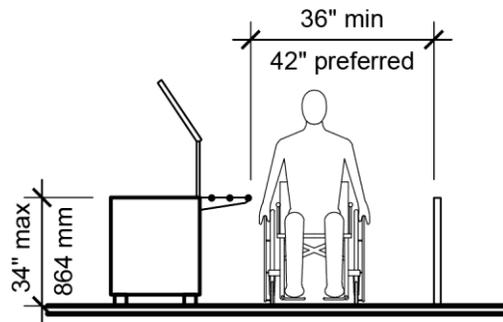
**29.5 FOOD SERVICE LINES**

Food service lines, including but not limited to: cafeterias, buffet tables and salad bars, shall comply with the following (See **Figure 29.5**):

29.5.1 Food selection aisles shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**, to allow passage by other customers around a person using a wheelchair. See **Fig. 17c**.

29.5.2 The tops of tray slides shall be mounted at 28 inches (711 mm) minimum and 34 inches (864 mm) maximum above the finish floor or ground.

**Figure 29.5**

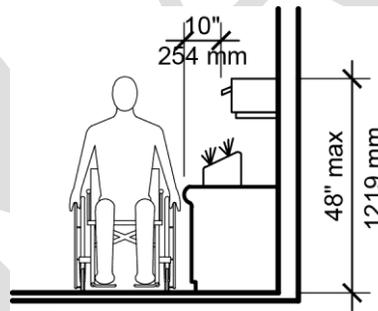


29.5.3 If self-service shelves are provided, at least 50 percent of each type must be within the *zone of reach* .

## 29.6 TABLEWARE AND CONDIMENT AREAS

Self-service shelves and dispensing devices for tableware, dishware, condiments, food and beverages shall be installed to comply with *zone of reach*. See **Figure 29.6**.

**Figure 29.6**



## 29.7 RAISED PLATFORMS

Where a head table or speaker's lectern is located on a raised platform, the platform shall be *accessible* in compliance with **521 CMR 12.00: RAMPS**, or **521 CMR 14.00: ELEVATORS**. Open edges of a raised platform shall be protected by a curb or by placement of tables.

## 29.8 SELF-SERVICE SHELVES AND DISPENSING DEVICES

Self-service shelves and dispensing devices for tableware, dishware, condiments, food and beverages shall be located on an *accessible route* and shall comply with *zone of reach* .

## 29.9 TRANSACTION COUNTER

Where food/drink is ordered, dispensed or purchased, the counter shall comply with **521 CMR 32.2, Sales, Service and Information Counters, or Teller Windows**.

**29.10 TELEVISIONS**

Where televisions are provided in restaurants, the television shall be equipped with closed captioning abilities .

DRAFT

## 521 CMR 30.00: TRANSPORTATION TERMINALS

### 30.1 GENERAL

Transportation terminals shall comply with 521 CMR, except as specified or modified in **521 CMR 30.00: TRANSPORTATION TERMINALS**. Transportation terminals shall include but not be limited to airports, bus stops and train stations, marine terminals, subway stops, *high speed rail*, *commuter rail*, *light rail*, and *rapid rail* transit stations.

### 30.2 ACCESSIBLE ROUTE

An *accessible route* shall connect all terminal *buildings* or station houses, platforms, parking areas and street *entrances*, and shall comply with the requirements of **521 CMR 8.00: ACCESSIBLE ROUTES**.

30.2.1 Bus stops shall be located on an *accessible route* that connects the bus stop boarding and alighting area with nearby *curb cuts* and crosswalks.

30.2.2 Where expansion and control joints are needed along *accessible routes*, they shall be saw-cut and not exceed one-quarter (1/4) of an inch (6.4 mm) in width. If the joint is between sections of bridges, *buildings* or platforms, the joint may exceed one-quarter (1/4) of an inch (6.4 mm) provided that it is covered in a manner that is firm and minimizes any variations in vertical displacement over time.

30.2.3 *Accessible routes* that change more than 60 inches (1524 mm) vertically shall require elevators, complying with the requirements of **521 CMR 30.5, Elevator Access**. Platform and stair lifts are not permitted in transportation *facilities*.

### 30.3 RAMPS

Where *ramps* are provided as part of the *accessible route*, they shall comply with **521 CMR 12.00: RAMPS**. Any *ramp* with three (3) or more landings or switchbacks shall provide an *accessible* bench, complying with **521 CMR 39.00: BENCHES**, adjacent to each landing.

### 30.4 JETWAYS

At airports, jetways that are used to travel between an airport terminal gate and an aircraft shall comply with **521 CMR 12.00: RAMPS**.

### 30.5 ELEVATOR ACCESS

Where *accessible routes* require elevators, redundant elevators must be provided to each platform, *mezzanine*, overhead or underground *walkway*, lobby, and to the street level. For all areas not mentioned in **521 CMR 30.5, Elevator Access**, and its subsections, please refer back to **521 CMR 14.00: ELEVATORS**.

#### Exceptions:

1. At *commuter rail* stations where track crossings are vertically separated from the track, switchback *ramps* are permitted, as the secondary or redundant means of vertical access provided that the total combined length of the switchback *ramps* does not exceed 500 feet (152400 mm) and the station owner has elevator maintenance contracts that provide 24/7 response.
2. At least one elevator connecting to each platform, lobby, overhead *walkway*, *mezzanine*, etc. shall be equipped as an "Accessible Means of Egress", as defined by **780 CMR**.

30.5.1 Head Houses and Exterior Elevators:

- a. Elevators that open to the exterior, as well as stand-alone elevator head house systems, shall incorporate a 48 inch (1219 mm) deep minimum overhang with lighting as a shelter from the elements.
- b. The exterior hoistway wall shall include lighting.
- c. Substantially transparent side protection shall be provided where the elevator *entrances* are subject to side blown rain, snow and sleet. Side protection provisions shall extend a minimum of 18 inches (457 mm) from the finished exterior hoistway wall.
- d. Head house structures shall provide the maximum amount of transparency feasible into the shaft or elevator cab, such that the occupants are visible from as many directions as possible.

30.5.2 In transportation *facilities*, the following elevator configurations are permitted:

- a. Pass Through Cab Configuration: Pass through cab configurations with opening doors opposite each other are the preferred configuration for elevators within the transportation stations and terminals. The cab shall be a minimum width of 60 inches (1524 mm) wall to wall, and 80 inches (2032 mm) door to door, with doors complying with the requirements of **521 CMR 30.5.3, Elevator Entrance Doors**.
- b. Single Entry/Exit Configuration: Single entry cab configurations are acceptable for use where pass through cab systems cannot be utilized due to station structural and egress configurations. The cab shall be a minimum width of 60 inches (1524 mm) wall to wall, and 80 inches (2032 mm) door to door, with doors complying with the requirements of **521 CMR 30.5.3, Elevator Entrance Doors**.
- c. Ninety (90) Degree Entry Configuration: Ninety (90) Degree (doors on adjacent elevator sides) cab configurations shall only be utilized where station and terminal structural and egress configurations preclude the use of pass through or single entry cab configurations. The cab shall be a minimum width of 72 inches (1829 mm) door to wall, and 72 inches (1829 mm) door to wall, with doors complying with the requirements of **521 CMR 30.5.3, Elevator Entrance Doors**.

30.5.3 The elevator *entrance* doors shall provide a minimum *clear* opening width of 36 inches to 42 inches (914 mm to 1067 mm). Cab and hoistway door designs shall maximize visual transparency from 24 inches to 72 inches (610 mm to 1829 mm) above the finished floor and across the face of individual door panels, utilizing safety glass or other transparent material in a manner that reflects current requirements of State and Federal Fire and Elevator Codes.

30.5.4 Elevator cab walls shall be designed to maximize transparency between 24 inches (610 mm) and 72 inches (1829 mm) above the finished floor utilizing safety glass or other transparent material compliant with the requirements of **524 CMR** and **780 CMR**.

30.5.5 Car Operating Panels: All elevator configurations shall be provided with a primary and a secondary car operating panel located in the reveal, covering the elevator door operating mechanism. Auxiliary car call stations shall be provided on all elevators. Auxiliary car call stations for single entry\exit cab designs shall be located on the rear wall in the opposite corner to the primary car call station at the elevator entry. Locations shall conform to the following:

- a. Pass Through (front and rear) and 90 Degree (front and side) Entry Cab Designs: The primary car call station shall be located at the uppermost landing door entry side. The auxiliary car call station shall be located on the opposite door entry side.

- b. Single Entry\Exit (openings in line) Cab Designs: The primary car call station shall be located in the door return. The auxiliary car call station shall be located in the opposite corner of cab from the primary car call station, and on the rear wall of the cab.

- 30.5.6 All elevator controls, *operable parts* and functions, such as an intercom microphone that a passenger needs to interact with, shall be mounted within the range of 24 inches (610 mm) to 48 inches (1219 mm) above the finished floor. All other controls, such as for maintenance or fire operation as well as functions such as speakers may be located above or below the range of 24 inches (610 mm) to 48 inches (1219 mm), and in accordance to applicable codes.
- a. On the call stations, floors shall be labeled similar to the following: “Street”, “Lobby”, “Lobby 2” (depending on station type), and “Subway”, “Commuter Rail” or “Trains” (depending on station type).

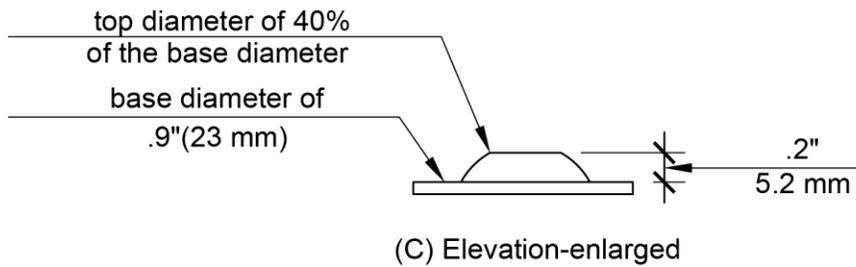
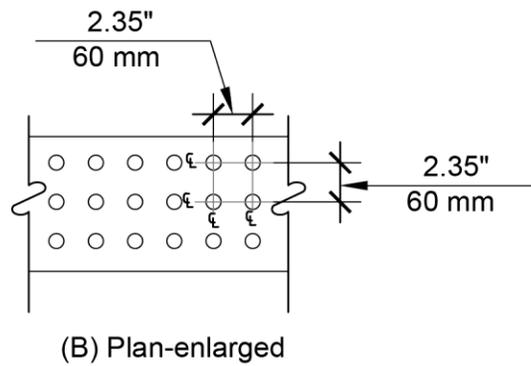
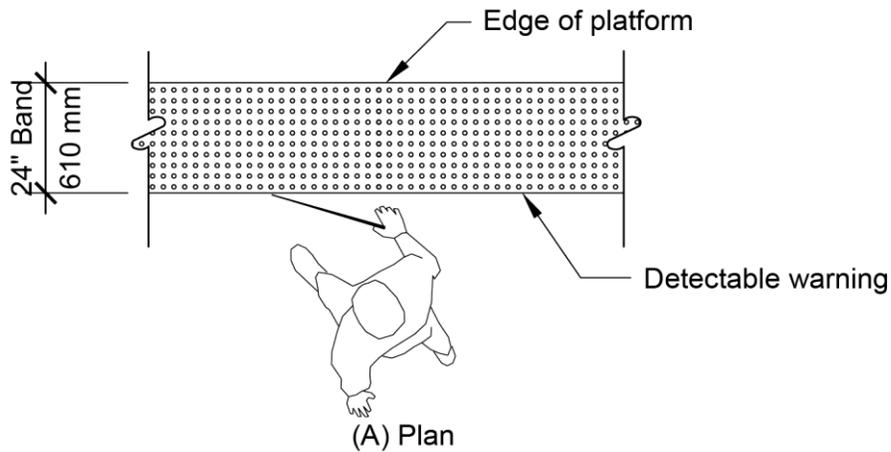
### 30.6 ENTRANCES

At least 60 percent of the *entrances* to a transportation terminal shall be *accessible*, in accordance with **521 CMR 10.00: ENTRANCES**, with the exception of the requirement to provide an *automatic door*.

### 30.7 PLATFORM ACCESS

To facilitate access to subway cars, airplanes, buses, trains, and other means of public transportation, platforms shall comply with the following:

- 30.7.1 Platform to Vehicle Floor Coordination : The distance between platform and vehicle at boarding platforms shall be a maximum of 3 inches (76 mm) in the horizontal plane and one-half (½) of an inch (13 mm) in the vertical plane. Where *construction* constraints result in platform to vehicle gaps that exceed these requirements, a *bridge plate* designed to eliminate such gaps shall be made available at every door of the vehicle where passengers are boarding or disembarking. Where *construction* constraints in *light rail* stations result in platform to vehicle gaps that exceed the requirements a device used to bridge the gap must be a minimum of 36 inches (914 mm) wide or the width of the opening, whichever is greater and the slope shall be in accordance with **521 CMR 12.2, Slope and Rise**.
- 30.7.2 Platform edges shall have a high contrast yellow band of *detectable warning* at least 24 inches (610 mm) in width except where there is no defined platform edge, the warnings shall be placed far enough from the tracks to allow for the dynamic envelope of vehicles using tracks at those terminals. See **Figure 30.7**.
  - a. *Detectable warnings* shall consist of raised truncated domes with a base diameter of nominal nine-tenths (9/10) of an inch (23 mm), a height of nominal one-fifth of an (1/5) inch (5 mm) and a center-to-center spacing between domes which are farthest apart in a configuration, of nominal 2.35 inches (60 mm) and shall contrast visually with adjoining surfaces, by a minimum of 40 percent.
  - b. The material used to provide contrast shall be an integral part of the walking surface.
  - c. *Detectable warnings* used on interior surfaces shall differ from adjoining walking surfaces in resiliency or sound-on-cane contact.



**Figure 30.7**

**30.8 COMMUTER, LIGHT RAIL AND RAPID RAIL TRANSIT TERMINALS**

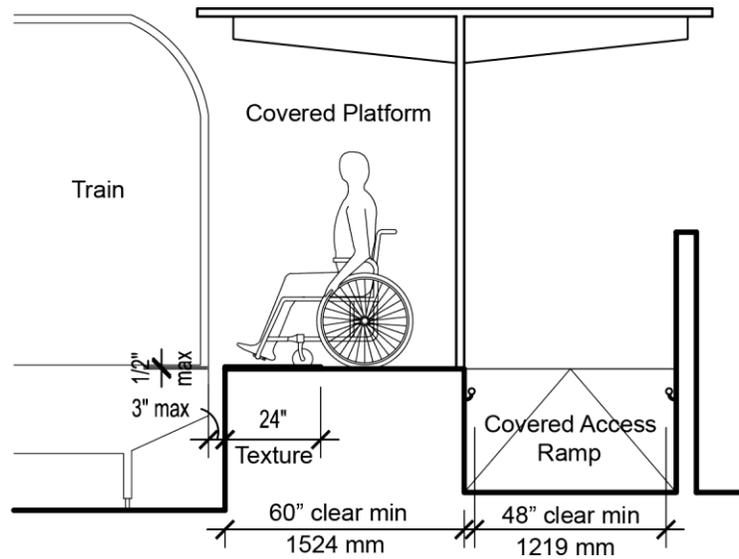
To facilitate access to *commuter, light rail, and rapid rail* transit vehicles, the following shall be provided:

30.8.1 At newly *constructed* stations serving *commuter rail* coaches, access shall be provided to all passengers and to all coaches of the train by means of a full length raised platform. For purposes of **521 CMR 30.00: TRANSPORTATION TERMINALS**, a newly *constructed* station is defined as any station stop where passenger services has not heretofore been provided or where no regularly scheduled passenger service has been provided for five (5) or more years. See **Figure 30.8**.

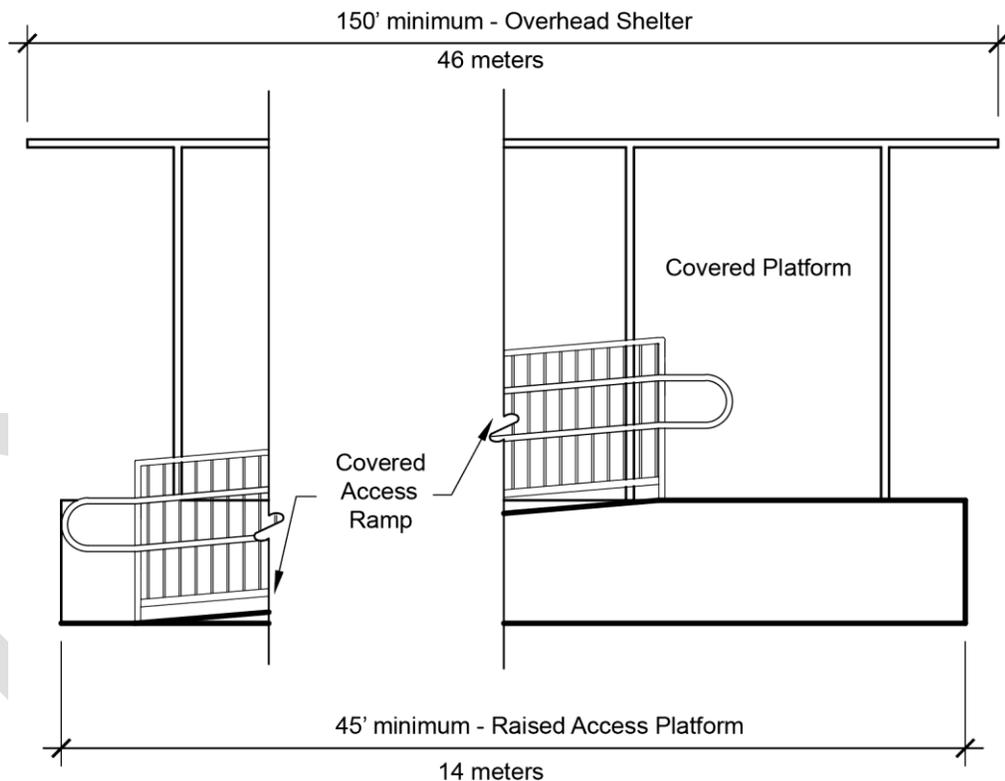
- a. Such platforms shall be at least 60 inches (1524 mm) in *clear* width
- b. Such platforms shall provide overhead shelter from rain and snow as follows:
  - i. *Commuter rail* platforms shall provide overhead shelter along a total of at least one-third (1/3) of their length and at all access *ramps*.

- ii. *Rapid rail* stations shall provide shelter for the length of the platform and shall extend over the train to permit dry boarding.
- iii. *Light rail* platforms shall provide overhead shelter from rain and snow along a total of at least half (1/2) of their length and at all access *ramps*.
- c. Such platforms shall provide benches, complying with **521 CMR 39.00: BENCHES**, and emergency call boxes at least every 100 feet (30480 mm).
- d. Station name *signage* shall be provided at intervals between 20 feet and 40 feet (6096 mm and 12192 mm) and shall comply with **521 CMR 30.16, Rail Station Signs**.
- e. Platforms shall be equipped with variable message systems located perpendicular to the track with at least three (3) systems per platform. All video messages shall be provided audibly and all audio messages shall be provided visually.
- f. Video or audio advertisements shall be distinguishable from official announcements, and shall be muted or overridden during times when official announcements are provided.

**Figure 30.8**



(A)



(B)

30.8.2 Platforms at stations undergoing *alterations*: Any reconstructed, *altered* or remodeled stations serving *commuter rail* coaches shall afford access to at least two (2) coaches of a train by means of a raised platform. Said platform shall comply with the following:

- a. Such platforms shall be at least 60 inches (1524 mm) in *clear* width.

- b. Such platforms shall be at least 45 feet (13716 mm) in length and shall, along their full length and at all access *ramps*, provide overhead shelter from rain and snow.
- c. Such platforms shall provide benches, complying with **521 CMR 39.00: BENCHES**, and emergency call boxes at least every 100 feet (30480 mm).
- d. Station name *signage* shall be provided at intervals between 20 feet and 40 feet (6096 mm and 12192 mm) and shall comply with **521 CMR 30.16, Rail Station Signs**.
- e. Platforms shall be equipped with variable message systems located perpendicular to the track with at least three (3) systems per platform. All video messages shall be provided audibly and all audio messages shall be provided visually.
- f. Video or audio advertisements shall be distinguishable from official announcements, and shall be muted or overridden during times when official announcements are provided.

30.8.3 *Light Rail Transit Terminals*: To facilitate access to *light rail* transit vehicles, the following shall be provided:

- a. Platforms at newly *constructed* stations serving *light rail* transit vehicles shall provide access to all passengers and to all coaches of the train by means of a full length raised platform. Such platforms shall be at least 60 inches (1524 mm) in *clear* width at the stopping zone for *accessible* doors. A minimum of 36 inches (914 mm) in *clear* width must be provided to each stopping zone for *accessible* doors.
- b. Platforms at reconstructed, remodeled *or altered* stations serving *light rail* transit vehicles shall afford *access* to at least one (1) car by means of a raised platform. Said platform shall comply with the following:
  - i. Such platforms shall be at least 60 inches (1524 mm) in *clear* width at the stopping zone for *accessible* doors. A minimum 36 inch (914 mm) *clear* width must be provided to each stopping zone for *accessible* doors.
  - ii. Such platforms shall be at least 8 feet (2438 mm) in length.

### 30.9 FARE TRANSACTION

At least one (1) fare transaction area of each type, at each *accessible entrance* shall be *accessible* and shall have a minimum 36 inch (914 mm) wide path of travel. Where transaction counters are provided, they shall comply with the requirements set forth in **521 CMR 32.2, Sales, Service and Information Counters, or Teller Windows**. Where provided, coin or card slots shall comply with **521 CMR 6.5 Forward Reach**, or **521 CMR 6.6, Side Reach**. Fare vending machines shall comply with **521 CMR 23.00: AUTOMATED TELLER MACHINES AND FARE VENDING MACHINES**.

### 30.10 ENTRY/EXIT GATE

At least one (1) entry and one (1) exit gate shall be *accessible* and shall have a *clear* opening of not less than 32 inches (813 mm) wide. If one (1) gate serves as both entry/exit, it shall have a *clear* opening of not less than 32 inches (813 mm) wide. Where more than one (1) *accessible* entry/exit is provided, the *accessible* gates shall be located at both ends of a row of fare gates.

### 30.11 HAZARDOUS VEHICULAR AREAS

*Detectable warnings* shall be provided where a *walk* crosses or adjoins a *vehicular way* and the pedestrian and vehicular areas are not separated by curbs, railings, or other *elements*. The boundary

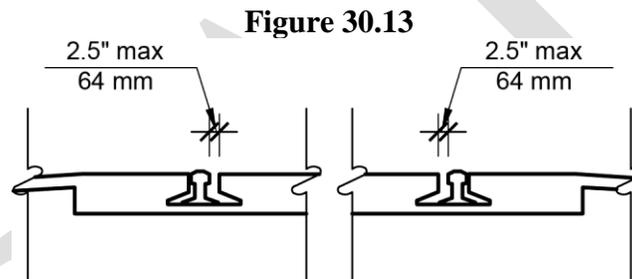
between the areas shall be defined by a continuous *detectable warning* which is 24 inches (610mm) wide, complying with **521 CMR 30.7.2a** through **521 CMR 30.7.2c**.

### 30.12 SEATING

Within the terminal there shall be seating at intervals not to exceed 200 feet (60960 mm).

### 30.13 AT GRADE CROSSINGS

Where *sidewalks* cross rail systems at grade, the surface of the continuous passage shall be *level* and flush with the rail top at the outer edge and between the rails. The horizontal gap on the inner edge of each rail shall be the minimum necessary to allow passage of wheel flanges and shall be a maximum of 2½ inches (64 mm). Where tracks cross a *sidewalk*, 24 inch (610 mm) wide *detectable warnings* complying with **521 CMR 30.7.2a** shall be placed on both sides of the tracks across the entire width of the *sidewalk*, at a sufficient distance from the tracks to allow clearance for the widest vehicle using those tracks, but no less than 6 feet (1829 mm) minimum and 15 feet (4572 mm) maximum from the centerline of the nearest rail. Where multiple tracks are part of the same *level* crossing, *detectable warnings* should be placed alongside the outermost track, and not within the sets of tracks. See **Figure 30.13**.



### 30.14 ANNOUNCEMENTS IN SEATING AND PLATFORM AREAS

Visual systems for providing announcement to deaf and hard of hearing customers shall be provided wherever there are auditory systems for providing announcements.

### 30.15 CLOCKS

Where clocks are provided for use by the public, the clock face shall be uncluttered so that its *elements* are clearly visible. Hands, numerals and digits shall contrast with the background either light-on-dark or dark-on-light. Where clocks are installed overhead, numerals and digits shall comply with **521 CMR 21.3, Character Proportion and Stroke Thickness, and 521 CMR 21.4, Character Height**.

### 30.16 RAIL STATION SIGNS

Rail station signs shall comply with the following:

Exception:

Signs shall not be required to comply with **521 CMR 30.16.1**, and **521 CMR 30.16.2**, where audible signs are remotely transmitted to hand-held receivers, or are user-or-proximity-actuated.

30.16.1 Where signs identify a station or its *entrance*, at least one (1) sign at each *entrance* shall comply with **521 CMR 21.5: Raised and Braille Characters** and shall be placed in uniform locations to the maximum extent practicable. Where signs identify a station that has no defined *entrance*, at least one

(1) sign shall comply with **521 CMR 21.5: Raised and Braille Characters** and shall be placed in a central location.

30.16.2 Lists of stations, routes and destinations served by the station which are located on boarding areas, platforms or *mezzanines* shall comply with **521 CMR 21.6, Visual Characters**. At least one (1) *tactile* sign identifying the specific station and complying with **521 CMR 21.00: SIGNAGE** shall be provided on each platform or boarding area. Signs covered by this requirement shall, to the maximum extent practicable, be placed in uniform locations within the system.

Exception:

Where sign space is limited, characters shall not be required to exceed 3 inches (76 mm).

30.16.3 Stations covered by this section shall have identification signs complying with **521 CMR 21.6, Visual Characters**. Signs shall be clearly visible and within the sight lines of standing and sitting passengers from within the vehicle on both sides when not obstructed by another vehicle.

### **30.17 BUS BOARDING AND ALIGHTING AREAS**

Bus boarding and alighting areas shall comply with the following:

30.17.1 Bus stop boarding and alighting areas shall comply with **521 CMR 7.00: GROUND AND FLOOR SURFACES**.

30.17.2 Bus stop boarding and alighting areas shall provide a *clear* length of 96 inches (2438 mm) minimum, measured perpendicular to the curb or vehicle roadway edge, and a *clear* width of 60 inches (1524 mm) minimum, measured parallel to the vehicle roadway.

30.17.3 Bus stop boarding and alighting areas shall be connected to stress, *sidewalks*, or pedestrian paths by an *accessible route*, in accordance with **521 CMR 8.00: ACCESSIBLE ROUTES**.

30.17.4 Parallel to the roadway, the slope of the bus stop boarding and alighting area shall be the same as the roadway, to the maximum extent practicable. Perpendicular to the roadway, the slope of the bus stop boarding and alighting area shall not be steeper than 1:50 (2 percent).

### **30.18 BUS SHELTERS**

Bus shelters shall provide a minimum *clear floor or ground space* entirely within the shelter, which shall not overlap the adjacent *accessible route*. Bus shelters shall be connected by an *accessible route* complying with **521 CMR 8.00: ACCESSIBLE ROUTES** to a boarding and alighting area compliant with the requirements of **521 CMR 30.14, Bus Boarding and Alighting Areas**.

### **30.19 BUS SIGNS**

Bus route identification signs shall comply with **521 CMR 21.1c**.

Exception:

Bus schedules, timetables and maps that are posted at the bus stop or bus bay shall not be required to comply.

### **30.20 TIER I MARINE FACILITIES**

Tier I *marine facilities* are docks and/or piers that service scheduled waterborne passenger vessels with a *vessel length* of 40 feet (12192 mm) or greater. These *facilities* shall provide *persons with*

*disabilities unassisted access* measured under *nominal marine conditions* throughout *spring tide range* or 9½ feet (2896 mm) whichever is less. Tier I *marine facilities* shall comply with the following:

30.20.1 *Unassisted Access* between the land or fixed *facility* and a floating vessel, with or without an intervening floating structure, shall be provided.

### 30.21 GANGWAYS

Shall comply with the following:

a. *Gangways* shall be equipped with handrails which comply with **521 CMR 12.6, Handrails**.

Exception:

At the top and bottom of the *gangway*, the upper and lower rails shall be connected with a circular return extending a minimum of 12 inches (305 mm) beyond the edge of the *gangway*. It is not intended that handrail extensions be horizontal during all tidal or weather conditions.

b. The *clear* width of the *gangway* shall be a minimum of 36 inches (914 mm) measured between the handrails.

c. *Gangways* shall terminate in *level* platforms that are a minimum of 48 inches by 48 inches (1219 mm by 1219 mm), *clear* and unobstructed by handrails, door swings, *entrances*, or other projections. Such platforms shall occur at the top and bottom of each *gangway* and at intervals not exceeding the maximum *gangway* length as described in **Table 30.18**:

Table 30.18 – Gangway Slopes and Lengths

Slopes	Maximum Length (excluding <i>transition plates</i> )
1:12 (8.3 percent) but less than 1:14 (7.1 percent)	Not to exceed 30 feet (9144 mm)
1:14 (7.1 percent) but less than 1:16 (6.3 percent)	Not to exceed 35 feet (10668 mm)
1:16 (6.3 percent) but less than 1:18 (5.6 percent)	Not to exceed 40 feet (12192 mm)
1:18 (5.6 percent) but less than 1:20 (5 percent)	Not to exceed 45 feet (13716 mm)
1:20 (5 percent) and over	Unlimited length

d. *Transition Plates* shall be a maximum of 8 feet (2438 mm) in length and shall have slopes less than or equal to one-to-twelve (1:12) (8.3 percent). *Transition plates* longer than 18 inches (457 mm) shall be equipped with handrails complying with **521 CMR 30.18a, Handrails**. These handrails must be parallel to the handrails on the *gangway(s)*, but may not necessarily be continuous with them. *Transition plates* shall be at least as wide as the *gangway*. The change in level between the end of the *transition plate* and the adjoining *level* surface shall be no greater than one half (½) of an inch (13 mm).

### 30.22 BRIDGE PLATES

Vessels using *bridge plates* at boarding and disembarking areas, access shall comply with the following:

a. A maximum slope of one-to-eight (1:8) (12.5 percent) to one-to-ten (1:10) (10 percent) is allowed for a maximum rise of 3 inches (76 mm). A maximum slope that is less steep than one-to-ten (1:10) (10 percent) and no steeper than one-to-twelve (1:12) (8.3 percent) is allowed for a maximum rise of 6 inches (152 mm).

b. *Bridge Plates* shall have a minimum *clear* width of at least 36 inches (914 mm).

c. *Bridge Plates* longer than 6 feet (1829 mm) are *gangways* and shall comply with **521 CMR 30.21, Gangways**.

### **30.23 FLOATING AND FIXED DOCKS**

The edge of all floating and fixed docks shall provide at least one (1) of the following:

- a. Handrails that comply with **521 CMR 12.6, Handrails**;
- b. Curbs that are at least 4 inches (102 mm) high and are preceded by *detectable warnings* that comply with **521 CMR**; or
- c. *Detectable warnings* that comply with **521 CMR**.

### **30.24 ACCESSIBLE ROUTE**

There shall be an *accessible route* to and throughout the *marine facility* that connects the vessels boarding area with all other areas and services available within the *marine facility*. The *accessible route* shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**.

### **30.25 ANCILLARY FACILITIES**

Where provided within the *marine facility*, ancillary *facilities* such as fare transaction areas, toilets, telephones, vendor(s) stands, etc., shall comply with **521 CMR**.

**30.26** *Marine facilities* that service waterborne passenger vessels with a *vessel length* of less than 40 feet (12192 mm) shall comply with **521 CMR 60:00: RECREATIONAL BOATING FACILITIES**.

## **521 CMR 31.00: DETENTION AND CORRECTIONAL FACILITIES**

### **31.1 GENERAL**

Detention and correctional *facilities* shall comply with **521 CMR**, except as specified or modified in **521 CMR 31.00: DETENTION AND CORRECTIONAL FACILITIES**. Detention and correctional *facilities* shall include, but not be limited to, police stations, prisons, jails, houses of correction, juvenile detention centers, reformatories and other institutional occupancies where occupants are under some degree of restraint or restriction for security reasons.

### **31.2 SECURITY SYSTEMS**

Where security systems are provided at *entrances*, an *accessible route* shall be provided through fixed security barriers. Where security barriers incorporate equipment such as metal detectors, fluoroscopes, or other similar devices which cannot be made *accessible*, an *accessible route* shall be provided adjacent to such security screening devices to facilitate an equivalent path of travel.

### **31.3 VISITING AREAS**

In non-contact visiting areas where inmates or detainees are separated from visitors, . 5 percent but not less than one (1), of cubicles shall be *accessible* according to **521 CMR 38.00: TABLES AND SEATING**, on both the visitor and detainee or inmate sides. Where counters are provided, a portion at least 36 inches (914 mm) in length shall be provided on both visitor and detainee or inmate side of at least one (1) of the counters provided.

31.3.1 Where solid partitions or security glazing separate visitors from detainees or inmates at least one (1) of each type of cubicle or counter partition shall comply with **521 CMR 32.2, Sales, Service and Information Counters, or Teller Windows**.

### **31.4 INMATE AREAS**

Program, dining, work, and recreational *facilities* and all areas open to inmates, detainees, or visitors shall be *accessible* and on an *accessible route*.

### **31.5 HOLDING CELLS AND GENERAL HOUSING CELLS OR ROOMS**

Minimum number: At least 3 percent, but not less than one (1), of the total number of housing or holding cells or rooms provided in the *facility*, shall be *accessible*.

31.5.1 *Accessible* cells or rooms shall be dispersed among all categories and types of housing and holding areas.

31.5.2 In addition to the requirements of **521 CMR 31.4, Inmate Areas** where special holding or housing cells or rooms are provided, at least one (1) serving each purpose shall comply. An *accessible* special holding or housing cell or room may serve more than one (1) purpose. Cells or rooms subject to this requirement include, but are not limited to, those used for purposes of protective custody, disciplinary detention, detoxification, and medical isolation.

31.5.3 Patient bedrooms or cells required to comply with **521 CMR 37.00: MEDICAL CARE FACILITIES** shall be provided in addition to any medical isolation cells required to comply with **521 CMR 31.5.2**.

31.5.4 Beds shall have maneuvering space of at least 36 inches (914 mm) wide along one (1) side. Where more than one (1) bed is provided in a room or cell, the maneuvering space provided at adjacent beds

may overlap. In cells having more than 25 beds, at least 5 percent of the beds shall have maneuvering space of at least 36 inches (914 mm) wide along one (1) side, with the maneuvering space provided at adjacent beds being allowed to overlap.

**31.6 INMATE TOILETS:**

Where provided within the *accessible* cells or rooms, the *bathrooms* shall comply with **521 CMR 18.00: TOILET ROOMS AND COMPARTMENTS.**

Exception:

**521 CMR 18.8, Grab Bars**, does not apply.

31.6.1 Inmate toilet and bathing *facilities*: At least one (1) toilet room and bathing room shall be fully *accessible* and on an *accessible route* from the *accessible* cells or holding rooms.

**31.7 ACCESSIBLE CELLS OR ROOMS FOR PERSONS WHO ARE DEAF OR HARD OF HEARING:**

In addition to the requirements of **521 CMR 31.4, Inmate Areas**, at least 3 percent but not less than one, of general housing or holding cells or rooms equipped with audible emergency warning systems or permanently installed telephones shall comply with **521 CMR 20.00: ALARMS, and 521 CMR 22.00 TELEPHONES.**

Exception:

Visible alarms are not required where inmates or detainees are not allowed independent means of egress.

**31.8 DRINKING FOUNTAINS:**

Shall comply with the requirements of **521 CMR 17.00: DRINKING FOUNTAINS.**

## 521 CMR 32.00: RETAIL ESTABLISHMENTS

### 32.1 GENERAL

All retail establishments shall comply with **521 CMR**, except as specified or modified in **521 CMR 32.00: RETAIL ESTABLISHMENTS**. Retail establishments shall include but not be limited to: banks, beauty shops, pharmacies, dry cleaners, clothing stores, grocery stores and supermarkets.

### 32.2 SALES, SERVICE AND INFORMATION COUNTERS, OR TELLER WINDOWS

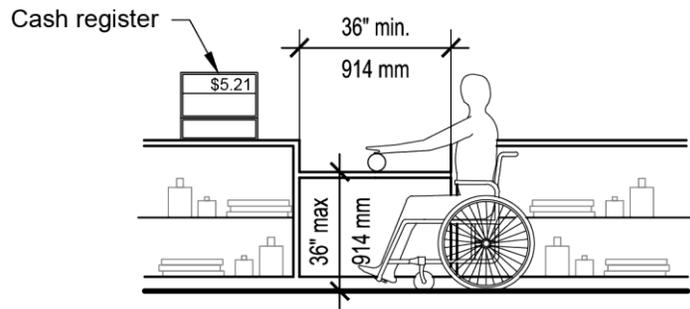
Sales and service counters shall include but not be limited to ticketing counters, teller stations in a bank, bakery counter, registration counters in hotels and motels, deli counter, box office ticket counters, cosmetic counter, and other counters that may not have a cash register but at which goods or services are sold or distributed. Where counters are provided for sales or distribution of goods or services, at least one (1) of each type shall comply with the following. . See **Figure 32.2a**.

- a. The counter shall be on an *accessible route* complying with **521 CMR 8.00: ACCESSIBLE ROUTES**.
- b. A portion of the counter shall be a minimum of 36 inches (914 mm) in length and be located closest or nearest the cash register.
- c. That portion of the counter shall be a maximum of 36 inches (914 mm) above the finish floor.
- d. The *accessible* portion of the counter shall extend the same depth as the sales or service counter.
- e. The *accessible* counters must be dispersed throughout the *building* or *facility* and shall be provided at each type of service station/location.
- f. Shall be provided in front of the counter.
- g. A portion of the counter shall be a minimum of 30 inches (762 mm) in length and a maximum of 36 inches (914 mm) above the finish floor with knee and clearance space complying with **521 CMR 8.00: ACCESSIBLE ROUTES**.
- h. Where provided, check writing surfaces and/or electronic payment station shall be a minimum of 28 inches (711 mm) and maximum of 34 inches (864 mm) above the finish floor or ground.

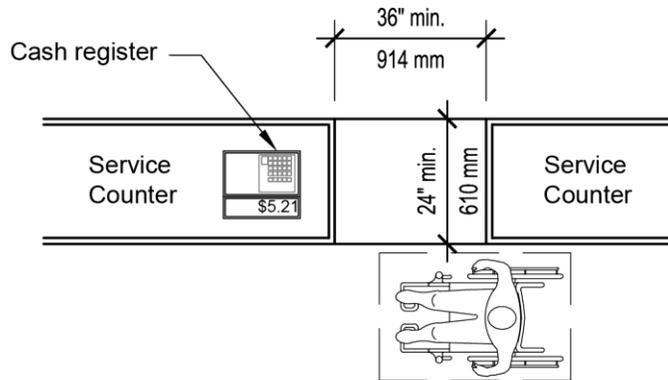
#### Exceptions:

1. Where the provided counter surface is less than 36 inches (914 mm) long, the entire counter surface shall be 36 inches (914 mm) high maximum above the finish floor.
2. Where a partition (e.g. glass) is required for security purposes, that partition shall allow for a minimum of 16 inches (406 mm) in depth, measured on the *public use* side of the partition, and an area along the transaction counter to still allow for interactive transactions to take place. See **Figure 32.2b**.

**Figure 32.2a**

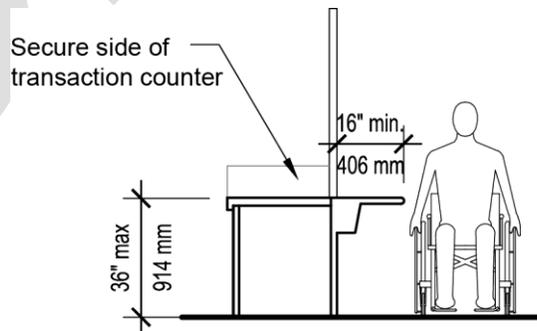


(A) Elevation of Counter



(B) Plan of Counter

**Figure 32.2.b**



**32.3 AISLES**

All aisles in retail establishments shall have a minimum *clear* width of 36 inches (914 mm). Such aisles shall be maintained at all times to provide a *clear* width of 36 (914 mm) inches.

### 32.4 CHECK-OUT AISLES

Shall comply with the following:

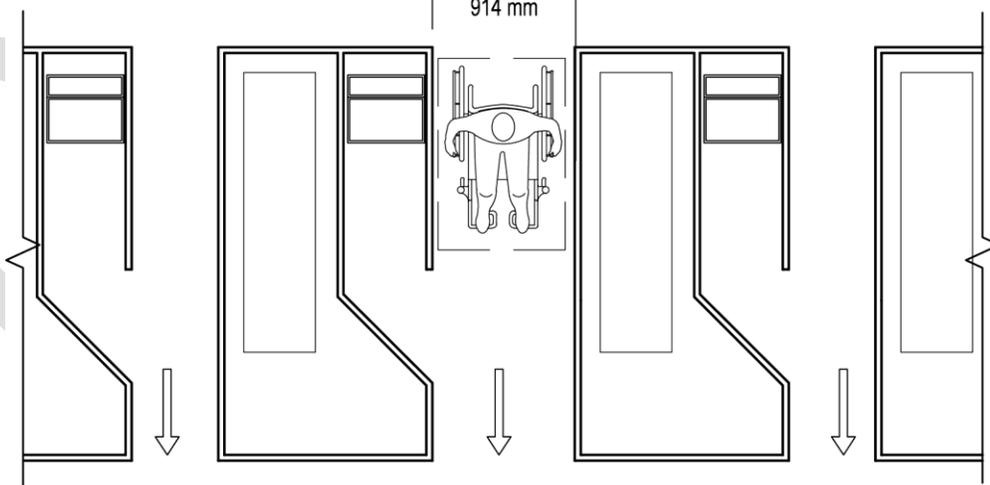
Total check-out aisles of <u>each design</u>	Minimum number of <u>Accessible check-out aisles</u>
1 - 4	1
5 - 8	2
9 - 15	3
16 or more	3, plus 20 percent of additional aisles

Examples of check-out aisles of different "design" include those which are specifically designed to serve different functions. Different "design" shall include but is not limited to the following features: length of belt or no belt; or permanent *signage* designating the aisle as an express lane.

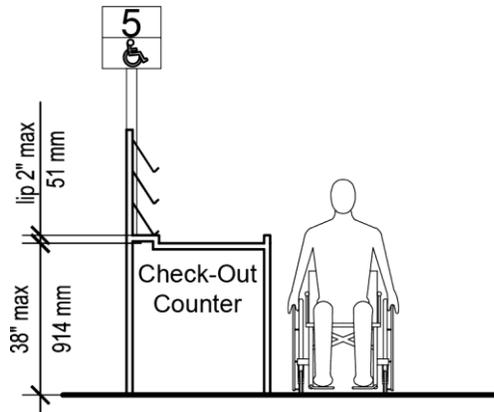
- a. Accessible check-out aisles shall always be open.
- b. Clear aisle width for accessible check-out aisles shall be a minimum of 36 inches (914 mm). See **Figure 32.4a**.
- c. An adjoining counter height shall be a maximum of 38 inches (965 mm) above the finish floor. The top of the lip shall be a maximum of 2 inches (51 mm) above the counter height. See **Figure 32.4b**.
- d. Where provided, check writing surfaces and/or electronic payment station shall be a minimum of 28 inches (711 mm) and maximum of 34 inches (864 mm) above the finish floor or ground.
- e. *Signage* identifying accessible check-out aisles shall use the international symbol of accessibility and shall be mounted above the check-out aisle in the same location that the check-out number or type of check-out is displayed. See **Figure 32.4b**.

**Figure 32.4a**

36" min.  
914 mm



**Figure 32.4b**



### 32.5 TURNSTILES, SECURITY CONTROL DEVICES AND SHOPPING CART BARRIERS

Wherever barriers are provided to prevent the removal of shopping carts from store premises including but not limited to turnstiles, an adjacent, alternate unlocked gate or door that is equally convenient to that provided for the ambulatory population shall be provided. It shall have a minimum *clear* opening of 32 inches (813 mm).

### 32.6 DRESSING ROOMS

Where provided, dressing rooms shall comply with **521 CMR 33.00: DRESSING, FITTING AND CHANGING ROOMS**

### 32.7 SHELVING AND DISPLAY UNITS

In retail establishments shelving and display units shall be located on an *accessible route*. The requirements of **521 CMR 6.5, Forward Reach**, and **521 CMR 6.6, Side Reach**, shall apply to those display units encouraging interactive participation including but not limited to, devices such as headphones in stores which sell music tapes and compact disks.

## 521 CMR 33.00: LODGING FACILITIES

### 33.1 GENERAL

*Lodging facilities* shall comply with 521 CMR, except as specified or modified in **521 CMR 8.00: LODGING FACILITIES**. *Lodging facilities* shall include, but not be limited to, hotels, motels, bed and breakfasts, time shares, inns, boarding houses, *dormitories*, sorority and fraternity houses, and resorts. *Lodging facilities* shall also include homeless shelters, hospices, group homes, congregate living *facilities*, lodging houses and transitional housing, and other places that provide *temporary accommodations*.

#### Exceptions:

1. A *building* that contains four (4) or fewer beds or contains four (4) or fewer rooms for rent or hire; and is actually occupied as a residence by the *proprietor* of the establishment.
2. *Sleeping accommodations* in a medical care *facility*, licensed long-term (or short-term) care *facility*, which are covered by **521 CMR 37.00: MEDICAL CARE FACILITIES**.
3. *Sleeping accommodations* in a detention or correctional *facility*, which are covered by **521 CMR 31.00: DETENTION FACILITIES**.

### 33.2

#### REGISTRATION COUNTERS

Where registration counters are provided, they shall comply with **521 CMR 32.2, Sales, Service and Information Counters, or Teller Windows**.

### 33.3 PARKING SPACES

Where parking is provided, it shall comply with the provisions of **521 CMR 15.2, Number through 521 CMR 15.9, Valet Parking**. If parking spaces are assigned to individual units, said spaces designated for *accessible* units shall have *signage* reserving said space. An international symbol of *accessibility* need not be used.

33.3.1 Where parking is provided for visitors, it shall comply fully with the requirements of **521 CMR 15.00: PARKING AND PASSENGER LOADING ZONES**.

### 33.4 UNITS, SLEEPING ROOMS, BEDS, AND SUITES: MINIMUM NUMBER

At least 5 percent but in no case less than one (1) of the units, sleeping rooms, beds, and suites shall be *accessible*. In applying the 5 percent rule to *facilities* which consist of more than one (1) *building*, all of the units in the entire *facility* shall be added together.

33.4.1 To provide *persons with disabilities* a range of options equivalent to those available to other persons served by the *facility*, *accessible* sleeping rooms and suites shall be dispersed proportionally among the various classes of *sleeping accommodations* available to patrons of the place of *lodging*. Factors to be considered in providing an equivalent range of options may include, but are not limited to, room size, bed size, cost, view, *bathroom* fixtures (such as hot tubs and spas), smoking and nonsmoking, and the number of rooms provided.

- 33.4.2 The operator of a *facility* may elect to limit *construction of accessible* rooms to those intended for multiple occupancy, provided that these rooms are made available at the cost of a single occupancy room to an individual with disabilities who requests a single-occupancy room.
- 33.4.3 The height to the top of the mattress provided within *accessible* sleeping rooms and suites shall be a minimum of 17 inches (432 mm) to a maximum of 22 inches (559 mm). The quality of the mattress shall be comparable to the quality and comfort provided in the standard rooms. Beds shall provide a minimum of 6 inches (152 mm) of clearance from the bottom of the bed frame to the floor to allow for the usage of portable transfer lifting devices.
- 33.4.4 *Accessible* units shall have *bathrooms* and kitchens (where provided), that comply with *Accessible Dwelling* requirements in **521 CMR 44.00: TYPE A AND ACCESSIBLE DWELLING BATHROOMS** and **521 CMR 45.00: TYPE A AND ACCESSIBLE DWELLING KITCHENS**.
- 33.4.5 If vanity counter top surface is provided in non-*accessible* dwelling or sleeping units within the same *facility*, an equivalent *accessible* vanity counter top surface, in terms of size and proximity to the sink, shall also be provided in *Type A* and/or *Accessible Dwelling* units and shall comply with **521 CMR 6.00: SPACE ALLOWANCES AND REACH RANGES**.
- 33.4.6 In *lodging facilities* with 50 or more sleeping rooms or suites, *accessible* sleeping rooms or suites shall include a wheel-in shower in conformance with the table below. Wheel-in showers shall comply with the requirements of **521 CMR 44.6.2, Showers**. When separate shower *facilities* are provided for men and for women, at least one (1) roll-in shower shall be provided for each group.

<u>Number of rooms provided</u>	<u>Total number of required rooms, per <b>521 CMR 33.4.1</b></u>	<u>Total number of required rooms with roll-in showers</u>	<u>Total number of required rooms without roll-in showers</u>
1 - 25	1	0	1
26 - 50	3	0	3
51 - 75	4	1	3
76 - 100	5	1	4
101 - 150	8	2	6
151 - 200	10	2	8
201 - 300	15	3	12
301 - 400	20	4	16
401 - 500	25	5	20
501 - 1000	5 percent of the total, refer to <b>521 CMR 2.4.5</b>	2 percent of the total, refer to <b>521 CMR 2.4.5</b>	3 percent of the total, refer to <b>521 CMR 2.4.5</b>
1001 and over	5 percent of the total	22, plus one (1) for each 100 over 1000	33, plus one (1) for each 100 over 1000

- 33.4.7 *Sleeping Accommodations* for persons who are deaf or hard of hearing. In all *lodging facilities*, additional sleeping rooms and suites with accommodations for persons who are deaf or hard of hearing shall be provided in conformance with the table below. These rooms and suites shall comply with the requirements of **521 CMR 33.6, Units with Accessible Communication Features for Persons Who**

**Are Deaf or Hard Of Hearing.** Not more than 10 percent of the total number of *accessible* units, sleeping rooms, beds, and/or suites shall be used to satisfy this requirement.

<u>Number of rooms</u>	<u>Accessible equipment provided per 8.6</u>
1 to 5	1
6 to 25	2
26 to 50	4
51 to 75	7
76 to 100	9
101 to 150	12
151 to 200	14
201 to 300	17
301 to 400	20
401 to 500	22
501 to 1000	5 percent of total
1001 and over	50, plus 3 for each 100 over 1000

33.4.8 In *facilities* with multi-bed rooms (such as *dormitories*) or *spaces*, 5 percent of the beds shall comply with **521 CMR 33.5.2**.

### **33.5 UNITS, SLEEPING ROOMS AND SUITES: MINIMUM REQUIREMENTS**

*Accessible* units, sleeping rooms and suites shall comply with the following:

33.5.1 *Accessible* units, sleeping rooms, and suites shall be on an *accessible route*. An *accessible route* shall connect all *accessible spaces* and *elements* including telephones, televisions, alarms clocks, and climate controls within the unit, sleeping room, or suite. Where only one (1) *accessible route* is provided, it shall not pass through *bathrooms* and toilet rooms, closets, or similar *spaces*.

Exception:

An elevator is not required in a *lodging facility* that is less than three (3) stories or that has less than 3000 square feet (279 m<sup>2</sup>) per *story* if all rooms are proportionately distributed in accordance with **521 CMR 33.4.1** and all *common use spaces* are fully *accessible*.

33.5.2 *Accessible* sleeping rooms shall have a 36 inch (914 mm) *clear width* maneuvering space located along both sides of a bed, except that where two (2) beds are provided, this requirement can be met by providing a 36 inch (914 mm) wide maneuvering space located between the two (2) beds.

33.5.3 Doors and doorways designed to allow passage into and within all *accessible* units, sleeping rooms, or suites shall comply with **521 CMR 11.00: DOORS AND DOORWAYS**.

33.5.4 Every entry door to each *accessible* unit from a corridor shall have a means by which the person can visually identify a visitor before opening the door. This may be achieved by any of the following means:

- a. A peephole mounted at 42 inches (1067 mm) above the floor;

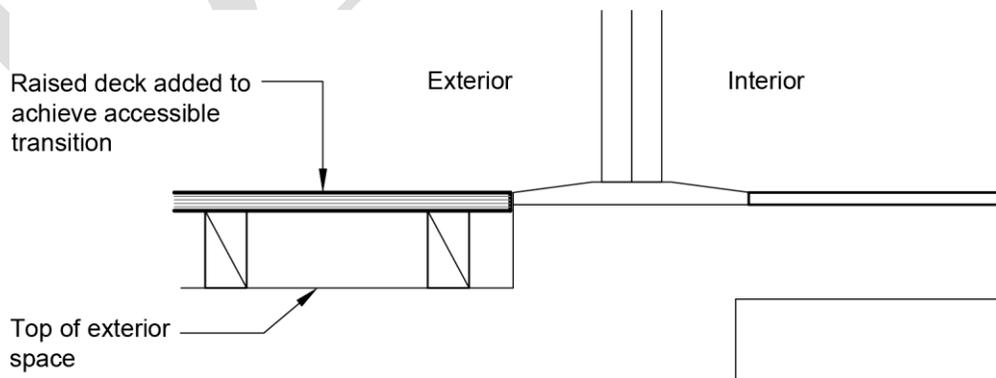
- b. A vision panel in the door with its bottom edge no higher than 42 inches (1067 mm) above the floor
- c. A sidelight with its bottom edge no higher than 42 inches (1067 mm) above the floor.

- 33.5.5 If fixed or built-in storage such as cabinets, shelves, closets, and drawers are provided in *accessible spaces*, at least one (1) of each type of storage space shall comply with **521 CMR 40.00: STORAGE** and **521 CMR 34.5.8b**.
- 33.5.6 All controls in *accessible* units, sleeping rooms, and suites shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
- 33.5.7 Where *mailboxes* are provided for each unit, sleeping room or suite, *mailboxes* complying with **521 CMR 6.5, Forward Reach**, or **521 CMR 6.6, Side Reach**, shall be provided for each unit required to be an *accessible* unit.
- 33.5.8 Where provided as part of an *accessible* unit, sleeping room, or suite, all *spaces* shall be *accessible* and shall be on an *accessible route*.
- 33.5.9 Including but not limited to patios, terraces, courtyards and *balconies* that serve a guest room shall be *accessible*. Where it is necessary to utilize a door threshold or a change in level between the interior and exterior greater than one half (1/2) of an inch (13 mm) to protect the integrity of the unit from water or snow damage, equivalent facilitation such as raised decking or a *ramp* shall be provided. See **Figure 33.5a**.

Exceptions:

1. *Balconies* with 10 inches (254 mm) or less of *clear* depth, measured from the exterior *building* wall, shall not be required to comply with **521 CMR 33.5.9**.
2. *Balconies* between 10 inches (254 mm) and 30 inches (762 mm) maximum of *clear* depth and width, measured from the exterior *building* wall, shall not be required to comply with **521 CMR 6.2, Wheelchair Turning Space**.

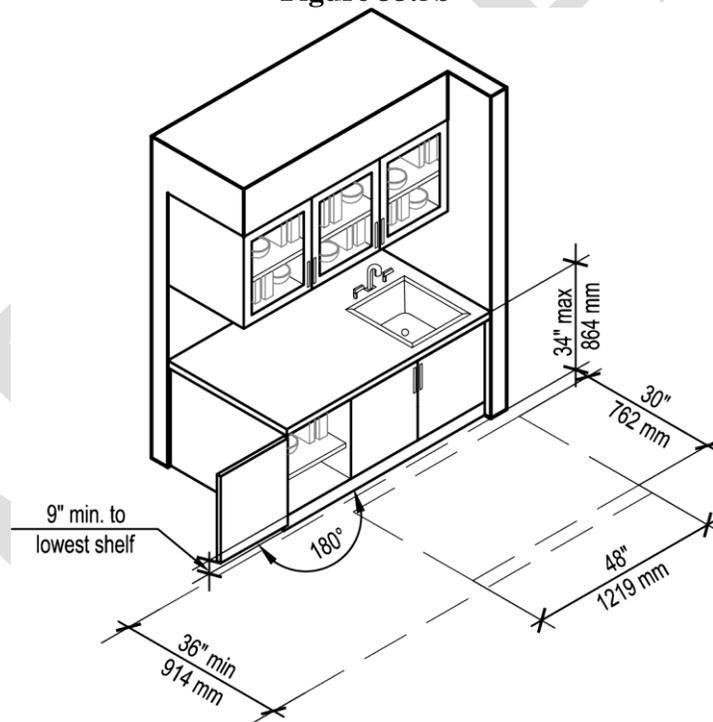
**Figure 33.5a**



33.5.10 When provided, kitchens and kitchenettes in *accessible* units, sleeping rooms, and suites shall comply with the requirements for *Accessible Dwelling Kitchens* in **521 CMR 45.00: TYPE A KITCHENS**.

- 33.5.11 When provided as an accessory to an *accessible* unit, sleeping room or suite, wet bars or similar amenities shall be *accessible*, on an *accessible route*, and comply with the following:
- Clear floor space* for a front or parallel approach to cabinets, counters, sinks, and appliances shall be provided to comply with **Figure 33.5b**.
  - Countertops and sinks shall be at a maximum height of 34 inches (864 mm) above the floor.
  - At least 50 percent of shelf space in cabinets or refrigerator/freezers shall comply with **521 CMR 6.5, Forward Reach**, and **521 CMR 6.6, Side Reach**, and space shall be designed to allow for the operation of cabinet and/or appliance doors so that all cabinets and appliances are *accessible* and usable.
  - Controls and operating mechanisms shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

Figure 33.5b



### 33.6 UNITS WITH ACCESSIBLE COMMUNICATION FEATURES FOR PERSONS WHO ARE DEAF OR HARD OF HEARING

*Sleeping accommodations* for persons who are deaf or hard of hearing required by **521 CMR 33.4.7**, shall comply with the following requirements for carbon monoxide/smoke/fire/safety alarms, visual signal devices, telephones, *text telephones (TTY)*, televisions, alarm clocks and climate controls.

- 33.6.1 Auxiliary Visual Alarms: *Sleeping Accommodations* shall be equipped with auxiliary visual alarms which comply with **521 CMR 20.4, Auxiliary Alarms**. 33.6.2 Visual Notification Devices shall be provided in *sleeping accommodations* to alert room occupants of incoming telephone calls and a door

knock or doorbell. Visual notification devices shall not be connected to auxiliary visual alarm signal appliances.

33.6.3 Telephones in rooms for persons who are deaf or hard of hearing shall have volume controls complying with **521 CMR 22.00: TELEPHONES**. An *accessible* electrical outlet within 48 inches (1219 mm) of a telephone connection shall be provided to facilitate the use of a *Text Telephone (TTY)*.

33.6.4 Where televisions are provided in sleeping rooms or suites, the operator of the *facility* shall provide a television amplifier and a television with closed captioning abilities in rooms for persons who are deaf or hard of hearing.

### **33.7 OTHER SLEEPING ROOMS AND SUITES**

Doors and doorways designed to allow passage into and within all sleeping units or other covered units shall comply with **521 CMR 11.5, Width** Exception:

Shower and sauna doors in guest rooms that are not required to provide mobility features shall not be required to comply with **521 CMR 33.7, Other Sleeping Rooms and Suites**.

## 521 CMR 34:00: MULTIPLE DWELLINGS

### 34.1 GENERAL

*Multiple dwellings* shall include but not be limited to apartments, condominiums, assisted living and cooperatives. For *public use* and *common use spaces* in *Multiple Dwellings*, see **521 CMR 35.00: PUBLIC USE AND COMMON USE SPACES IN MULTIPLE DWELLINGS**.

### 34.2 RENOVATION OR CHANGE OF USE OF EXISTING BUILDINGS

Any *building* previously occupied for any purpose, which is converted, renovated, reconstructed, altered or remodeled for residential *use* is shall be required to comply with **521 CMR 34.3, Type B Dwelling Units** in *buildings* of 50 or more units.

34.2.1 *Renovation* and reuse of *dwelling units* is subject to **521 CMR 34.4, TYPE A AND ACCESSIBLE Dwelling Units** through **521 CMR 34.5, Dwelling Unit Interiors** provided the work being performed, in a three (3) year period, exceeds 30 percent of the *full and fair cash value* of the *building* (See **521 CMR 3.3.2**).

**34.3 TYPE B DWELLING UNITS** In new and existing *buildings*, that are for rent, hire, lease or sale and that are equipped with an elevator, all *dwelling units* must be constructed as *Type B Dwelling Units*, except those covered in **521 CMR 34.4, Type A and Accessible Dwelling Units**. *Type B dwelling units* must comply with **521 CMR 34.5, Dwelling Unit Interiors**, and **521 CMR 42.00: TYPE B BATHROOMS, 521 CMR 43.00: TYPE B KITCHENS, and 521 CMR 46.00: TYPE B BEDROOMS**.

Exception:

*Townhouses* and *Multi-Story Units*: An *accessible route* shall not be required to connect stories if the *accessible* features, per **521 CMR 34.3, Type B Dwelling Units**, are provided at the entry level of the unit.

34.3.1 In *multiple dwellings* that are for rent, hire, lease, or sale but are not equipped with an elevator, only units on the *ground floor* must be constructed as *Type B Dwelling Units*.

### 34.4 TYPE A AND ACCESSIBLE DWELLING UNITS

In *multiple dwellings* that are for rent, hire, or lease (but not for sale) and contain 20 or more units, at least 5 percent of the *dwelling units* must be *Accessible Dwelling* units. Pursuant to MGL Ch. 22 § 13A, the *Board* may require less than 5 percent or up to 10 percent in those areas where it determines the need for such units either exceeds or does not require 5 percent. *Accessible Dwelling* units must comply with **521 CMR 34.5, Dwelling Unit Interiors**, and **521 CMR 44.00: TYPE A AND ACCESSIBLE DWELLING BATHROOMS, and 521 CMR 45.00: TYPE A AND ACCESSIBLE DWELLING KITCHENS, and 521 CMR 47.00: TYPE A AND ACCESSIBLE DWELLING BEDROOMS**.

34.4.1 Total *dwelling units* in a *complex*: When *multiple dwellings* consist of more than one (1) *building* on a *site* or are located on several, non-contiguous *sites*, all *dwelling units* shall be added together to determine applicability of **521 CMR 34.4, Type A and Accessible Dwelling Units**.

34.4.2 *Type A dwelling units* shall be proportionally distributed across the total number of units according to number of bedrooms, size, quality, price and location; and shall provide choices of residential *dwelling units* comparable to, and integrated with, those available to other residents.

Exception:

*Townhouses* and *Multi-Story Units*: When 5 percent of the total number of units required to be *accessible* includes *townhouses* and/or *multi-story units*, they shall comply by any of the following means:

- a. substitute a fully *accessible* flat (one (1) floor unit) of comparable size, amenities, etc. within the *complex* to meet the total number of *accessible dwelling units* required
- b. provide space for the future installation of a wheelchair lift to access either upper or lower level of *townhouse* or *multi-story unit*.
- c. provide space for the future installation of a residential elevator to access either the upper or lower level of the *townhouse* or *multi-story unit*.

### 34.5 DWELLING UNIT INTERIORS

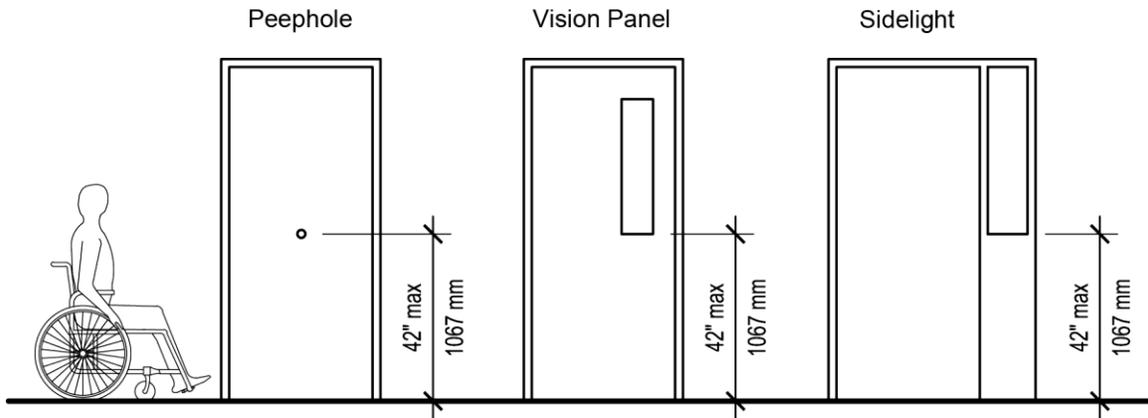
The interiors of all *Type B* and *Type A and Accessible Dwelling units*, except as exempted by **521 CMR 34.2, Renovation or Change of Use of Existing Buildings**, shall comply with the following requirements:

34.5.1 All doorways and all openings that allow passage in a *Type A and Accessible Dwelling unit* must comply with **521 CMR 11.00: DOORS AND DOORWAYS**. For *Type B units*, all the unit *entrances* are required to comply with **521 CMR 11.00: DOORS AND DOORWAYS**. All doorways and all openings that allow passage in *Type B units* shall be capable of complying, without *structural change*, with **521 CMR 11.00: DOORS AND DOORWAYS**. For door types such as bi-fold, pocket, and accordion doors, the *clear* opening is measured when the door is in its most fully open position. .

34.5.2 Every entry door to each *dwelling unit* shall have a means by which the resident can visually identify a visitor before opening the door and shall allow for a minimum 180 degree range of view. This may be achieved by any of the following means:

- a. In *Type B units*, each entry door shall be capable of providing at least one (1) of the following: a peephole mounted 42 inches (1067 mm) above the floor, a vision panel in the door with its bottom edge no higher than 42 inches (1067 mm) above the floor, or a sidelight with its bottom edge no higher than 42 inches (1067 mm) above the floor.
- b. In *Type A and Accessible Dwelling units*, each entry door shall provide at least one (1) of the following: a peephole mounted at 42 inches (1067mm) above the floor; a vision panel in the door with its bottom edge no higher than 42 inches (1067mm) above the floor; or a sidelight with its bottom edge no higher than 42 inches (1067mm) above the floor. See **Figure 34.5a**.

**Figure 34.5a**



34.5.3 All buzzers/bells and intercom systems shall comply with **521 CMR 6.5, Forward Reach**, or **521 CMR 6.6, Side Reach**. Where a system, including a closed-circuit system, permitting voice communication between a visitor and the occupant of the residential *dwelling unit* is provided, the system shall comply with **521 CMR 25.4, Residential Dwelling Unit Communication Systems**.

34.5.4 An *accessible route* at least 36 inches (914 mm) wide shall be provided to all rooms and *spaces* in the *dwelling unit* including exterior decks, patios, *balconies*, attached garages, and storage closets. An *accessible route* shall be provided to mechanical *spaces*, only if the resident is expected to service, adjust or maintain the equipment therein.

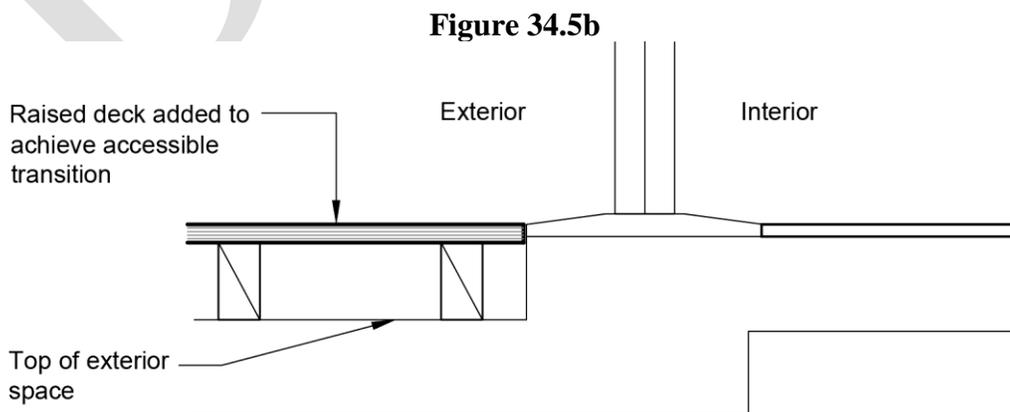
Exception:

*Accessible routes* shall not be required to or within unfinished attics or unfinished basements.

- a. Exterior *Spaces* including, but not limited to patios, terraces, courtyards and *balconies* that serve a dwelling unit shall be *accessible*. Where it is necessary to use a door threshold or a change in level between the interior and exterior, greater than one half ( $\frac{1}{2}$ ) of an inch (13 mm) to protect the integrity of the unit from water or snow damage, equivalent facilitation such as raised decking, or a *ramp* shall be provided or capable of being provided on the exterior side of the unit. See **Figure 34.5b**.
- b. In *Accessible Dwelling* units, the exterior *spaces*, including but not limited to patios, terraces, courtyards and *balconies*, shall be no more than one half ( $\frac{1}{2}$ ) of an inch (13 mm) below the floor level of the interior of the *dwelling unit*.

Exception:

Exterior *spaces* of 30 inches (762 mm) maximum in depth and width, shall not be required to comply with **521 CMR 6.2, Wheelchair Turning Space**.



34.5.5 If a washer or dryer is provided in a *Type B* or *Type A* unit, it shall be front loading or capable of being replaced with a front loading appliance. If a washer or dryer is provided in a *Accessible Dwelling* unit, it shall be front loading. Operating controls for washers and dryers shall be located within the *zone of reach*. When provided, storage shelving for laundry supplies shall be located within the *zone of reach*. If residents are expected to operate shut-off valves for the washer, the shut-off valves shall be located within the *zone of reach*. For common area laundry facilities, see **521 CMR 35.9, Laundry Facilities**.

34.5.6 All outlets shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**. . In *Type B*, *Type A* and *Accessible Dwelling* units, at least one (1) electrical outlet must be provided on the same wall as the telephone outlet and the door chime. Wherever exterior decks, patios, and balconies are provided, an exterior electrical outlet shall also be provided.

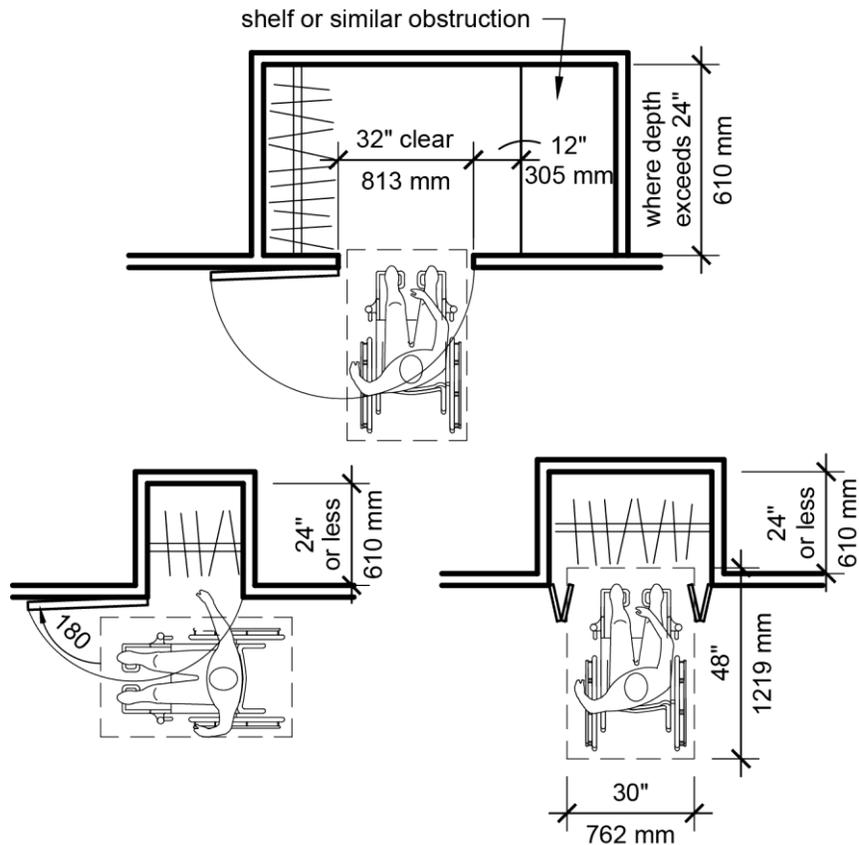
In *Accessible Dwelling* units, all telephone outlets must have an electrical outlet located within 12 inches (305 mm) for installation of a TTY.

34.5.7 In *Type A* and *Accessible Dwelling* units, the operable portions of all controls and alarms, including, but not limited to: intercoms, heat and air controls, and circuit breaker panels, shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**. Controls and alarms in *Type B* units may be located at other locations, so long as sufficient wiring is provided to permit future location from 36 inches to 48 inches (914 mm to 1219 mm) above the floor.

34.5.8 Closets/pantries and linen closets shall comply with the following:

- a. Closet walls shall be structurally capable of supporting the installation of shelves and poles which are relocatable from 42 inches to 72 inches (1067 mm to 1829 mm) to the top of shelf or pole whichever is higher.
- b. Where the interior depth of the closet exceeds 24 inches (610 mm), the doorway must comply with **521 CMR 11.5, Width**, so that a person with a disability can enter the closet. The bottom track of the closet door must also be recessed with no more than one-quarter ( $\frac{1}{4}$ ) of an inch (6 mm) change in finish material. For *Type A* and *Accessible Dwelling* units, when the interior depth of the closet is 24 inches (610 mm) or less, it shall be open to the room to permit a person with a disability to reach all parts of the closet. . See **Figure 34.5c**.

**Figure 34.5c**



**34.6 UNITS WITH ACCESSIBLE COMMUNICATION FEATURES FOR PERSONS WHO ARE DEAF OR HARD OF HEARING.**

In addition to those units required to be *accessible* by **521 CMR 34.4, Type A and Accessible Dwelling Units**, 2 percent of the total number of *dwelling units* in the *complex* or *project*, but not less than one (1) shall comply with the following:

- 34.6.1 Units with *accessible* communication features for persons who are deaf or hard of hearing required by **521 CMR 34.6, Units with Accessible Communication Features for Persons Who are Deaf or Hard of Hearing**, shall comply with the following requirements for smoke/fire/safety alarms, visual signal devices, telephones, televisions, alarm clocks and climate controls.
- 34.6.2 Units with *accessible* communication features shall be equipped with auxiliary visual alarms which comply with **521 CMR 20.4, Auxiliary Alarms**.
- 34.6.3 Visual Notification Devices shall be provided in units with *accessible* communication features to alert room occupants of incoming telephone calls and a door knock or doorbell. Visual notification devices shall not be connected to auxiliary visual alarm signal appliances. Activation of the button or switch shall initiate an audible tone and visible signal within the *residential dwelling unit*. Where visible doorbell signals are located in sleeping areas, they shall have controls to deactivate the signal. Where a system permitting voice communication between a visitor and the occupant of the unit is provided at a location other than the unit entry door, the system shall comply with **521 CMR 34.5.3**.

34.6.4 For rooms required under **521 CMR 34.6, Units with Accessible Communication Features for Persons Who are Deaf or Hard of Hearing**, the operator of a *facility* may either permanently install the equipment required under **521 CMR 34.6, Units with Accessible Communication Features for Persons Who are Deaf or Hard of Hearing**, or may elect to install electrical outlets (including outlets connected to a *facility's* central alarm system) and telephone wiring in sleeping rooms and suites to enable persons with hearing impairments to utilize portable visual alarms and communication devices. For purposes of equivalent facilitation, such devices shall be provided by the operator of the *facility* during the tenancy of a person with a hearing impairment.

## **521 CMR 35.00: PUBLIC USE AND COMMON USE SPACES IN MULTIPLE DWELLINGS**

### **35.1 GENERAL**

The *public use* and *common use spaces* of *multiple dwellings* in existing *buildings* consisting of twelve (12) or more units in a *building* shall be *accessible* and shall comply with **521 CMR**. The *public use* and *common use spaces* of *multiple dwellings* in new *construction* consisting of three (3) or more units shall comply with **521 CMR**. *Public use* and *common use spaces* are those *spaces* inside or outside a *building* that are used by residents and/or visitors. *Public use* and *common use spaces* shall include but not be limited to community *facilities*, meeting rooms, restaurants, recreation *spaces*, health *facilities*, pools, toilet rooms, laundry areas, trash areas, storage areas, *mailboxes*, *walks*, *sidewalks*, parking lots and garages, *entrances*, elevators, lobbies and foyers, as well as corridors and stairways leading to *dwelling units*.

### **35.2 ACCESSIBLE ROUTES**

There shall be an *accessible route* at least 36 inches (914 mm) wide connecting *accessible* parking, *accessible entrances*, *public use* and *common use spaces*, and *dwelling units*. The *accessible route* shall be the shortest possible route, see **521 CMR 8.00: ACCESSIBLE ROUTES**.

### **35.3 PARKING SPACES FOR DWELLING UNIT OCCUPANTS**

Where parking is provided, 2 percent, but not less than one (1), of each type of parking space (e.g interior, exterior or covered parking) shall comply with the provisions of **521 CMR 15.2, Number**, through **521 CMR 15.9, Valet Parking**, excluding **521 CMR 15.6, Signage**. Where parking is provided within or beneath a *building*, *accessible* parking spaces (including van *accessible* spaces) shall also be provided within or beneath the *building*. If parking spaces are assigned to individual units, those spaces designated for *accessible* units shall have *signage* reserving said space. An international symbol of accessibility need not be used.

35.3.1 Visitor Parking Spaces: Where parking is provided for visitors, it shall comply fully with the requirements of **521 CMR 15.00: PARKING AND PASSENGER LOADING ZONES**.

### **35.4 DOORS**

All doorways and openings located in *common use* and *public use spaces* and along *accessible routes* shall comply with **521 CMR 11.00 : DOORS AND DOORWAYS**.

### **35.5 STORAGE**

If remote storage is available to residents, equivalent *accessible* storage shall be provided to residents.

### 35.6 ALARMS

Where a fire alarm is provided, it shall comply with **521 CMR 20.00: ALARMS**.

### 35.7 HEIGHT OF CONTROLS

Where controls are provided, they shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

### 35.8 MAILBOXES

Where *mailboxes* are provided, at least 5 percent, but not less than one (1), of each type shall comply with **521 CMR 6.5, Forward Reach**, or **521 CMR 6.6, Side Reach**. In residential *facilities* where *mailboxes* are provided for each *dwelling unit*, *mailboxes* complying with **521 CMR 6.5, Forward Reach**, or **521 CMR 6.6, Side Reach**, shall be provided for each unit required to be an *accessible* unit.

### 35.9 LAUNDRY FACILITIES

If laundry *facilities* are provided in *multiple dwellings*, they shall comply with the following:

- a. Laundry *facilities* shall be on an *accessible* level and on an *accessible route*.
- b. A *clear floor space*, positioned for side approach, shall be provided. The *clear floor space* shall be centered on the appliance.
- c. Where three (3) or fewer washing machines are provided, at least one (1) shall be *accessible*. Where more than three (3) washing machines are provided at least two (2) shall be *accessible*.
- d. Where three (3) or fewer clothes dryers are provided, at least one (1) shall be *accessible*. Where more than three (3) clothes dryers are provided, at least two (2) shall be *accessible*.
- e. The washing machine(s) and the clothes dryer(s), as required by **521 CMR 35.9, Laundry Facilities**, shall be front loading, shall have a side hinged door, and shall be located so that the door can be opened 180°. See **Figure 35.9a**.

Exception:

Top loading machines shall be permitted in lieu of a front loading machine, only if the door to the laundry compartment is located 36 inches (914 mm) maximum above the finished floor, and the bottom of the opening to the laundry compartment is located 15 inches (381 mm) minimum and 36 inches (914 mm) maximum above the finish floor. See **Figure 35.9b**.

- f. Controls, including the payment mechanism, doors, lint screens, and detergent and bleach compartments, shall fall within the *zone of reach*.
- g. Where laundry work space, such as a table for folding, is provided, it shall comply with **521 CMR 38.00: TABLES AND SEATING**.

**Figure 35.9a**

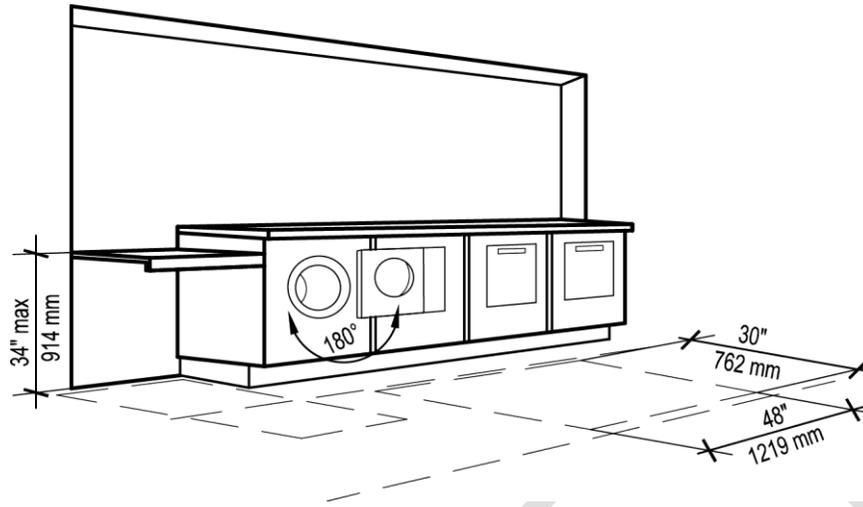
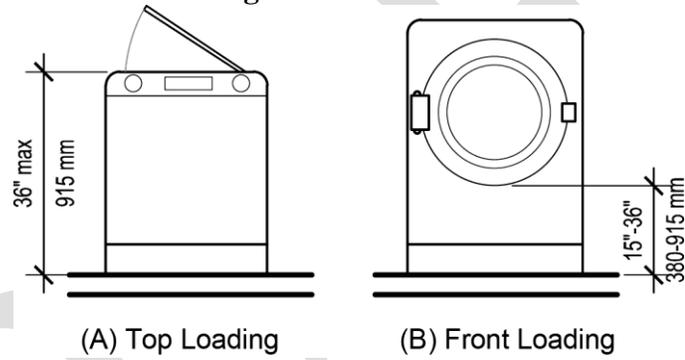


Figure 35.9b



**35.10 KITCHEN FACILITIES**

Sinks, counters, and cooking facilities provided in *common use spaces* shall comply with **521 CMR 28.00: KITCHENS.**

## 521 CMR 36.00: EDUCATIONAL FACILITIES

### 36.1 GENERAL

Educational *facilities* shall comply with **521 CMR**, except as specified or modified in **521 CMR 36.00: EDUCATIONAL FACILITIES**. Educational *facilities* shall include but not be limited to: public and private schools, nurseries, pre-schools, day care *facilities*, colleges and universities, libraries, galleries, museums, and training *facilities*.

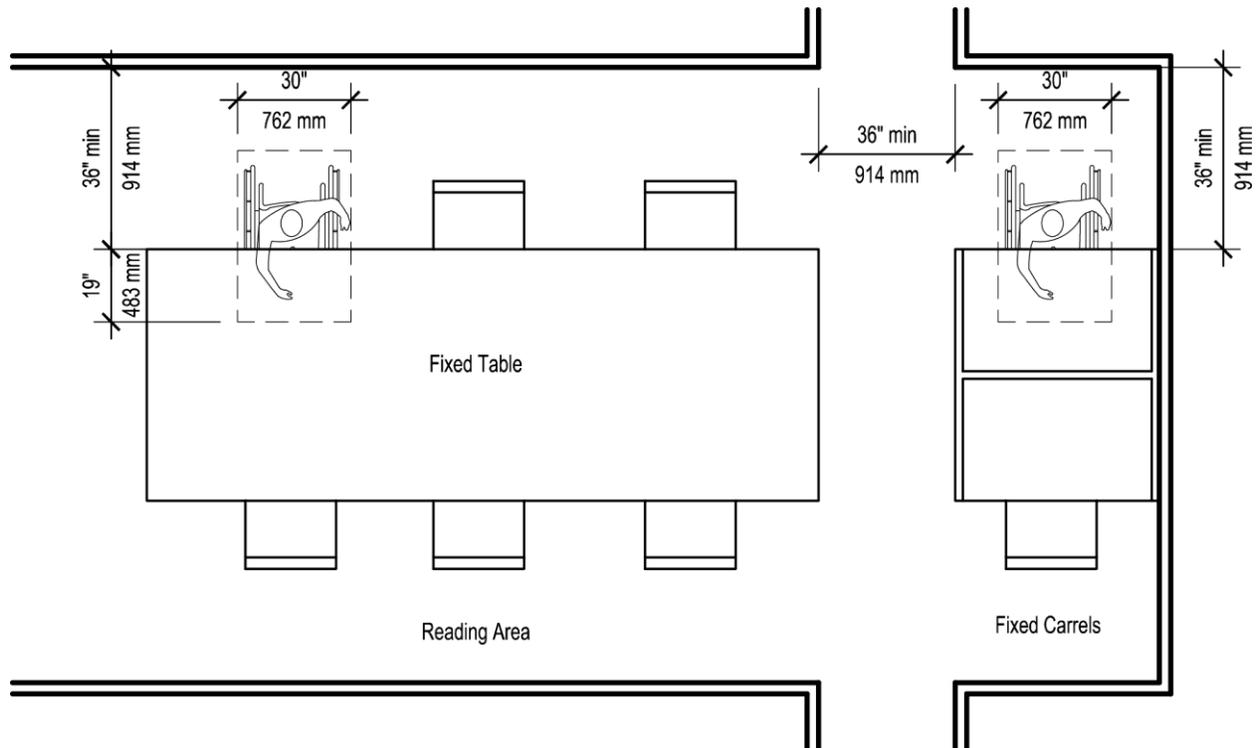
- a. *Dormitories* shall comply with the requirements of **521 CMR 8.00: LODGING FACILITIES**.
- b. Amphitheaters, lecture halls and classrooms of educational *facilities* shall comply with **521 CMR 26.00: PLACES OF ASSEMBLY**.

### 36.2 LIBRARIES

Shall comply with the following:

- 36.2.1 Where tables, study carrels, computer workstations, or fixed seating are provided, at least 5 percent with a minimum of one (1) of each *element* shall be *accessible*, be on an *accessible route*, and comply with the following:
- a. A 36 inch (914 mm) *access aisle* shall be provided between tables and between study carrels. No seating shall overlap the *access aisle*. See **Fig. 12a**.
  - b. *Clear floor space* shall be provided at each seating space. Such *clear floor space* shall not overlap knee clearance by more than 19 inches (483 mm). See **Figure 36.2**.
  - c. If seating for disabled persons is provided at tables or counters, it shall comply with **521 CMR 6.3, Knee Clearances**.
  - d. The tops of *accessible* tables and counters shall be from 28 inches to 34 inches (711 mm to 864 mm) above the finished floor or ground.

**Figure 36.2**



- 36.2.2 At least one (1) lane at each check-out area shall have a counter a minimum of 36 inches (914 mm) in length and a maximum of 36 inches (914 mm) in height. .
- 36.2.3 Any traffic control or book security gates or turnstiles shall not prevent access or egress to people in wheelchairs. Security gates shall have a 32 inch (813 mm) *clear* opening. If turnstiles are used, an adjacent *accessible*, unlocked door or gate shall be provided. Any level changes created by such devices shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES** and **521 CMR 7.00: GROUND AND FLOOR SURFACES**.
- 36.2.4 *Clear* aisle space at card catalogs shall be a minimum of 36 inches (914 mm) and comply with **Fig. 12b**. Maximum reach height shall be between 18 inches (457 mm) and 54 inches (1372 mm), with a height of 48 inches (1219 mm) preferred.
- 36.2.5 Aisles between stacks shall have a minimum *clear* width of 36 inches (914 mm) and preferably 42 inches (1067 mm), as shown in **Fig. 12c**. Shelf height in stack areas is unrestricted.
- 36.3 KITCHENS IN CLASSROOMS:**  
Kitchens in classrooms shall comply with the requirements of **521 CMR 28.00: KITCHENS**.
- 36.4 SINKS, COUNTERS, AND OTHER WORK AREAS IN CLASSROOMS OR LABORATORIES**  
At least 5 percent, with a minimum of one (1) of each type of *element*, in each classroom or laboratory shall comply with the following:
- Countertops and sinks shall comply with **521 CMR 36.2.1b, Clear Floor Space, 521 CMR 36.2.1c** and **521 CMR 36.2.1d**.
  - : At least 50 percent of shelf space in cabinets or refrigerator/freezers shall comply with **521 CMR 6.5, Forward Reach**, and **521 CMR 6.6, Side Reach**, and space shall be designed to allow for the

operation of cabinet and/or appliance doors so that all cabinets and appliances are *accessible* and usable.

- c. Controls and operating mechanisms shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS.**

**36.5 DRINKING FOUNTAINS IN CLASSROOMS:**

Shall comply with the requirements of **521 CMR 17.00: DRINKING FOUNTAINS.**

- 36.6 RECREATIONAL FACILITIES AT EDUCATIONAL FACILITIES** shall comply with the requirements of **521 CMR**, including but not limited to, **521 CMR 26.00: PLACES OF ASSEMBLY; 49.00: EXERCISE MACHINES AND EQUIPMENT; 54.00: SWIMMING POOLS, WADING POOLS AND SPAS; 56.00: LOCKER ROOMS;** and **59.00: PLAYGROUNDS/PLAY AREAS .**

## **521 CMR 37.00: MEDICAL CARE FACILITIES**

### **37.1 GENERAL**

Medical care *facilities* shall comply with **521 CMR**, except as specified or modified in **521CMR 37.00: MEDICAL CARE FACILITIES**. Medical care *facilities* are *buildings* or *facilities* in which people receive physical or medical review, examination, diagnosis, treatment or care, or where persons may need assistance in responding to an emergency . They shall include, but not be limited, to hospitals, clinics, sanitariums, alcohol and drug detoxification centers, nursing homes, doctors' and dentists' offices, medical imaging *facilities*, counseling offices, offices of chiropractors, psychologists, and psychiatrists and other places providing health services similar to those provided by any of the above. Inpatient medical *facilities* are further defined as *facilities* where the period of stay may exceed 24 hours and/or in which *sleeping accommodations* are provided.

### **37.2 PUBLIC USE AND COMMON USE AREAS**

All *public use* and *common use spaces* shall be *accessible* and shall include but are not limited to areas where services are provided to the public. This shall include but not be limited to reception and waiting areas, changing rooms, diagnostic and treatment rooms and areas, exam rooms, patient consultation rooms, doctor and other staff offices if used for patient consult, meeting rooms whether intended for staff or for patient use, food service areas, gift shops, emergency *facilities*, and toilet rooms.

### **37.3 EXAMINATION, TREATMENT AND DIAGNOSTIC ROOMS**

Where examination rooms are provided, 10 percent of the total number of rooms in any one suite or medical practice, but in no case less than one, shall be made *accessible*. Designated *accessible* examination rooms shall comply with the following:

- 37.3.1 Doors and *entrances* to *accessible* examination rooms shall be configured so that entry and exit from the *space* conforms to **521 CMR 11.00: DOORS AND DOORWAYS**.
- 37.3.2 Maneuvering and turning space within *accessible* examination rooms shall be provided in accordance with **521 CMR 6.00: SPACE ALLOWANCE AND REACH RANGES**.
- 37.3.3 *Clear floor space* complying with **521 CMR 6.00: SPACE ALLOWANCE AND REACH RANGES** shall be provided on both sides of any examination table.
- 37.3.4 Sinks in *accessible* examination rooms or *spaces*, if intended in any way for use by patients, shall conform with **521 CMR 18.9, Lavatories and Sinks**.
- 37.3.5 The *circulation path* within the *accessible* examination room or *space*, from the entry to the point of examination, shall comply with **521 CMR 20.00: ACCESSIBLE ROUTES**.
- 37.3.6 Where examining tables are provided in *accessible* examination rooms, they shall be adjustable in height down to 19 inches (483 mm) above the floor.
- 37.3.7 Where diagnostic or treatment rooms, including but not limited to medical imaging *facilities*, at least one room of each type in each *facility* or within each suite of such rooms shall be made *accessible*. Designated *accessible* diagnostic and treatment rooms shall in general meet the requirements of **521 CMR 37.3.1** through **521 CMR 37.3.6**. In addition, all *medical equipment* in such rooms, such as imaging and treatment devices, which will be accessed or used by patients, shall be *accessible*.

Equipment with patient tables, such as radiographic units, CAT scan units, MRIs, interventional radiography equipment, and the like shall be provided with tables that are adjustable down to 19 inches (483 mm) above the floor. If this is not technically feasible, a *transfer device* shall be provided that is adjustable down to this height. Other designated *accessible* equipment where the patient is diagnosed or treated in a seated position, such as mammography equipment, dental equipment, visual examination equipment and the like shall be provided with a seat that is no higher than 19", to which the patient can transfer. Alternatively, the equipment may be configured in such a way that the patient can be examined or treated while seated in a wheelchair.

#### **37.4 TRANSACTION COUNTERS**

Counters across which patients are received and/or transactions or discussions are conducted with patients and the public shall comply with **521 CMR 32.2: Sales, Service and Information Counters, or Teller Windows.**

#### **37.5 PATIENT BEDROOMS**

Patient bedrooms and associated toilet and shower rooms provided in inpatient medical *facilities* in which the period of stay may exceed 24 hours and/or in which *sleeping accommodations* are provided, shall comply with one (1) or more of the following, as applicable:

- 37.5.1 In medical *facilities* not specializing in treating conditions that affect mobility, at least 10 percent, but no fewer than one (1), of the patient sleeping rooms and associated toilet and shower rooms shall provide mobility and accessibility features complying with the *Accessible Dwelling* requirements of **521 CMR 44.00: TYPE A AND ACCESSIBLE DWELLING BATHROOMS**, and **521 CMR 47.00: TYPE A AND ACCESSIBLE DWELLING BEDROOMS**. Such *accessible* patient sleeping rooms shall be distributed in a manner that is proportionate by type of medical specialty.
- 37.5.2 In *facilities* specializing in treating conditions that affect mobility, 100 percent of the patient sleeping rooms and associated toilet and shower rooms shall provide mobility and accessibility features complying with the *Accessible Dwelling* requirements of **521 CMR 44.00: TYPE A AND ACCESSIBLE DWELLING BATHROOMS**, and **521 CMR 47.00: TYPE A AND ACCESSIBLE DWELLING BEDROOMS**. Conditions that affect mobility shall include conditions requiring the use or assistance of a brace, cane, crutch, prosthetic device, wheelchair, or powered mobility aid; arthritic, neurological, or orthopedic conditions that severely limit one's ability to walk; respiratory diseases and other conditions which may require the use of portable oxygen; and cardiac conditions that impose significant functional limitations.
- 37.5.3 In long term care *facilities* and nursing homes, at least 50 percent of the patient sleeping rooms and associated toilet and shower rooms shall provide mobility and accessibility features complying with **521 CMR**.
- 37.5.4 When patient bedrooms are being added or altered as part of a planned renovation of an entire wing, a department, or other discrete area of an existing medical *facility*, the requirements of **521 CMR 37.00: MEDICAL CARE FACILITIES** shall apply only to the sleeping rooms being *altered* or *added* until the number of sleeping rooms complies with the minimum number required for new *construction*.

#### **37.6 ENTRANCES TO INPATIENT FACILITIES**

In *facilities* where the period of stay may exceed 24 hours, and/or in which *sleeping accommodations* are provided, at least one (1) *accessible entrance* that complies with **521 CMR: 10.00 ENTRANCES**, shall be protected from the weather by canopy or roof overhang. Such *entrances* shall incorporate a passenger loading zone that complies with **521 CMR: 8.00 ACCESSIBLE ROUTES**.

### 37.7 DOORWAYS

All doorways to bedrooms and *bathrooms* in medical *facilities* shall comply with the requirements of **521 CMR: 11.00 DOORS AND DOORWAYS**.

### 37.8 MANEUVERING SPACE IN BEDROOMS

Each patient bedroom shall have adequate wheelchair turning space complying with **521 CMR 6.2, Wheelchair Turning Space**. In rooms with two (2) beds, it is preferable that this space be located between beds. Each bedroom shall have adequate space to provide a minimum *clear floor space* of 36 inches (914 mm) along each side of the bed and to provide an *accessible route* to each side of each bed.

### 37.9 PATIENT TOILET AND SHOWER ROOMS

Where toilet and shower or tub rooms are provided as a part of an *accessible* patient bedroom, they shall provide for mobility and accessibility features complying with **521 CMR 18.00: TOILET ROOMS AND COMPARTMENTS and 19.00: BATHING ROOMS**. *Accessible bathrooms* shall be on an *accessible route* within the room.

#### Exceptions:

Where other regulations or medical practice requires specialized plumbing devices or flush controls for flush valves to be located in a position that conflicts with the location of the rear grab bar, then the rear grab bar shall be permitted to be split at the point of the device. Split grab bars in these situations shall extend to within 3 inches (76 mm) horizontally of the plumbing device.

### 37.10 COMMON TUB AND SHOWER ROOMS

Where shower rooms or tub rooms are provided for *common use* within a bedroom floor or unit, at least one (1) room of each type per floor or unit shall comply with **521 CMR 19.00: BATHING ROOMS**.

### 37.11 CHANGING AND DRESSING ROOMS

Changing and Dressing rooms and *spaces* shall comply with the requirements of **521 CMR 27.00: DRESSING, FITTING AND CHANGING ROOMS**.

### 37.12 ALARM NOTIFICATIONS

In all *public use* and *common use spaces* of medical care *facilities* both audible and visual occupant notification shall be provided under the requirements of **521 CMR 20.00: ALARMS**.

#### Exception:

Certain patient care, sleeping and procedure areas are exempt from the requirements of **521 CMR 20.00: ALARMS**, per **521 CMR 20.1.2**.

### 37.13 TELEPHONES

Telephones permanently installed in patient rooms shall have volume controls complying with **521 CMR 22.00: TELEPHONES**. In addition, an *accessible* electrical outlet, complying with **521 CMR**

**41.00: CONTROLS / OPERABLE PARTS**, shall be provided within 48 inches (1219 mm) of a telephone connection to facilitate the use of an *assistive listening system*, which shall be provided by the *facility* upon request.

37.13.1 Deaf or hard of hearing patients shall be provided with a *TTY* device, on request, on a loaner basis.

#### **37.14 TELEVISIONS**

Where televisions are provided in patient bedrooms, the *facility* shall provide, upon request, a television amplifier and a closed caption decoder.

#### **37.15 PARKING**

Parking *facilities* shall be provided for all medical care *facilities* in accordance with **521 CMR 15.2.4**.

# **PART H**

# **BUILT-IN FURNISHINGS AND EQUIPMENT**

## 521 CMR 38.00: TABLES AND SEATING

### 38.1 TABLES AND SEATING

Where tables or seating are provided, at least 5 percent, but not less than one (1), of the tables or seating shall be *accessible*, be on an *accessible route*, and shall comply with the following. There shall be no fixed seats at *accessible* tables.

### 38.2 DISTRIBUTION

*Accessible* tables and/or seating shall be proportionally distributed by size, location and amenities throughout the *space* or *facility*.

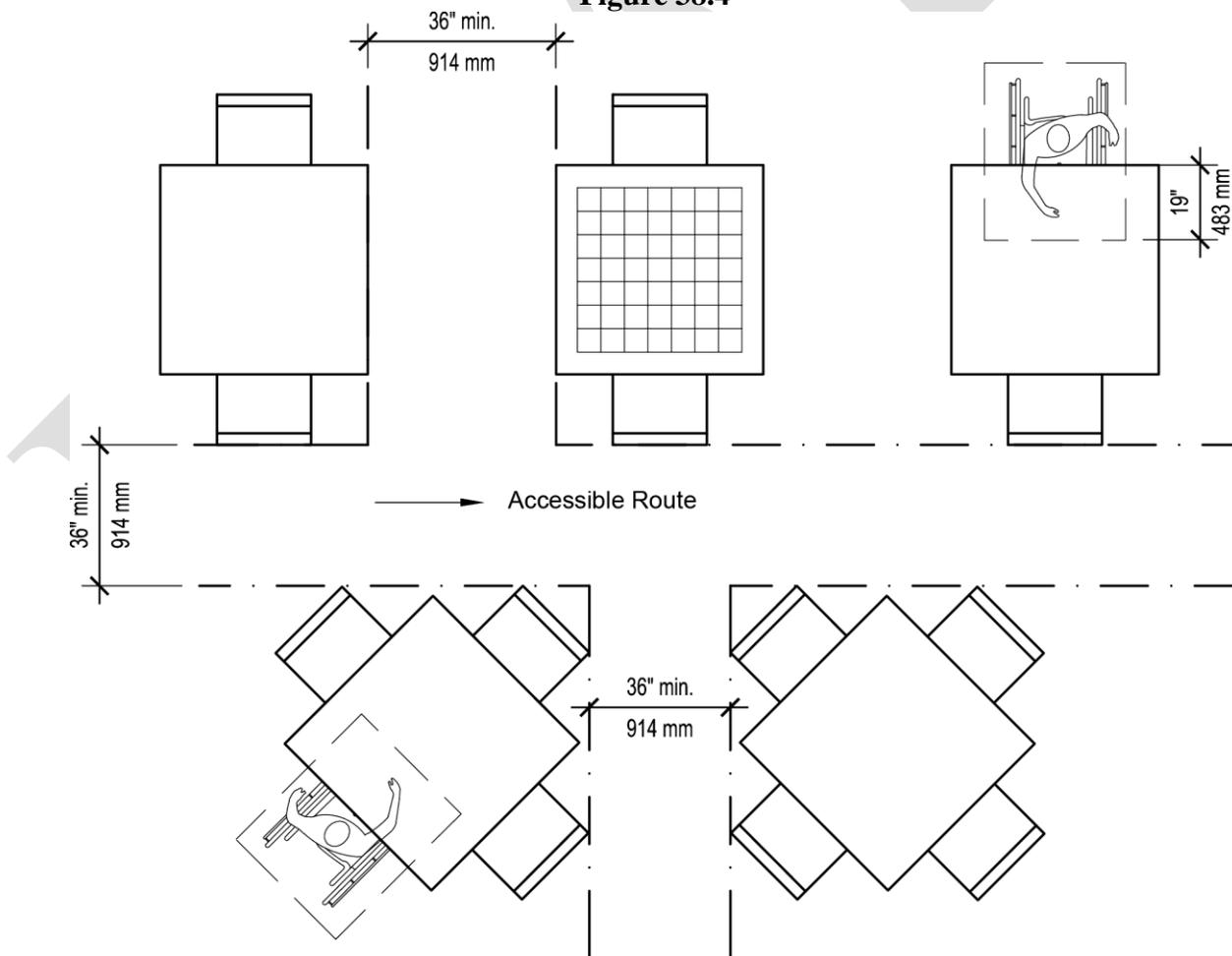
### 38.3 CLEARANCES

Between fixed *accessible* tables there shall be at least a 36 inch (914 mm) *access aisle*. No seating shall overlap the *access aisle*.

### 38.4 CLEAR FLOOR SPACE

*Clear floor space* shall be provided at each seating space. Such *clear floor space* shall not overlap knee clearance by more than 19 inches (483 mm). Knee and toe clearance complying with **521 CMR 6.3, Knee Clearances**, and **521 CMR 6.4, Toe Clearances**, shall be provided. See **Figure 38.4**.

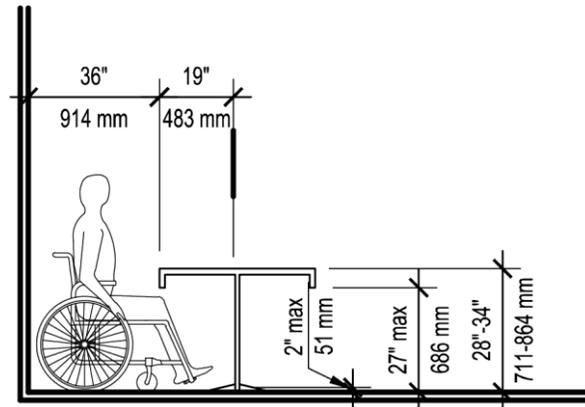
Figure 38.4



### 38.5 KNEE CLEARANCES

If seating for people in wheelchairs is provided at tables or counters, knee clearances at least 27 inches (686 mm) high, 30 inches (762 mm) wide, and 19 inches (483 mm) deep shall be provided. . See **Figure 38.5**.

**Figure 38.5**



### 38.6 HEIGHT OF TABLES OR COUNTERS

The tops of *accessible* tables and counters shall be from 28 inches to 34 inches (711 mm to 864 mm) above the finish floor or ground.

### 38.7 DINING SURFACES AND WORK SURFACES FOR CHILDREN'S USE

*Accessible* dining surfaces and work surfaces for *children's use* shall comply with the following:

Exception:

Dining surfaces and work surfaces that are used primarily by children 5 years and younger shall not be required to comply if a parallel approach, compliant with **521 CMR 6.1, Clear Floor and Ground Space**.

- a. A *clear floor or ground space* complying with **521 CMR 6.1, Clear Floor and Ground Space**, positioned for forward approach shall be provided. Clearances complying with **521 CMR 6.3, Knee Clearances**, and **521 CMR 6.4, Toe Clearances**, shall be provided.

Exception:

Knee clearance of 24 inches (610 mm) above the finish floor or ground shall be permitted.

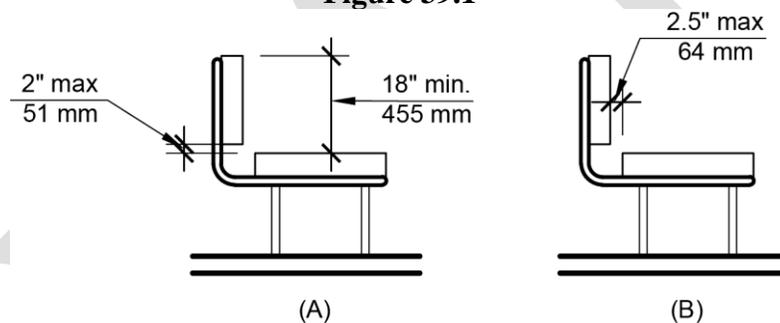
- b. The tops of tables and counters shall be 26 inches (660 mm) minimum and 30 inches (762 mm) maximum above the finished floor or ground.

## 39.1 GENERAL

Where provided, benches shall comply with the following (See **Figure 39.1**):

- Benches shall have seats that are 42 inches (1067 mm) long minimum and 20 inches (508 mm) deep minimum and 24 inches (610 mm) deep maximum
- The bench shall provide for back support or shall be affixed to a wall. Back support shall be 42 inches (1067 mm) long minimum and shall extend from a point 2 inches (51 mm) maximum above the seat surface to a point 18 inches (457 mm) minimum above the seat surface. Back support shall be 2 ½ inches (64 mm) maximum from the rear edge of the seat measured horizontally.
- The top of the bench seat surface shall be 17 inches (432 mm) minimum and 19 inches (483 mm) maximum above the finish floor or ground.
- Clear floor or ground space* complying with **521 CMR 6.1, Clear Floor or Ground Space for Wheelchairs**, shall be provided and shall be positioned at the end of the bench seat and parallel to the short axis of the bench.
- The seat and attachments shall comply with the requirements for *structural strength*.
- Where installed in wet locations, the surface of the seat shall be slip resistant and shall not accumulate water.

**Figure 39.1**



## 521 CMR 40.00: STORAGE

### 40.1 GENERAL

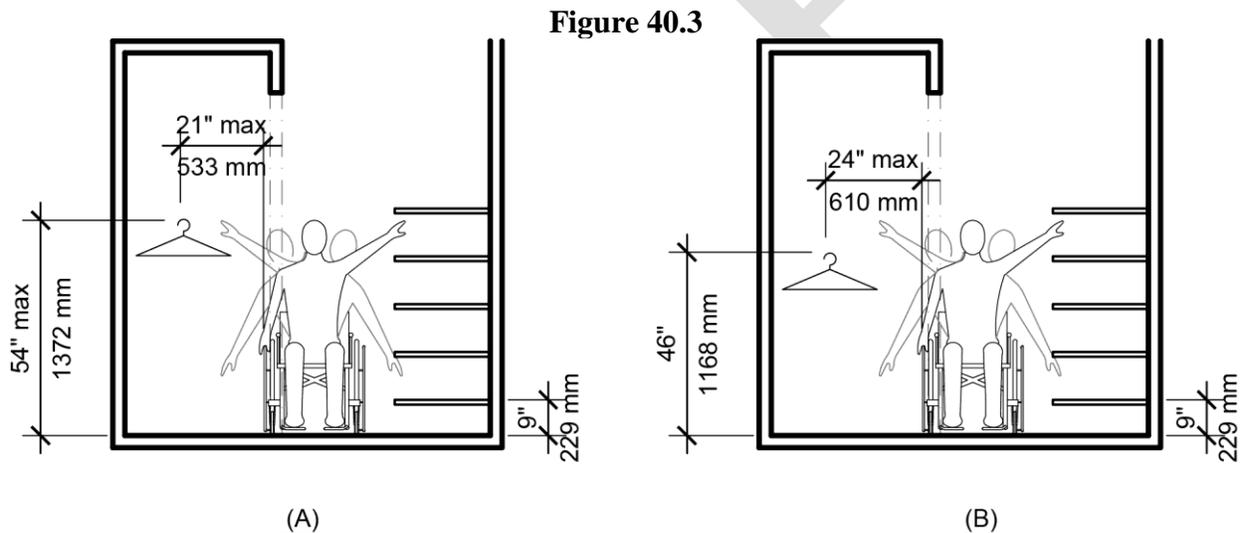
Fixed storage *facilities* such as cabinets, shelves, closets, and drawers that are required to be *accessible* shall comply with the following requirements.

### 40.2 CLEAR FLOOR SPACE

A *clear floor or ground space* that allows either a forward or parallel approach by a person using a wheelchair shall be provided at *accessible storage facilities*.

### 40.3 HEIGHT

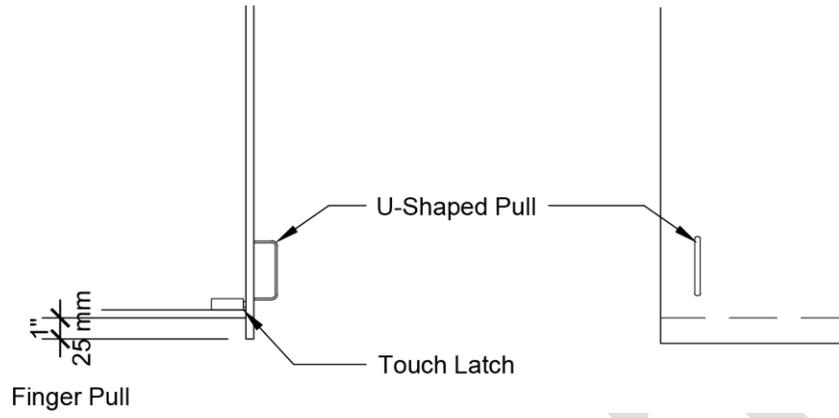
*Accessible storage spaces* shall be within at least one (1) of the reach ranges specified in **521 CMR 6.5, Forward Reach**, and **521 CMR 6.6, Side Reach**. **Figures 6k, 6l, 6m and 6n**. Clothes rods or shelves shall be a maximum of 54 inches (1372 mm) above the finish floor for a side approach. Where the distance from the wheelchair to the clothes rod or shelf exceeds 10 inches (254 mm) (as in closets without *accessible doors*), the height and depth to the rod or shelf shall comply with See **Figure 40.3**.



### 40.4 HARDWARE

Hardware for *accessible storage facilities* shall comply with **521 CMR 11.12, Door Hardware**. Touch latches and U-shaped pulls are acceptable. . See **Figure 40.4**.

**Figure 40.4**



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## 521 CMR 41.00: CONTROLS / OPERABLE PARTS

### 41.1 GENERAL

Controls and operating mechanisms in *accessible spaces*, along *accessible routes*, or as parts of *accessible elements* shall be *accessible* and shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**. Controls and operating mechanisms shall include, but not be limited to, light switches, circuit breakers, duplexes and other convenience receptacles, environmental and appliance controls, plumbing fixture controls, security and intercom systems and dispenser controls shall be *accessible* and shall comply with the requirements of **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

#### Exceptions:

1. *Operable parts* that are intended for use only by service or maintenance personnel shall not be required shall not be required to comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
2. Electrical or communication receptacles serving a dedicated use shall not be required to comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
3. Where two (2) or more outlets are provided in a kitchen above a length of counter top that is uninterrupted by a sink or appliance, one (1) outlet shall not be required to comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
4. Floor electrical receptacles shall not be required to comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
5. HVAC diffusers shall not be required to comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
6. Except for light switches, where redundant controls are provided for a single *element*, one (1) control in each *space* shall not be required to comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
7. Cleats and other boat securement devices shall not be required to comply with **521 CMR 41.3, Height**.
8. Exercise machines and exercise equipment shall not be required to comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

### 41.2 CLEAR FLOOR SPACE

*Clear floor or ground space* that allows a forward or a parallel approach by a person using a wheelchair shall be provided at controls, dispensers, receptacles, and other operable equipment.

### 41.3 HEIGHT

The highest *operable part* of controls, dispensers, receptacles, and other operable equipment shall be placed within at least one (1) of the reach ranges specified in **521 CMR 6.5, Forward Reach**, and **521 CMR 6.6, Side Reach**.

- 41.3.1 Electrical and communications system receptacles on walls shall be mounted between 15 inches (1381 mm) and 48 inches (1219 mm) above the floor, measured at the centerline of the lowest receptacle.

#### Exception:

These requirements do not apply where the use of special equipment dictates otherwise or where electrical and communications systems receptacles are not normally intended for use by *building* occupants.

#### **41.4 LOCATION**

All such controls shall be located a minimum of 18 inches (457 mm) from an interior corner. When outlets are located on walls above counters or other fixtures that are 22 inches (559 mm) or greater in depth, they shall be no higher than 44 inches (1118 mm), and the centerline of at least one (1) shall be located a minimum of 36 inches (914 mm) from an interior corner.

#### **41.5 OPERATION**

Controls and operating mechanisms shall be operable with one (1) hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbs.

##### Exception:

Gas pump nozzles shall not be required to provide *operable parts* that have a maximum activating force of 5 lbs.

#### **41.6 WINDOWS:** Where window openings are provided in *accessible* rooms or *spaces* for operation by occupants, at least one (1) opening shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**. Each window opening required by an *administrative authority* to be operable shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

##### Exceptions:

1. Glazed openings in residential *dwelling units* required to comply with 809 shall not be required to comply.
2. Glazed openings in guest rooms required to provide communication features and in guest rooms required to comply with **521 CMR 33.00: LODGING FACILITIES** shall not be required to comply.

# **PART I**

# **DWELLING UNITS AND SLEEPING UNITS**

## 521 CMR 42.00: TYPE B BATHROOMS

### 42.1 GENERAL

In *Type B dwelling units*, (521 CMR 34.2, **Renovation or Change of Use of Existing Buildings, and 521 CMR 34.3, Type B Dwelling Units**) *bathrooms* and *half bathrooms* shall comply with the following:

42.1.1 If more than one (1) *bathroom* is provided, whether a full bath or *half bath*, and one (1) *bathroom* is a captive *bathroom* (a *bathroom* only entered through a bedroom) then both must comply unless the captive *bathroom* has two (2) entries, one (1) from the *bedroom* and one (1) from the corridor, then only the captive *bathroom* is required to comply. If two (2) common *bathrooms* are provided, then only one (1) full *bathroom* must comply. If two (2) captive *bathrooms* are provided, then both must comply.

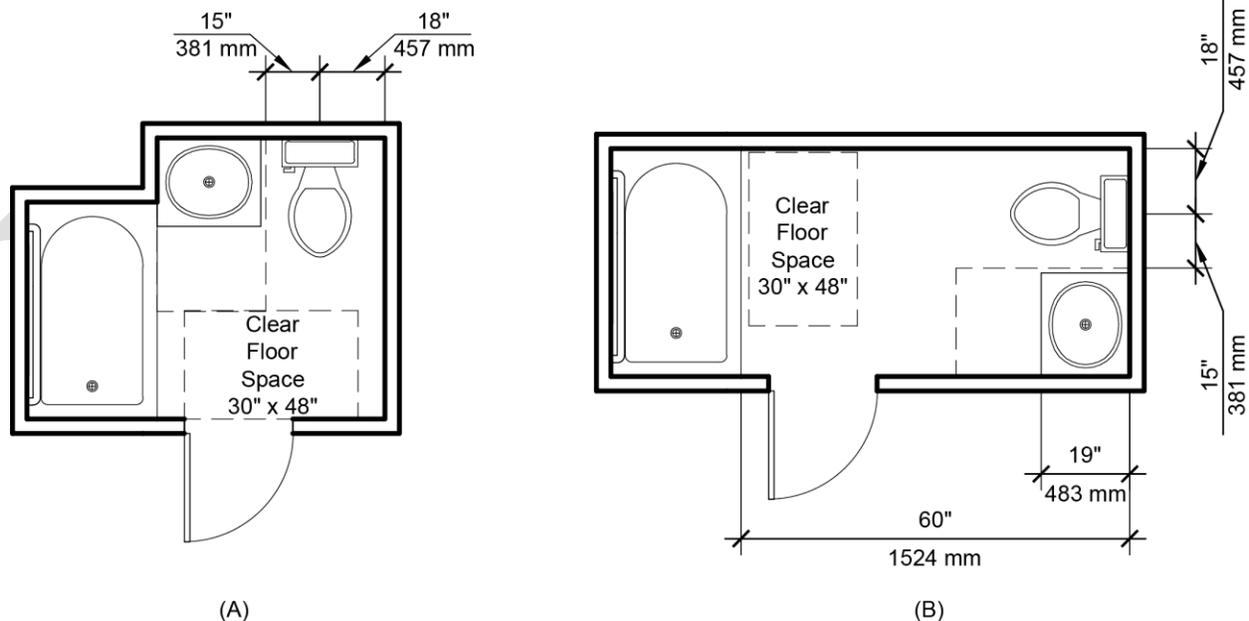
### 42.2 CLEAR FLOOR SPACE:

Shall be as defined in 521 CMR 6.1, **Clear Floor or Ground Space for Wheelchairs**. *Clear floor space* shall be available at each fixture as shown below to enable users to reach fixture controls and to transfer out of a wheelchair. The *clear floor space* for one (1) fixture may overlap the *clear floor space* for other fixtures. The *clear floor space* for the tub or the toilet is measured from the closest edge of that fixture. The *clear floor space* for the sink may extend a maximum of 19 inches (19" = 483 mm) under the sink. Wing walls may not intrude on the minimum *clear floor space*.

### 42.3 MANEUVERING SPACE:

Shall be available so that, at a minimum, a person using a wheelchair can enter, close the door, use each of the fixtures, reopen the door, and exit. . See **Figure 42.3**.

Figure 42.3



### 42.4 DOORS

Shall comply with 521 CMR 11.00: **DOORS AND DOORWAYS**.

Exception:

Doors shall be capable of complying with **521 CMR 11.6, Maneuvering Clearance**, and **521 CMR 11.12, Door Hardware**.

42.4.1 Doors may swing into the *bathroom* if the swing of the door does not impede *clear floor space*.

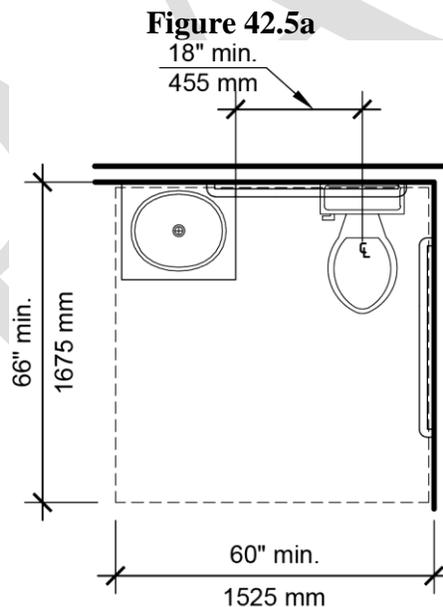
## 42.5 TOILETS

Shall comply with the following:

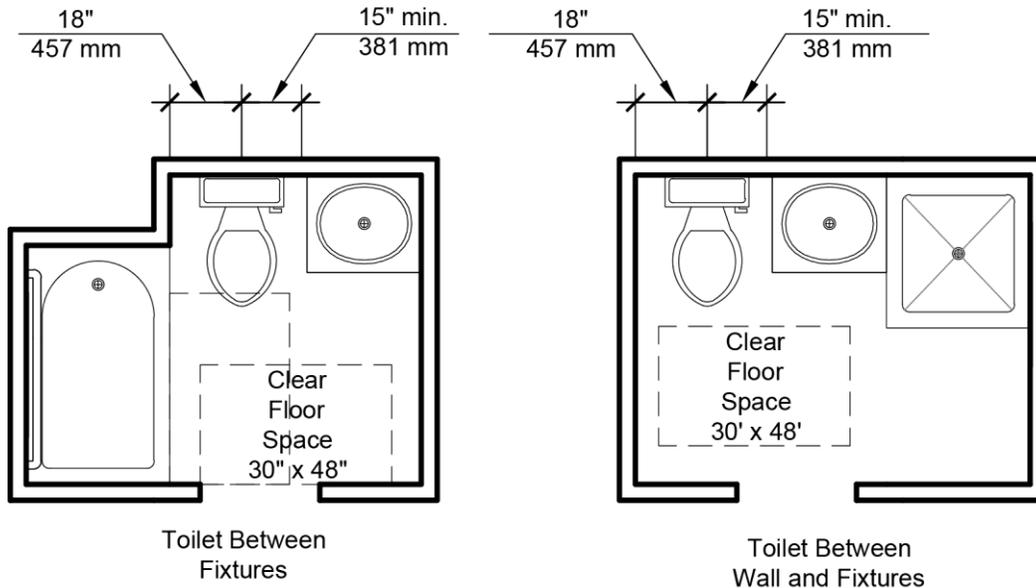
42.5.1 As defined in **521 CMR 42.2, Clear Floor Space**, shall be provided in at least one (1) of two (2) specific locations at the toilet. One (1) shall be beside the toilet with its short edge parallel to the wall behind the toilet. The other shall be in front of the toilet with its long edge parallel to the wall behind the toilet.

42.5.2 Location:

- a. When a toilet is located between a wall and a fixture, its centerline shall be 18 inches (457 mm) from the wall. If the *clear floor space* is provided in front of the toilet, the centerline of the toilet shall be a minimum of 18 inches (457 mm) from the closest edge of the fixture. See **Figure 42.5a**.
- b. When a toilet is located between two (2) fixtures, its centerline shall be 18 inches (457 mm) from a bathing fixture and a minimum of 15 inches (381 mm) from other types of fixtures. See **Figure 42.5b**.



**Figure 42.5b**



42.5.3 **Wall Reinforcement Blocking:** Walls adjacent to and behind the toilet shall be capable of structurally supporting the future installation of grab bars from 32 to 38 inches (813 mm to 965 mm) above the floor. The back wall shall have reinforcement from the interior corner to a distance of 6 inches (152 mm) beyond the widest part of the toilet. The side wall shall have reinforcement from the interior corner to a distance of 6 inches (152 mm) beyond the front edge of the toilet, unless interrupted by a door or other fixture, then the reinforcement shall be installed as far as possible.

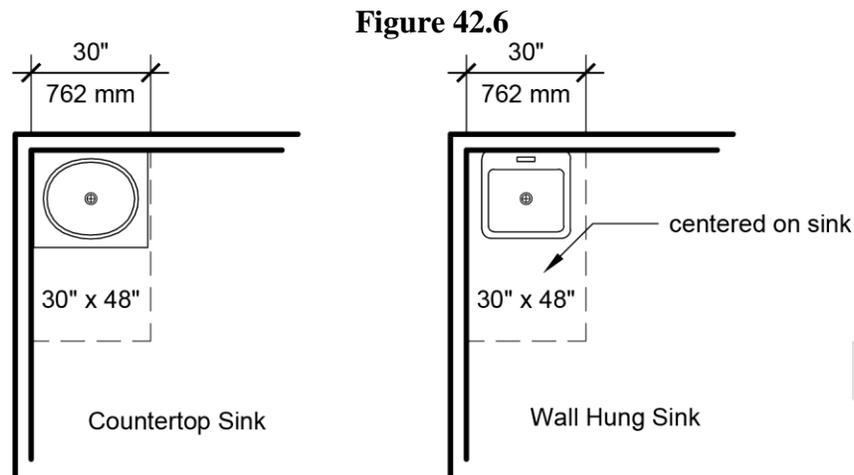
When the toilet is located between two (2) fixtures, the wall reinforcement blocking behind the toilet shall be extend a minimum of 6 inches (152 mm) beyond the widest part of the toilet.

## 42.6 SINKS

At least one (1) sink in a *bathroom* must meet the following:

- 42.6.1 If a cabinet is provided under a sink, it shall be capable of being removed without *structural change*. Cabinetry shall be permitted under the sink provided that the walls behind and surrounding the cabinetry are finished, such cabinetry can be removed without removal or replacement of the sink, and the floor finish extends under such cabinetry.
- 42.6.2 : The sink shall have or be capable of having a knee clearance of 30 inches (762 mm) in width.
- 42.6.3 The front edge of the sink fixture, or the countertop in which a sink is located, shall be a minimum of 19 inches (483 mm) from the back wall or shall be capable of being relocated to create a *space* of that depth under the sink.
- 42.6.4 The sink shall be mounted at 34 inches (864 mm) maximum to the top of the sink.

42.6.5 Shall be provided at the sink, as defined in **521 CMR 42.2, Clear Floor Space**, and shall be perpendicular to the face of the sink and may extend under the sink. See **Figure 42.6**.



## 42.7 BATHING FIXTURES

All bathing fixtures provided in a *bathroom*, must meet the requirements of **521 CMR 42.00: TYPE B BATHROOMS**.

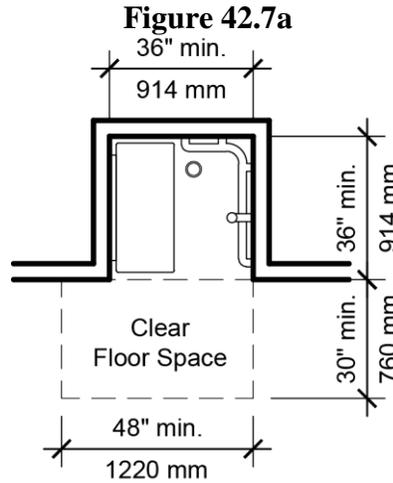
42.7.1 Bathtubs shall comply with the following:

- a. Bathtubs shall be a minimum of a nominal 60 inches (1524 mm) long.
- b. At the bathtub, as defined in **521 CMR 42.2, Clear Floor Space**, shall be parallel to the face of the tub.
- c. All tub walls shall be capable of structurally supporting the future installation of grab bars at 9 inches (229 mm) measured to the top of the grab bar above the tub rim to a height of 48 inches (1219 mm) above the tub bottom and shall extend the length and width of the tub.
- d. Tracks for sliding doors or enclosures mounted on the rim of a bathtub must be capable of removal to provide a smooth tub rim for transfer.

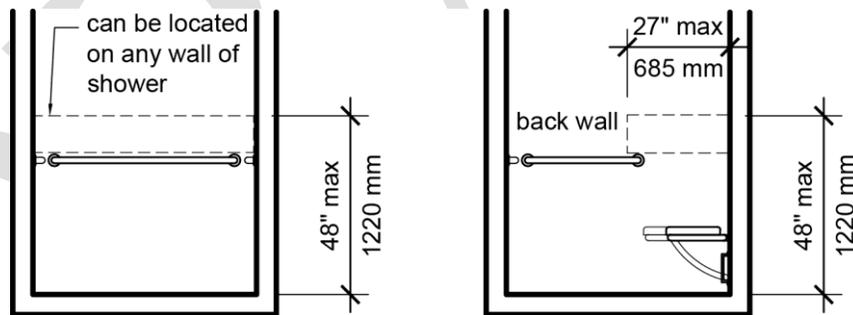
42.7.2 Showers shall comply with the following:

- a. Shower stalls shall be a minimum, nominal dimension of 36 inches by 36 inches (914 mm by 914 mm).
- b. At the shower, a *clear floor space* of 48 inches (1219 mm) minimum in length, measured perpendicular from the shower head wall, and 30 inches (762 mm) minimum in depth, measured from the face of the shower compartment, shall be provided. . See **Figure 42.7a**.
- c. All shower walls shall be capable of structurally supporting the future installation of grab bars, seats, etc., from a height of 6 inches (152 mm) to 48 inches (1219 mm) above the floor and shall extend the full width and length of the shower stall. Grab bars shall not be located behind the seat.
- d. The opening of the shower stall must be 32 inches (813 mm) wide. If a shower door is provided, it shall be capable of swinging open 180 degrees or capable of being removed.
- e. If a wall mounted seat is provided, it shall be located on a wall adjacent to the opening at a height of 17 inches to 19 inches (432 mm to 483 mm) above the finished floor. The seat shall be mounted with the edge as close as possible to the door opening to allow a safe transfer.

- f. Mixing valves shall be mounted on the wall opposite the seat. The centerline of the shower controls shall be located between 38 inches and 48 inches (965 mm to 1219 mm) and within the *zone of reach* from the outside of the stall. In shower stalls larger than 36 inches by 36 inches (914 mm by 914 mm), the controls, faucets, and shower spray unit shall be located above the grab bar, but no higher than 48 inches (1219 mm) above the shower floor. Where a seat is provided in said shower stalls, the controls, faucets, and shower spray unit shall be installed on the back wall adjacent to the seat wall and shall be located 27 inches (686 mm) maximum from the seat wall. See **Figure 42.7b**.
- g. Where curbs are provided, they shall not exceed 4 inches (102 mm) in height.



**Figure 42.7b**



42.7.3 Soap tray(s) shall not have a hand hold feature unless it can support 250 lbs for five (5) minutes. Soap dispensers, holders, etc., shall be located within the *zone of reach* from the seat.

42.7.4 Prefabricated Units: In prefabricated showers and tubs, structural reinforcement for grab bars must be in full contact with the surface of walls of the unit on which grab bars may be mounted as described in **521 CMR 42.7.1c** and **521 CMR 42.7.2 c**.

## 42.8 OUTLETS AND CONTROLS

Shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

**42.9 ALARMS**

Shall comply with **521 CMR 20.00: ALARMS.**

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**521 CMR 43.00: TYPE B KITCHENS**

**43.1 GENERAL**

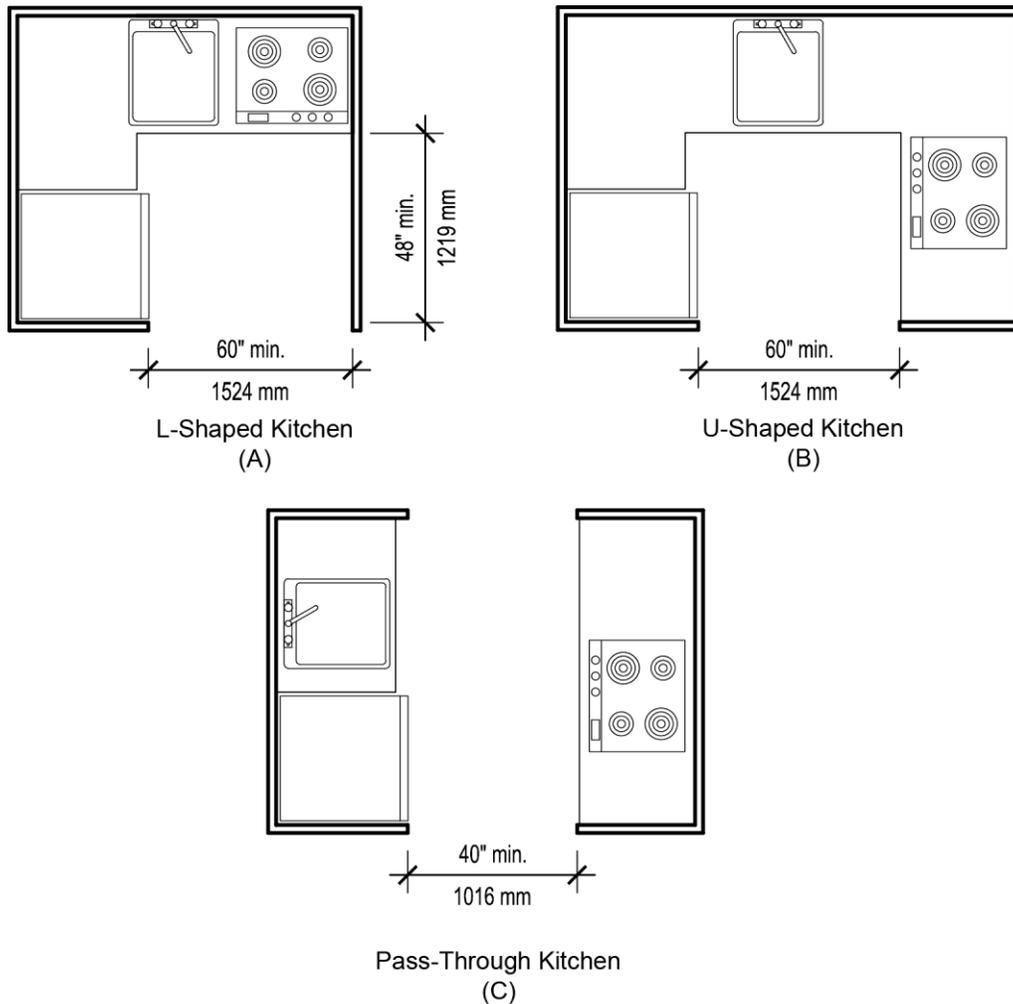
In all *Type B dwelling units*, kitchens shall be designed so that when a unit is adapted a person in a wheelchair has access to the sink, cooking surface, refrigerator, and a food preparation surface and can turn around without having to leave the kitchen.

**43.2 CLEAR FLOOR SPACE:**

Shall be measured at the face of the base cabinets or appliances, (excluding cabinet hardware and appliance hardware) and shall be provided at the time of first occupancy as follows (See **Figure 43.2**):

- 43.2.1 L-shaped kitchens shall have a minimum *clear floor space* of 48 inches by 48 inches (1219 mm by 1219 mm). .
- 43.2.2 U-shaped kitchens shall provide a minimum *clear floor space* of 60 inches (1524 mm) between opposing base cabinets, counter tops, appliances, or walls within kitchen work areas. .
- 43.2.3 Galley kitchens shall provide a minimum *clear floor space* of 40 inches (1016 mm) between opposing base cabinets or appliances.

**Figure 43.2**



### 43.3 SINKS

Shall comply with the following:

- 43.3.1 The base cabinet under the sink shall be capable of being removed to provide a knee clearance of 30 inches (762 mm) in width, with the understanding that the walls behind and surrounding the cabinetry are finished, such cabinetry can be removed without removal or replacement of the sink, and the floor finish extends under such cabinetry.
- 43.3.2 Sinks that are adjustable to variable heights, 29 inches (737 mm) minimum and 36 inches (914 mm) maximum, shall be permitted where rough-in plumbing permits connections of supply and drain pipes for sinks mounted at the height of 29 inches (737 mm).
- 43.3.3 The sink bowl shall be capable of complying with a depth of 6½ inches (165 mm) . .

### 43.4 COOKING UNITS

Shall comply with the following to ensure that both burners and ovens can be made functional and safe for a person in a wheelchair:

43.4.1 In-Counter cooktops: If a cooktop is provided, its base cabinet shall be capable of being removed to provide future knee clearance the width of the cooktop but not less than 30 inches (762 mm) wide, with the understanding that the walls behind and surrounding the cabinetry are finished, such cabinetry can be removed without removal or replacement of the sink, and the floor finish extends under such cabinetry. Cooktops shall have controls located at the front or side of the unit.

43.4.2 Wall Ovens: If a wall oven is provided, the floor of the wall oven shall be located 30 inches (762 mm) above the floor.

#### **43.5 WALL CABINETS**

Walls shall be capable of structurally supporting wall cabinets at any location from 42 inches to 54 inches (1067 mm to 1372 mm) from the floor to the bottom of the inside of the cabinet.

Exception:

A tall cabinet a minimum of 30 inches (762 mm) wide and 72 inches (1829 mm) in height may be installed in lieu of making overhead cabinets *accessible*. If walk-in pantry is provided, the door to the pantry shall fully comply with **521 CMR 11.00: DOORS AND DOORWAYS**.

#### **43.6 BASE CABINETS**

Each base cabinet shall be capable of being removed to provide knee clearance for persons using wheelchairs, with the understanding that the walls behind and surrounding the cabinetry are finished, such cabinetry can be removed without removal or replacement of the sink, and the floor finish extends under such cabinetry.

#### **43.7 REFRIGERATORS**

Space shall be provided so that the refrigerator can be located so that its doors can be opened to 180 degrees. If doors cannot be opened to 180 degrees, a minimum of 30 inches (762 mm) of counter space next to the refrigerator shall be provided.

43.7.1 Where refrigerators are provided with less than 9 cubic feet (3 mm<sup>3</sup>) of capacity, **521 CMR 43.7, Refrigerators**, shall not apply.

#### **43.8 OUTLETS AND CONTROLS**

Shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

#### **43.9 ALARMS**

Shall comply with **521 CMR 20.00: ALARMS**.

**521 CMR 44.00: TYPE A AND ACCESSIBLE DWELLING BATHROOMS**

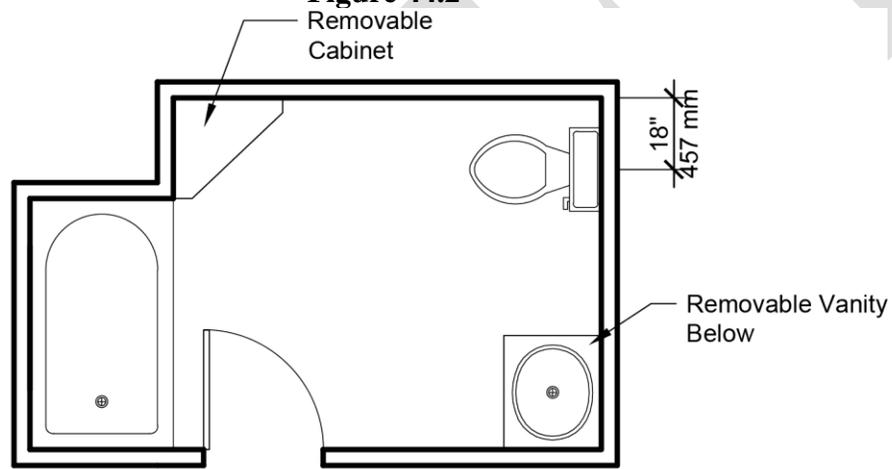
**44.1 GENERAL**

In all *dwelling units* required to be *Type A* units, (See **521 CMR 34.4, Type A Dwelling Units**) all *bathrooms* and *half bathrooms* shall comply with **521 CMR 44.00: TYPE A AND ACCESSIBLE DWELLING BATHROOMS**, exclusive of the bold text which refer to *Accessible Dwelling* units. In *facilities* required to have *Accessible Dwelling bathrooms*, such as hotels, motels, inns and health *facilities*, the *bathroom* shall comply with **521 CMR 44.00: TYPE A AND ACCESSIBLE DWELLING BATHROOMS**, including the bold text which refer to *Accessible Dwelling* units.

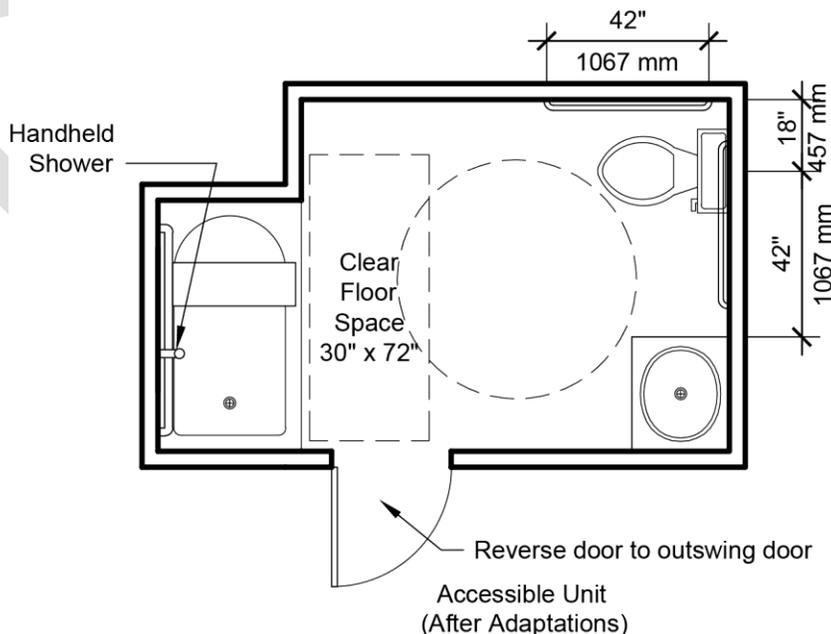
**44.2 WHEELCHAIR TURNING SPACE**

*Bathrooms* shall have or be capable of having wheelchair turning space which complies with **521 CMR 6.2, Wheelchair Turning Space**, without coming into contact with any fixtures. See **Figure 44.2**.

**Figure 44.2**



Type A Units  
(Before Adaptation)



Accessible Unit  
(After Adaptations)

### 44.3 DOORS

Shall comply with **521 CMR 11.5, Width**, through **521 CMR 11.12, Door Hardware**. Doors shall swing out, fold or slide. Doors may swing into the *bathroom* only if the door does not impede the wheelchair turning space.

### 44.4 TOILETS

Shall comply with the following:

44.4.1 The centerline of the toilet shall be located at a minimum of 16 inches (406 mm) to a maximum of 18 inches (457 mm) from the nearest side wall or partition and a minimum of 42 inches (1067 mm) from the farthest side wall, partition, or the closest edge of an adjacent fixture. There shall be a minimum of 42 inches (1067 mm) clearance between the front edge of the toilet and the nearest wall, fixture, or door swing.

44.4.2 The top of the toilet seat shall be 15 inches to 19 inches (381 mm to 483 mm) above the floor.

**In Accessible Dwelling bathrooms, the toilet seat shall be 17 inches to 19 inches (432 mm to 483 mm) above the floor.**

44.4.3 Flush controls shall be hand operated or automatic and shall comply with **521 CMR 41.5, Operation**. Controls for flush valves shall be mounted on the wide side of toilet a maximum of 44 inches (1118 mm) above the floor. Hand operated flush controls shall comply with **521 CMR 41:00: CONTROLS / OPERABLE PARTS**. Flush controls shall be located on the open side of the toilet except in ambulatory *accessible* compartments complying with **521 CMR 18.5.2, Ambulatory Accessible Compartments**.

44.4.4 Walls adjacent to and behind the toilet shall be capable of structurally supporting the future installation of grab bars from 32 to 38 inches (813 mm to 965 mm) above the floor. The back wall shall have reinforcement from the interior corner to a distance of 6 inches (152 mm) beyond the widest part of the toilet. The side wall shall have reinforcement from the interior corner to a distance of 6 inches (152 mm) beyond the front edge of the toilet, unless interrupted by a door or other fixture, then the reinforcement shall be installed as far as possible.

**In Accessible Dwelling bathrooms, two (2) grab bars , one (1) 42 inches (1067 mm) long and one (1) 36 inches (914 mm) long shall be installed at the toilet between 33 inches (838 mm) and 36 inches (914 mm) above and parallel to the floor. The 42 inch (1067 mm) grab bar shall be mounted on the side wall closest to the toilet, a maximum of 12 inches (305 mm) from the back wall. The 36 inch (914 mm) grab bar shall be mounted on the back wall 6 inches (152 mm) from the interior corner and may be located up to 3 inches (76 mm) above the top of the toilet tank.**

44.4.5 The toilet paper dispensers shall be located on the side wall closest to the toilet and shall be 7 inches (178 mm) minimum and 9 inches (229 mm) maximum in front of the toilet measured to the centerline of the dispenser. The outlet of the dispenser shall be 15 inches (381 mm) minimum and 48 inches (1219 mm) maximum above the finish floor and shall not be located behind grab bars or within 12 inches (305

mm) above the grab bar. Dispensers that control delivery or that do not permit continuous paper flow are not allowed.

#### **44.5 SINKS**

Shall comply with the following:

44.5.1 *Adaptability*: The sink, its plumbing, and the walls adjacent to the sink shall be designed so that the sink can be relocated vertically and so that the sink installation meets the definition of *structural strength*.

44.5.2 Where a cabinet or vanity is provided under a sink, it shall be removable or replaceable to provide a knee clearance that complies with **521 CMR 6.3, Knee Clearances**, as well as the additional requirements of **521 CMR 44.5.4** and **521 CMR 44.5.5**.

**In Accessible Dwelling bathrooms, base cabinets can be used only if knee clearance, per the requirements of 521 CMR 6.3, Knee Clearances, is also provided.**

44.5.3 The sink shall be capable of being relocated vertically, in the future, without requiring *structural change* to the walls of the *bathroom*. A sink with knee clearance shall be installed or be capable of being installed, with a minimum of 27 inches (686 mm) of clearance from the floor to the bottom of the sink or counter apron.

**In Accessible Dwelling bathrooms, the sink rim or counter surface shall be installed at a height of 34 inches (864 mm) maximum above the finished floor and shall comply with 521 CMR 6.3, Knee Clearances.**

44.5.4 : The sink shall have or be capable of having, without *structural change*, a knee space of 30 inches (762 mm) in width, centered on the sink.

**In Accessible Dwelling bathrooms, a knee clearance width, complying with 521 CMR 6.3d must be provided.**

44.5.5 The front edge of the sink or the front edge of the countertop in which a sink is located, shall be a minimum of 22 inches (559 mm) from the back wall or be capable of being relocated to create a space 22 inches (559 mm) deep from the back wall to the front edge of the sink.

**In Accessible Dwelling bathrooms, the front edge of the sink or the front edge of the countertop in which a sink is located, shall be a minimum of 22 inches (559 mm) from the back wall.**

44.5.6 All piping under the sink shall be offset to the back wall so that persons in wheelchairs have maximum possible knee clearance.

**In Accessible Dwelling bathrooms, the hot water and waste pipes under the sink shall be offset to the back wall and insulated or guarded.**

44.5.7 Faucets shall be operable with one (1) hand and shall not require tight grasping, pinching, or twisting of the wrist. Lever-operated, push-type, touch-type, or electronically controlled mechanisms are acceptable designs. If self-closing valves are used the faucet shall remain open for at least ten (10) seconds.

#### **44.6 BATHING FIXTURES**

If more than one (1) bathing fixture is provided in a *dwelling unit*, one (1) shall be a shower unit complying with **521 CMR 44.6.2**. If a Jacuzzi or whirlpool tub is the only bathing *facility*, it must meet the requirements of **521 CMR 44.6.1**. Where one (1) bathing fixture is provided, it may be either a shower unit or a bathtub.

44.6.1 Bathtubs shall comply with the following:

- a. Bathtubs shall be a minimum, nominal dimension of 60 inches (1524 mm) long. The rim shall be between 16 and 18 inches (406 mm and 457 mm) above the floor.
- b. A *clear* floor area 30 inches (762 mm) wide and a minimum of 72 inches (1829 mm) long shall be provided adjacent to the tub. A minimum of 12 inches (305 mm) of the *clear floor space* length shall extend beyond the drain end of the tub if the tub is 60 inches (1524 mm) long.
- c. All walls of the tub shall have structural reinforcement to allow the future installation of grab bars at 8 inches minimum to 10 inches maximum (203 mm to 254 mm), measured to the top of the grab bar from the rim of the tub .

**In Accessible Dwelling bathrooms, two (2) grab bars, 48 inches (1219 mm) long, shall be installed centered on the long wall and parallel to the floor. One (1) shall be mounted at a height of 8 inches minimum to ten 10 inches maximum (203 mm to 254 mm), measured to the top of the grab bar from the rim of the tub and one (1) at a height of 33 inches to 36 inches (838 mm to 914 mm) maximum above the floor line.**

- d. Plastic or fiberglass tubs shall be structurally capable of accepting the installation of a lift that clamps onto the rim.
- e. Faucets shall be operable with a closed fist and shall not require grasping, pinching, or twisting of the wrist.
- f. Faucets and mixing valves shall be centered horizontally on the long wall of the tub, 28 inches (711 mm) above the floor. The tub spout shall be located on the end wall above the drain and a shower head may be located on either the end wall or long wall. If hardware is installed in locations other than those specified, piping shall also be provided and capped in the wall.
- g. A hand-held shower head , attached to a 60 inch (1524 mm) long flexible hose , shall be provided or be capable of being installed on the long wall of the tub. The shower spray unit shall have an on/off control with a non-positive shut-off. If an adjustable-height shower head on a vertical bar is used, the bar shall be installed so as not to obstruct the use of grab bars. Bathtub shower spray units shall deliver water that is 120°F (49°C) maximum.

**In Accessible Dwelling bathrooms, a tub seat which is portable or permanent shall be provided.**

**In Accessible Dwelling bathrooms, a hand held shower head attached to a 60 inch (1524 mm) long flexible hose, and an adjustable mounting bar shall be installed on the long wall of the**

**tub. The bottom of the mounting bar shall be located at 40 inches (1016 mm) above the tub bottom.**

- h. If provided, enclosures for bathtubs shall not obstruct controls or transfer from wheelchairs onto bathtub seats or into tubs. Enclosures on bathtubs shall not have tracks mounted on the rim of the bathtub.

**In Accessible Dwelling bathrooms, sliding doors shall not be used.**

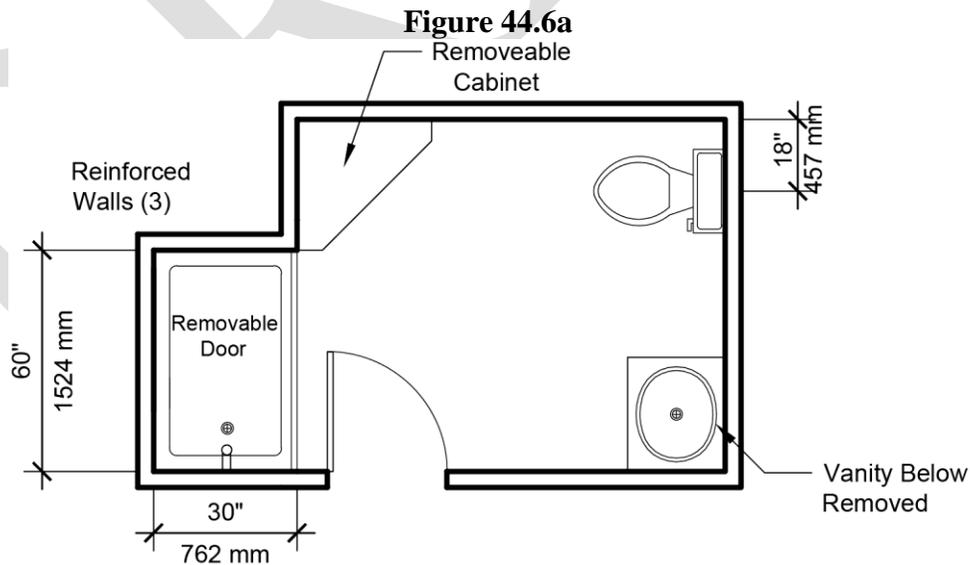
- i. Soap trays shall not have a hand-hold feature and shall be installed or be capable of being relocated with a centerline no higher than 48 inches (1219 mm) above the floor.

**In Accessible Dwelling bathrooms, soap trays shall be installed no higher than 48 inches (1219 mm) above the floor to the centerline of the soap tray.**

44.6.2 Showers shall comply with the following:

- a. The shower shall be the wheel-in type with a minimum, nominal size of 30 inches by 60 inches (762 mm by 1524 mm). The long side shall be fully open. In the alternative, the stall may be 36 by 60 inches (914 mm by 1524 mm) with a 24 inch (610 mm) wing wall on the 60 inch (1524 mm) side. The slope of the shower floor shall be a maximum of one-to-fifty (1:50) (2 percent). The curb shall have no more than onehalf (1/2) of an inch (13 mm) maximum lip, beveled at a slope no steeper than one-to-two (1:2) (50 percent). See **Figures 44.6a** and **44.6b**.

**In Accessible Dwelling bathrooms, where a wheel-in type shower is not required by 521 CMR 33.4.6, an alternate shower stall may be provided in accordance with 521 CMR 19.7, Shower Stalls.**



**Figure 44.6b**



- d. Faucets shall be operable with a closed fist and shall not require grasping, pinching, or twisting of the wrist.
- e. Mixing valves shall be centered horizontally on the long wall. The centerline of the control shall be mounted 38 inches to 48 inches (965 mm to 1219 mm) above the shower floor.
- f. A hand held shower head attached to a 60 inch (1524 mm) long flexible hose and an adjustable mounting bar shall be provided or be capable of being installed in the shower.

**In Accessible Dwelling bathrooms, a hand held shower head attached to a 60 inch (1524 mm) long flexible hose and an adjustable mounting bar, 36 inches (914 mm) long shall be installed in the shower on the long wall adjacent to the seat. The bottom of the mounting bar shall be located at 40 inches (1016 mm) above the shower floor.**

- g. Shall not have a hand-hold feature unless it can support 250 lbs for five (5) minutes. If provided, it shall be installed or be capable of being relocated with a centerline no higher than 48 inches (1219 mm) above the shower floor.

**In Accessible Dwelling bathrooms, soap trays shall be installed no higher than 48 inches (1219 mm) above the floor to the centerline of the soap tray.**

#### **44.7 GRAB BARS**

Grab bars shall be non-rusting and slip resistant, shall be between one and a quarter (1¼) inches and one and a half (1½) inches (32 mm to 38 mm) in outside diameter, and shall be located one and a half (1½) inches (38 mm) *clear* from the wall. Grab bars shall also meet the definition of *structural strength*.

#### **44.8 MIRRORS**

Shall comply with the following:

- 44.8.1 A mirror over a sink shall be installed at or be capable of being relocated to a height of 40 inches (1016 mm) from the floor to the bottom edge of the mirror's reflecting surface.
- 44.8.2 The top of the mirror shall be a minimum of 72 inches (1829 mm) above the floor.

**In Accessible Dwelling bathrooms, a mirror shall be installed with the bottom edge of the reflecting surface a maximum of 40 inches (1016 mm) above the floor and the top no less than 72 inches (1829 mm) above the floor.**

#### **44.9 MEDICINE CABINETS**

If medicine cabinets are provided, one (1) medicine cabinet shall be installed or be capable of being relocated so that the inside bottom surface is at a height of 40 inches (1016mm) above the floor. If the medicine cabinet is also the only mirror, the bottom of the mirror shall be no higher than 40 inches (1016 mm) above the floor.

**In *Accessible Dwelling bathrooms*, the medicine cabinet shall be installed with its inside bottom surface at a height of 40 inches (1016 mm) above the floor.**

**44.10 OUTLETS AND CONTROLS**

Shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS.**

**44.11 ALARMS**

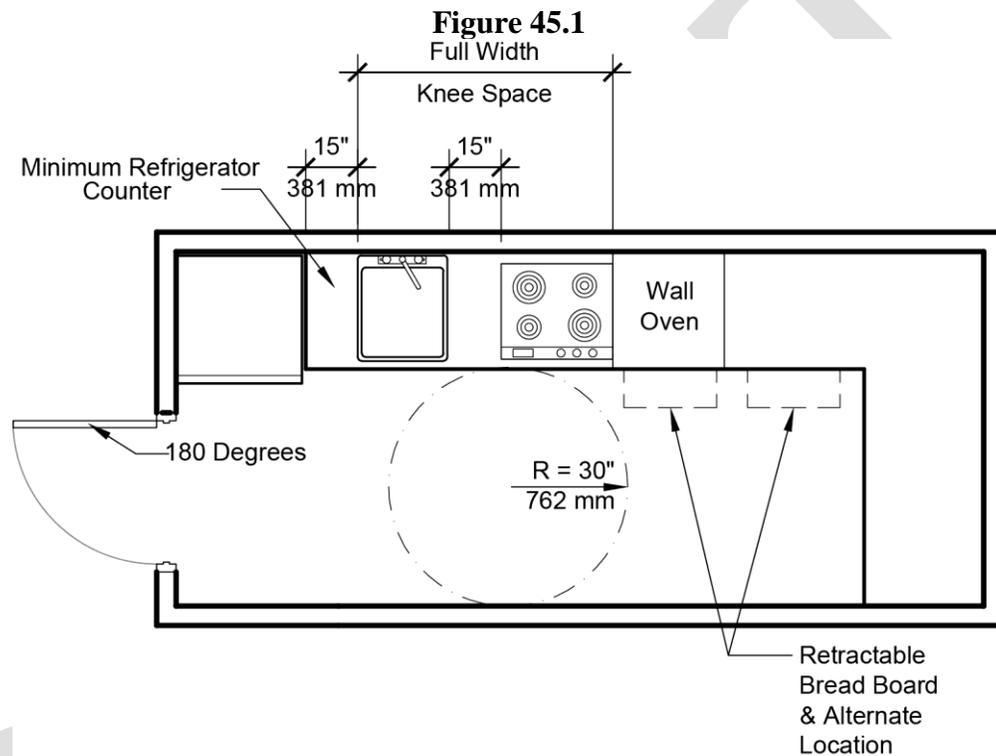
Shall comply with **521 CMR 20.00: ALARMS.**

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## 521 CMR 45.00: TYPE A AND ACCESSIBLE DWELLING KITCHENS

### 45.1 GENERAL

In all dwellings required to be *Type A* units (See **521 CMR 34.4 Type A and Accessible Dwelling Units**) all kitchens shall comply with **521 CMR 45.00: TYPE A AND ACCESSIBLE DWELLING KITCHENS**, exclusive of the bold and italicized text which refers to *Accessible Dwelling* units. In *facilities* required to provide *Accessible Dwelling* units, such as hotels, motels, and inns, the kitchen shall comply with **521 CMR 45.00: TYPE A AND ACCESSIBLE KITCHENS** plus the bold text that refers to *Accessible Dwelling* units. See **Figure 45.1**.



### 45.2 CLEAR FLOOR SPACE:

A *clear floor space* complying with **521 CMR 46.1, Clear Floor or Ground Space for Wheelchairs**, shall be provided in front of those appliances which have no knee clearance including but not limited to: refrigerators and wall ovens.

### 45.3 WHEELCHAIR TURNING SPACE

Shall comply with **521 CMR 6.2, Wheelchair Turning Space**, to permit a person using a wheelchair to turn around without coming into contact with any fixtures. In addition, when a sink and a cooktop are located 15 inches (or less) (381 mm) apart, the counter shall provide or shall be capable of providing continuous knee clearance at a minimum of 29 inches (737 mm) in height.

### 45.4 SINKS

Shall comply with the following:

45.4.1 If a base cabinet is provided under the sink, it shall be removable to provide a knee clearance that complies with **521 CMR 6.3, Knee Clearances**, as well as the additional requirements of **521 CMR 45.4.2** and **521 CMR 45.4.3**.

**In Accessible Dwelling bathrooms, base cabinets can be used only if knee clearance, per the requirements of 521 CMR 6.3, Knee Clearances, is also provided.**

45.4.2 A knee clearance shall be provided or be capable of being provided under the sink, 19 inches (483 mm) deep and a minimum of 30 inches (762 mm) wide and centered under the sink.

**In Accessible Dwelling bathrooms, a knee clearance complying with 521 CMR 6.3, Knee Clearances, shall be provided.**

45.4.3 The sink shall be capable of being relocated vertically in the future, without *structural change* to the walls of the kitchen.

Exception:

Sinks that are adjustable to variable heights, 29 inches (737 mm) minimum and 36 inches (914 mm) maximum, shall be permitted where rough-in plumbing permits connections of supply and drain pipes for sinks mounted at the height of 29 inches (737 mm).

**In Accessible Dwelling units, the kitchen sink shall be located so that there is 27 inches (686 mm) from the floor to the underside of the sink.**

45.4.4 A counter space a minimum of 15 inches (381 mm) wide shall be provided on one (1) side of the sink, at the same height as the sink. This may overlap with one (1) of the 15 inch (381 mm) spaces required in **521 CMR 45.5.4**.

**In Accessible Dwelling units, the countertop shall be set at 34 inches (864 mm) above the floor to the top of the counter.**

45.4.5 Sink bowls shall not exceed 6½ inches (165 mm) in depth and shall have drains offset to the rear.

45.4.6 Water pipes and drain traps shall be located as close to the rear wall of the knee clearance and as high off the floor to provide maximum knee clearance. If there is no base cabinet under the sink, pipes and traps shall be insulated or covered.

45.4.7 If a garbage disposal has a remote switch, it shall be located on the front face (apron) of the counter located to the left or right of the sink but not in front of the sink.

45.4.8 Faucets shall be operated by a single lever. A spray hose shall be provided or a knockout provided on the sink for the future installation of a spray hose.

## 45.5 COOKTOPS

Standard ranges shall not be the only cooking surface. Cooktops shall be provided and shall comply with the following:

- 45.5.1 If a base cabinet is provided under the cooktop, it shall be removable to provide knee clearance that complies with **521 CMR 45.5.2** and **521 CMR 45.5.3**.

**In Accessible Dwelling units, base cabinets can be used only if knee clearance, per the requirements of 521 CMR 6.3, Knee Clearances, is also provided.**

- 45.5.2 A knee clearance shall be provided or be capable of being provided under the cooktop, 19 inches (483 mm) deep and a minimum of 30 inches (762 mm) wide.

**In Accessible Dwelling units, knee clearance shall be provided, per the requirements of 521 CMR 6.3, Knee Clearances.**

- 45.5.3 The cooktop shall be capable of being relocated vertically in the future, without *structural change* to the walls of the kitchen.

**In Accessible Dwelling units, the kitchen cooktop shall be located so that there is 29 inches (737 mm) from the floor to the underside of the cooktop.**

- 45.5.4 A counter space a minimum of 15 inches (381 mm) wide shall be provided on one (1) side of the cooktop, at the same height as the cooktop. This may overlap with one (1) of the 15 inch (381 mm) spaces required in **521 CMR 45.4.4**.
- 45.5.5 Cooktop controls shall be located at the front or side of the appliance. Exhaust hood: if the controls for a hood are located higher than 54 inches (1372 mm) above the floor, a switch shall be provided at the front face (apron) of counter.

## 45.6 OVENS

All microwave ovens, if built-in, and at least one (1) conventional oven shall comply with the following:

- 45.6.1 The floor of the oven shall be 30 inches (762 mm) above the floor.
- 45.6.2 The oven shall be self-cleaning or continuous cleaning.
- 45.6.3 Oven controls shall be located within the *zone of reach* as defined by **521 CMR**.
- 45.6.4 Where a bottom-hinged oven door is provided, a retractable "bread board" type shelf shall be provided in the counter immediately adjacent to the oven door. Where a side-hinged oven is provided, the retractable "bread board" type shelf shall be provided directly under the oven.

## 45.7 WALL CABINETS

Walls shall be capable of structurally supporting wall cabinets so that the inside bottom surface of the cabinet is capable of being located between 42 inches (1067 mm) and 54 inches (1372mm) above the floor.

**In Accessible Dwelling units, the wall cabinets shall be mounted so that the inside bottom surface of the cabinet is no higher than 48 inches (1219 mm) from the floor.**

Exception:

A tall cabinet a minimum of 30 inches (762 mm) wide and 72 inches (1829 mm) in height may be installed in lieu of making overhead cabinets *accessible*. If walk-in pantry is provided, the door to the pantry shall fully comply with **521 CMR 11.00: DOORS AND DOORWAYS**.

#### **45.8 BASE CABINETS**

Shall comply with the following:

- 45.8.1 Each cabinet shall be capable of being removed to provide knee clearance for persons using wheelchairs.
- 45.8.2 Cabinets located at the inside corner of an L-shaped counter shall have or be capable of providing a built-in lazy susan.
- 45.8.3 At least one (1) base cabinet shall provide a drawer or drawers.

#### **45.9 CABINET HARDWARE**

Shall comply with the following:

- 45.9.1 Opening devices shall not require twisting, pinching or grasping to operate.
- 45.9.2 Cabinet opening devices shall be located at the tops of base cabinet doors and at the bottom of wall cabinet doors.

#### **45.10 REFRIGERATORS**

When the refrigerator is provided with the unit, it may be combination refrigerator-freezers with two (2) doors side by side, or may be two (2) door freezer-above-the-refrigerator units, provided the floor of such freezer is no higher than 44 inches (1118 mm) above the floor, and shall be self-defrosting.

- 45.10.1 The refrigerator shall be located so that its doors are capable of being opened 180 degrees and so that it meets minimum *clear floor space* and *zone of reach* requirements in **521 CMR 6.2, Wheelchair Turning Space, 521 CMR 6.5, Forward Reach, and 521 CMR 6.6, Side Reach**.
- 45.10.2 A counter space a minimum of 15 inches (381 mm) wide shall be provided on one (1) side of the refrigerator. This may overlap with one (1) of the 15 inch spaces (381 mm) required in **521 CMR 45.4.4, Countertop, or 521 CMR 45.5.4, Countertop**.

#### **45.11 OUTLETS AND CONTROLS**

Shall comply with the applicable parts of **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

**45.12 ALARMS**

Shall comply with the applicable parts of **521 CMR 20.00: ALARMS**.

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**521 CMR 46.00: TYPE B BEDROOMS**

**46.1 BEDROOMS IN TYPE B UNITS**

*Type B* units shall provide or be capable of providing, wheelchair turning space as defined in **521 CMR 6.2, Wheelchair Turning Space**, *clear* of the door swing, at one (1) side of the bed in the primary bedroom (based on a full size bed). Where more than one (1) bedroom is provided, an additional bedroom shall also provide or be capable of providing wheelchair turning space (based on one (1) twin size bed).

**46.2 DOORS:**

Doors to all bedrooms required to comply under **521 CMR 46.1, Bedrooms in Type B Units**, shall comply with **521 CMR 11.00: DOORS AND DOORWAYS**.

**46.3 CLOSETS**

All closets in bedrooms required to be *accessible* (per **521 CMR 34.3, Type B Dwelling Units**) shall comply with **521 CMR 34.5.8, Closets**.

**46.4 ELECTRICAL OUTLETS AND CONTROLS**

Shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

**46.5 ALARMS**

Shall comply with **521 CMR 20.00: ALARMS**.

**521 CMR 47.00: TYPE A AND ACCESSIBLE DWELLING BEDROOMS**

**47.1 BEDROOMS IN TYPE A AND ACCESSIBLE DWELLING UNITS**

*Type A* units shall provide or be capable of providing wheelchair turning space in compliance with **521 CMR 6.2, Wheelchair Turning Space**. Said wheelchair turning space shall be or shall be capable of being *clear* of the door swing and located at one (1) side of the bed in the primary bedroom (based on a full size bed). Where more than one (1) bedroom is provided, an additional bedroom shall also provide or be capable of providing such wheelchair turning space (based on one (1) twin size bed).

**In Accessible Dwelling units, the bedrooms shall provide wheelchair turning space in compliance with 521 CMR 6.2, Wheelchair Turning Space. Said wheelchair turning space shall be provided, clear of the door swing and located at one (1) side of the bed in the primary bedroom, (based upon a full size bed). Where more than one (1) bedroom is provided, an additional bedroom shall also provide such wheelchair turning space (based on one (1) twin size bed). Beds provided within Accessible Dwelling units shall comply with 521 CMR 33.4.3.**

**47.2 DOORS**

Doors to all bedrooms shall comply with **521 CMR 11.00: DOORS AND DOORWAYS**.

**47.3 CLOSETS**

All closets in bedrooms required to be *accessible* (per **521 CMR 34.4, Accessible Dwelling Units**) shall comply with **521 CMR 34.5.8, Closets**.

**47.4 ELECTRICAL OUTLETS AND CONTROLS**

Shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

**47.5 ALARMS**

Shall comply with **521 CMR 20.00: ALARMS**.

# **PART J**

# **RECREATION FACILITIES**

## **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**

### **48.1 GENERAL**

*Amusement rides* and attractions *facilities* that are not regularly assembled and disassembled shall comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.

#### General Exceptions:

1. Existing amusement park rides and attractions that are a part of a permanent amusement park are not required to comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.
2. Where existing amusement park rides and attractions that are a part of a permanent amusement park are moved after several seasons to another area of the park or to another park, the particular ride is not required to comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.
3. Mobile or temporary rides and attractions that are set up for short periods of time, such as traveling carnivals, State and county fairs, and festivals, are not required to comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.

#### Partial Exceptions:

The following types of rides and attractions are not required to comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**, but the loading and unloading areas and the access point or starting point of the ride shall be required to be on an *accessible route*. These partial exceptions do not apply to those rides and attractions where patrons may cause the ride to make incidental movements, but only where the patron otherwise has no control over the ride.

1. *Amusement rides* and attractions that are controlled or operated by the rider shall not be required to comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.
2. *Amusement rides* and attractions designed for children only, where children are assisted on and off the ride by an adult, shall not be required to comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.
3. *Amusement rides* and attractions that do not provide *amusement ride seats* shall not be required to comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.

### **48.2 ALTERATIONS**

Where existing *amusement rides* are altered, the *alteration* shall comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.

#### Exception:

Routine maintenance, painting, and changing of theme boards are examples of work that does not constitute an *alteration* subject to **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.

- 48.2.1 Where the structural or operational characteristics of an *amusement ride* are altered to the extent that the *amusement ride's* performance differs from that specified by the manufacturer or the original design, the *amusement ride* shall be considered new, and shall be required to comply fully with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.

### **48.3 ACCESSIBLE ROUTE**

*Amusement rides* and attractions required to comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS** shall be on an *accessible route* complying with **521 CMR 8.00: ACCESSIBLE ROUTES**.

Exception:

*Accessible ride* and attractions shall not be required to comply with the protruding object provisions of **521 CMR 8.6, Protruding Objects**. This exception shall apply only to the ride or attraction itself, not the *accessible route* leading to the ride or attraction.

48.3.1 Floors of *amusement rides* with wheelchair spaces and floors of loading and unloading areas shall be coordinated so that, when *amusement rides* are at rest in the loading and unloading position, the vertical difference between the floors shall be within plus or minus five-eighths (5/8) of an inch (16 mm) and the horizontal gap shall be 3 inches (76 mm) maximum under normal passenger load conditions.

#### 48.4 MINIMUM NUMBER

*Amusement rides* and attractions which are subject to these requirements shall provide at least one (1) wheelchair space complying with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**, or at least one (1) *amusement ride seat* designed for transfer complying with **521 CMR 48.6, Wheelchair Spaces in Rides and Attractions** or at least (1) one *transfer device* complying with **521 CMR 48.6, Wheelchair Spaces in Rides and Attractions**.

#### 48.5 UNIQUE AMUSEMENT PARK RIDES OR ATTRACTIONS

At *amusement rides* and attractions that have unique designs and features that are not specifically addressed by **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**, the requirements of **521 CMR 48.00 : AMUSEMENT RIDES AND ATTRACTIONS** are to be applied to the extent possible.

Examples:

1. At "virtual reality" rides where the device does not move through a fixed course within a defined area, the ride itself need not comply with **521 CMR 48.00 : AMUSEMENT RIDES AND ATTRACTIONS** but an *accessible route* must be provided to the access point or start of such a ride or attraction.
2. Where an attraction or ride has unique features for which there are no applicable provisions in **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**, then a reasonable number, but at least one, of the features must be located on an *accessible route*.
3. Where **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS** contains technical provisions that are applicable to aspects of the ride or attraction, the provisions must be applied to the *elements* that are covered by **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS**.

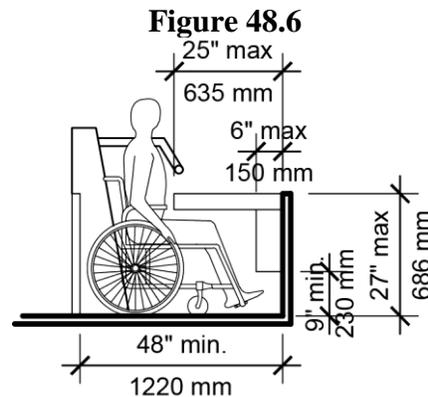
#### 48.6 WHEELCHAIR SPACES IN RIDES AND ATTRACTIONS

Wheelchair spaces in *amusement rides* and attractions shall comply with **521 CMR 6.00: SPACE ALLOWANCES AND REACH RANGES** and with **521 CMR 7.00: GROUND AND FLOOR SURFACES**. Further, provision shall be made to secure wheelchairs safely in place as needed.

Exceptions:

1. Where provided, wheelchair securing devices shall be permitted to overlap required clearances.
2. Wheelchair spaces shall be permitted to be mechanically or manually repositioned.

3. Objects are permitted to protrude a distance of 6 inches (152 mm) maximum along the front of the wheelchair space, where located 9 inches (229 mm) minimum and 27 inches (686 mm) maximum above the floor or ground surface of the wheelchair space. Objects are permitted to protrude a distance of 25 inches (635 mm) maximum along the front of the wheelchair space, where located more than 27 inches (686 mm) above the floor or ground surface of the wheelchair space. See **Figure 48.6**.



48.6.1 Openings providing entry to wheelchair spaces on *amusement rides* and attractions shall be 32 inches (813 mm) minimum *clear*, and comply with **521 CMR 48.9, Loading and Unloading Areas**. Where wheelchair spaces are entered only from the side, a minimum side opening width of 42 inch (1067 mm) opening shall be provided, along with a minimum *clear* space of 60 inches (1524 mm) in length and 36 inches (914 mm) in depth adjoining the entry opening shall be provided to ensure adequate space for maneuvering.

48.6.2 Seats designed for transfer shall involve only one (1) transfer if at all possible. The ride seat shall be no higher than 17 to 19 inches (432 mm to 483 mm) above the loading and unloading surface. Where greater distances are required for transfers, other gripping surfaces and seat padding, which will facilitate the transfer shall be provided. The height of *amusement ride seats* designed for transfer shall be 14 inches (356 mm) minimum and 24 inches (610 mm) maximum measured from the surface of the load and unload area. Where openings are provided for transfer to *amusement ride seats*, the openings shall provide clearance for transfer from a wheelchair or mobility aid to the *amusement ride seat*.

## 48.7 TRANSFER DEVICES

When direct transfer to the *amusement ride seat* is not possible, an appropriate separate *transfer device* shall be provided. *Transfer devices* shall permit individuals to make independent transfers to and from their wheelchairs or mobility devices. *Transfer devices* may include, but are not limited to, transfer systems, lifts, mechanized seats, and custom designed systems. These systems or devices should be designed to be reliable and sturdy, and shall comply with the following.

48.7.1 A *clear floor or ground space*, complying with **521 CMR 6.1, Clear Floor or Ground Space for Wheelchairs**, shall be provided in the load and unload area adjacent to the *transfer device*.

48.7.2 The height of the *transfer device* seats shall be 14 inches (356 mm) minimum and 24 inches (610 mm) maximum measured from the load and unload surface.

## 48.8 COMPANION SEATS

Where the interior width of the *amusement ride* is greater than 53 inches (1346 mm), seating is provided for more than one rider, and the wheelchair is not required to be centered within the *amusement ride*, a companion seat shall be provided for each wheelchair space.

48.8.1 Where an *amusement ride* provides shoulder-to-shoulder seating, companion seats shall be shoulder-to-shoulder with the adjacent wheelchair space.

Exception:

Where shoulder-to-shoulder companion seating is not operationally or structurally feasible, compliance with this requirement shall be required to the maximum extent practicable

## 48.9 LOADING AND UNLOADING AREAS

Load and unload areas serving *amusement rides* and attractions shall comply with **521 CMR 48.00: AMUSEMENT RIDES AND ATTRACTIONS** and shall be on an *accessible route* complying with **521 CMR 8.00: ACCESSIBLE ROUTES**. Where loading and unloading areas have more than one (1) loading or unloading position, at least one (1) loading and unloading position shall be on an *accessible route*.

48.9.1 A turning space complying with **521 CMR 6.2, Wheelchair Turning Space**, shall be provided in loading and unloading areas.

48.9.2 Wheelchair storage spaces complying with **521 CMR 6.1, Clear Floor or Ground Space for Wheelchairs**, shall be provided within or immediately adjacent to loading and unloading areas for each required *amusement ride seat* designed for transfer. Such storage spaces shall not overlap any required means of egress or *accessible route*. At least one (1) such space shall be provided at each individual unloading area.

## 48.10 SIGNAGE

*Signage* complying with **521 CMR 21.00: SIGNAGE**, identifying the type and extent of access provided on *amusement rides* and attractions shall be provided at entries to queues and waiting lines. In addition, where *accessible* unloading areas also serve as *accessible* loading areas, signs indicating the location of the *accessible* loading and unloading areas shall be provided at entries to queues and waiting lines.

Exceptions:

1. *Amusement rides* designed primarily for children, *amusement rides* that are controlled or operated by the rider, and *amusement rides* without seats, are not required to provide wheelchair spaces, transfer seats, or transfer systems, and need not meet the sign requirements in **521 CMR 48.00: AMUSEMENT RIDES**. The loading and unloading areas of these rides must, however, be on an *accessible route* and must provide turning space.

**521 CMR 49.00: EXERCISE MACHINES AND EQUIPMENT**

**49.1 General**

Where exercise machines and equipment are provided, at least one (1) of each particular type shall be on an *accessible route*.

**49.2 Clear Floor Space**

Exercise machines and equipment shall have a *clear floor space* positioned for transfer or for use by an individual seated in a wheelchair. *Clear floor or ground space* required at exercise machines and equipment shall be permitted to overlap.

## **521 CMR 50.00: GOLF FACILITIES**

### **50.1 GENERAL**

Golf *facilities* shall be considered any *facility* where golf is played; with the exception of miniature golf courses, which shall comply with **521 CMR 51.00: Miniature Golf Facilities**.

### **50.2 TEEING GROUNDS**

Where one (1) *teeing ground* is provided for a hole, the *teeing ground* shall be designed and constructed so that a golf car can enter and exit the *teeing ground*. Where two (2) *teeing grounds* are provided for a hole, the forward *teeing ground* shall be designed and constructed so that a golf car can enter and exit the *teeing ground*. Where three (3) or more *teeing grounds* are provided for a hole, at least two (2) *teeing grounds*, including the forward *teeing ground*, shall be designed and constructed so that a golf car can enter and exit each *teeing ground*.

#### Exception:

In existing golf courses, the forward *teeing ground* shall not be required to be one of the *teeing grounds* on a hole designed and constructed so that a golf car can enter and exit the *teeing ground* where compliance is not feasible due to terrain.

### **50.3 PUTTING GREENS**

Putting greens shall be designed and constructed so that a golf car can enter and exit the putting green.

### **50.4 WEATHER SHELTERS**

Where provided, weather shelters shall be designed and constructed so that a golf car can enter and exit the weather shelter.

50.4.1 A clear floor or ground space 60 inches (1524 mm) minimum by 96 inches (2438 mm) minimum area shall be provided within weather shelters.

### **50.5 PRACTICE PUTTING GREENS, PRACTICE TEEING GROUNDS, AND TEEING STATIONS AT DRIVING RANGES**

At least 5 percent, but no fewer than one (1), of practice putting greens, practice *teeing grounds*, and teeing stations at driving ranges shall be designed and constructed so that a golf car can enter and exit the practice putting greens, practice *teeing grounds*, and teeing stations at driving ranges.

### **50.6 ACCESSIBLE ROUTES**

*Accessible routes* serving *teeing grounds*, practice *teeing grounds*, putting greens, practice putting greens, teeing stations at driving ranges, course weather shelters, golf car rental areas, bag drop areas, and course toilet rooms shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**, and shall be 48 inches (1219 mm) wide minimum. Where handrails are provided, *accessible routes* shall be 60 inches (1524 mm) wide minimum.

#### Exception:

Handrails shall not be required on golf courses. Where handrails are provided on golf courses, the handrails shall not be required to comply with **521 CMR 12.6, Handrails**.

### **50.7 Golf Car Passages**

*Golf car passages* shall comply with the following:

50.7.1 The *clear* width of *golf car passages* shall be 48 inches (1219 mm) minimum.

50.7.2 Where curbs or other constructed barriers prevent golf cars from entering a fairway, openings 60 inches (1524 mm) wide minimum shall be provided at intervals not to exceed 75 yards (69 m).

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## 521 CMR 51.00: MINIATURE GOLF FACILITIES

### 51.1 GENERAL

Miniature golf *facilities* shall have at least 50 percent of holes on miniature golf courses along an *accessible route* compliant with **521 CMR 51.3, Accessible Routes**.

### 51.2 COURSE CONFIGURATION

Miniature golf courses shall be configured so that the holes complying with **521 CMR 51.4, Miniature Golf Holes**, are consecutive. Miniature golf courses shall provide an *accessible route* from the last hole complying with **521 CMR 51.4, Miniature Golf Holes**, to the course *entrance* or exit without requiring travel through any other holes on the course. In some cases, this may require an additional *accessible route*.

#### Exception:

One (1) break in the sequence of consecutive holes shall be permitted provided that the last hole on the miniature golf course is the last hole in the sequence.

### 51.3 ACCESSIBLE ROUTES

*Accessible routes* serving holes on miniature golf courses shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**.

51.3.1 *Accessible routes* located on playing surfaces of miniature golf holes shall be permitted to use the following exceptions:

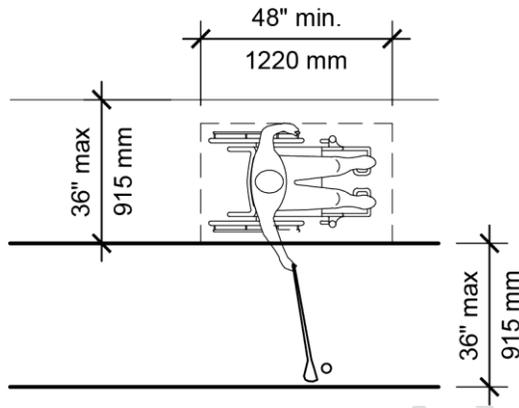
- a. Playing surfaces shall not be required to comply with **521 CMR 7.5, Carpet**.
- b. Where *accessible routes* intersect playing surfaces of holes, a 1 inch (25 mm) maximum curb shall be permitted for a width of 32 inches (813 mm) minimum.
- c. A slope not steeper than 1:4 for a 4 inch (102 mm) maximum rise shall be permitted.
- d. *Ramp* landing slopes specified by **521 CMR 12.5a** shall be permitted to be one-to-twenty (1:20) (5 percent) maximum.
- e. *Ramp* landing length specified by **521 CMR 12.5c** shall be permitted to be 48 inches (1219 mm) long minimum.
- f. *Ramp* landing size specified by **521 CMR 12.5d** shall be permitted to be 48 inches (1219 mm) minimum by 60 inches (1524 mm) minimum.
- g. Handrails shall not be required on holes. Where handrails are provided on holes, the handrails shall not be required to comply with **521 CMR 12.6, Handrails**.

### 51.4 MINIATURE GOLF HOLES

At all of the *accessible* miniature golf holes provided, a *clear floor or ground space* 48 inches (1219 mm) minimum by 60 inches (1524 mm) minimum with slopes not steeper than 1:48 shall be provided at the start of play.

51.4.1 All areas at *accessible* holes where golf balls rest shall be within 36 inches (914 mm) maximum of a *clear floor or ground space* 36 inches (914 mm) wide minimum and 48 inches (1219 mm) long minimum having a *running slope* not steeper than one-to-twenty (1:20) (5 percent). The *clear floor or ground space* shall be served by an *accessible route*. See **Figure 51.4**.

#### Figure 51.4



**521 CMR 52.00: SHOOTING FACILITIES WITH FIRING POSITIONS**

**52.1 GENERAL**

Where shooting *facilities* with firing positions are designed and constructed at a *site*, at least 5 percent, but no fewer than one (1), of each type of firing position shall provide a *level* wheelchair turning space in accordance with **521 CMR 6.2, Wheelchair Turning Space**.

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## **521 CMR 53.00: SAUNAS AND STEAM ROOMS**

### **53.1 GENERAL**

Where provided, saunas and steam rooms shall comply with **521 CMR 53.00: SAUNAS AND STEAM ROOMS**.

Exception:

Where individual saunas or steam rooms are *clustered* at a single location, at least 5 percent of the saunas and steam rooms, but no fewer than one (1) of each type in each *cluster* shall comply with **521 CMR 53.00: SAUNAS AND STEAM ROOMS**.

### **53.2 BENCHES**

Where fixed bench seating is provided in designated *accessible* saunas and steam rooms, at least one (1) bench shall comply with **521 CMR 39.00: BENCHES**.

53.2.1 Doors shall not swing into the *clear floor or ground space* required in **521 CMR 39.00: BENCHES** for the *accessible* bench.

Exception:

A readily removable bench shall be permitted to obstruct the *clear floor or ground space* required by **521 CMR 53.2.1**.

### **53.3 TURNING SPACE**

A turning space complying with **521 CMR 6.2, Wheelchair Turning Space**, shall be provided within saunas and steam rooms.

Exception:

A readily removable bench shall be permitted to obstruct the turning space required by **521 CMR 53.3, Turning Space**.

## 521 CMR 54.00 SWIMMING POOLS, WADING POOLS, AND SPAS

### 54.1 GENERAL

Swimming pools, wading pools, and spas shall comply with **521 CMR 54.00: SWIMMING POOLS, WADING POOLS, AND SPAS.**

### 54.2 PATH OF TRAVEL

There shall be an *accessible route* not less than 48 inches (1219 mm) wide around such pools. The path of travel shall have a surface that is slip resistant.

### 54.3 SWIMMING POOLS

At least two (2) *accessible* means of entry shall be provided for swimming pools. *Accessible* means of entry shall be either:

- a. Swimming pool lifts complying with **521 CMR 54.7, Pool Lifts.**
- b. Sloped entries complying with **521 CMR 54.8, Sloped Entries.**
- c. Transfer walls complying with **521 CMR 54.9, Transfer Walls.**
- d. Transfer systems complying with **521 CMR 54.10, Transfer Systems.**
- e. Pool stairs complying with **521 CMR 54.11, Pool Stairs.**

54.3.1 At least one (1) of the two (2) required *accessible* means of entry provided shall be a swimming pool lift or a sloped entry.

#### Exceptions:

1. Where a swimming pool has less than 300 linear feet (91440 mm) of swimming pool wall, no more than one (1) *accessible* means of entry shall be required provided that the *accessible* means of entry is a swimming pool lift complying with **521CMR 54.7, Pool Lifts**, or sloped entry complying with **521CMR 54.8, Sloped Entries**. Pool walls at diving areas and areas along pool walls where there is no pool entry because of landscaping or adjacent structures are to be counted when determining the number of *accessible* means of entry required.
2. Wave action pools, leisure rivers, sand bottom pools, and other pools where user access is limited to one area shall not be required to provide more than one *accessible* means of entry provided that the *accessible* means of entry is a swimming pool lift complying with **521CMR 54.7, Pool Lifts**, a sloped entry complying with **521CMR 54.8, Sloped Entries**, or a transfer system complying with **521CMR 54.10, Transfer Systems**.
3. *Catch pools* shall not be required to provide an *accessible* means of entry or exit provided that the *catch pool* edge is on an *accessible route*.

54.3.2 The two (2) required means of *accessible* entry shall not be located in the same area of the pool.

### 54.4 WADING POOLS

At least one (1) *accessible* means of entry shall be provided for wading pools. If only one is provided it shall be a sloped entry complying with **521CMR 54.8, Sloped Entries**.

### 54.5 SPAS

At least one (1) *accessible* means of entry shall be provided for spas. *Accessible* means of entry shall comply with swimming pool lifts complying with **521CMR 54.7, Pool Lifts**; transfer walls complying with **521CMR 54.9, Transfer Walls**; or transfer systems complying with **521CMR 54.10, Transfer Systems**.

Exception:

Where spas are provided in a *cluster*, at least five percent of the spas, but no fewer than one (1) spa in each *cluster* shall be required to comply with **521 CMR 54.5, Spas**.

**54.6 ACCESS DEVICES AND TECHNIQUES**

Where provided, pool lifts, sloped entries, transfer walls, transfer systems, and pool stairs shall comply with **521 CMR 54.7, Pool Lifts**, through **521 CMR 54.10, Transfer Systems**.

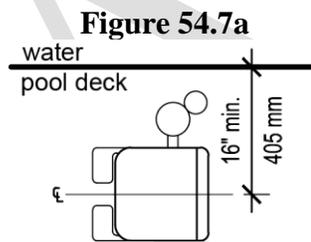
**54.7 POOL LIFTS**

Pool lifts shall comply with the following:

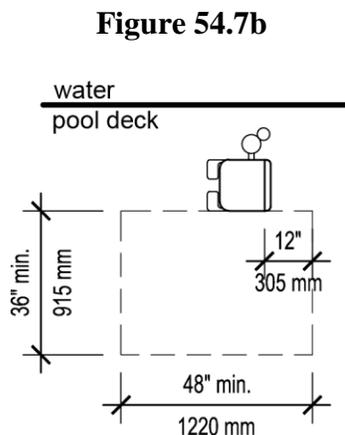
- a. Pool lifts shall be located where the water level does not exceed 48 inches (1219 mm).

Exceptions:

- 1. Where the entire pool depth is greater than 48 inches (1219 mm), compliance with **521 CMR 54.7, Pool Lifts** shall not be required.
  - 2. Where multiple pool lift locations are provided, no more than one (1) pool lift shall be required to be located in an area where the water level is 48 inches (1219 mm) maximum.
- b. In the raised position, the centerline of the seat shall be located over the deck and 16 inches (406 mm) minimum from the edge of the pool. The deck surface between the centerline of the seat and the pool edge shall have a slope not steeper than one-to-forty-eight (1:48) (2 percent). See **Figure 54.7a**.

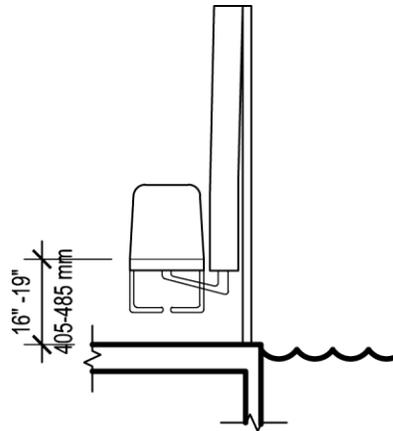


- c. On the side of the seat opposite the water, a *clear* deck space shall be provided parallel with the seat. The space shall be 36 inches (914 mm) wide minimum and shall extend forward 48 inches (1219 mm) minimum from a line located 12 inches (305 mm) behind the rear edge of the seat. The *clear* deck space shall have a slope not steeper than one-to-forty-eight (1:48) (2 percent). See **Figure 54.7b**.



- d. The height of the lift seat shall be designed to allow a stop at 16 inches (406 mm) minimum to 19 inches (483 mm) maximum measured from the deck to the top of the seat surface when in the raised (load) position. See **Figure 54.7c**.

**Figure 54.7c**



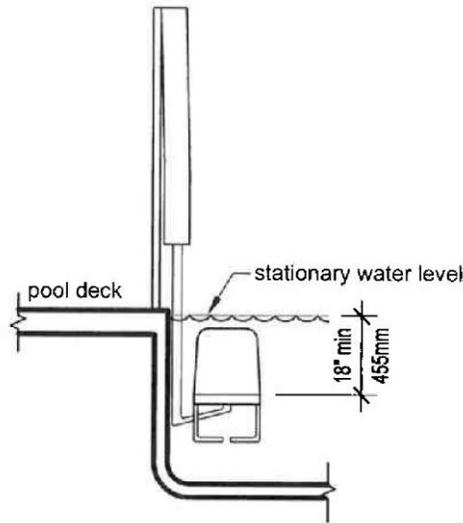
- e. The seat shall be 16 inches (406 mm) wide minimum.
- f. Footrests shall be provided and shall move with the seat. If provided, the armrest positioned opposite the water shall be removable or shall fold *clear* of the seat when the seat is in the raised (loading) position.

Exception:

Footrests shall not be required on pool lifts provided in spas.

- g. The lift and its controls shall be capable of unassisted operation from both the deck and water levels. Controls *accessible* from and usable from the deck shall be capable of bringing the pool lift from the water to the deck, and controls *accessible* from and usable from the water shall be capable of bringing the pool lift from the deck to the water. Controls and operating mechanisms shall be unobstructed when the lift is in use and shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.
- h. The lift shall be designed so that the seat will submerge to a water depth of 18 inches (457 mm) minimum below the stationary water level. See **Figure 54.7d**.

**Figure 54.7d**



Pool Lift Submerged Depth  
Figure 54.6

- i. Single person pool lifts shall have a weight capacity of 300 pounds. (136 kg) minimum and be capable of sustaining a static load of at least one and a half (1 ½) times the rated load.

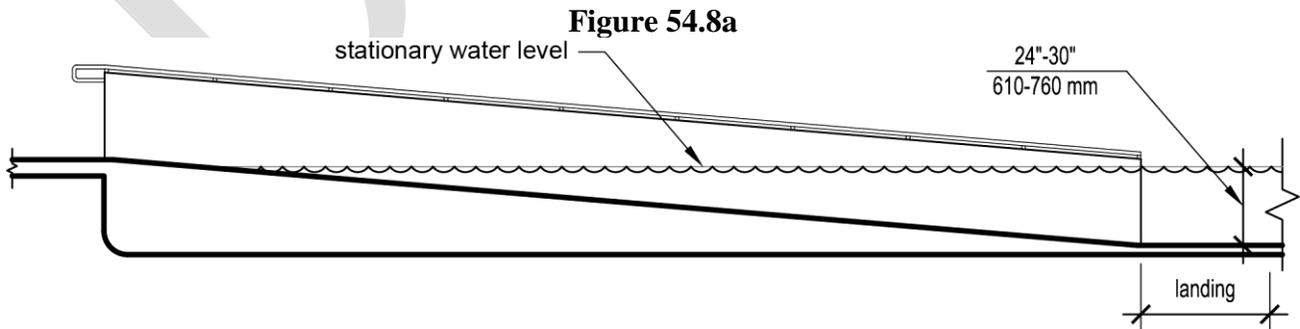
#### 54.8 SLOPED ENTRIES

Sloped entries shall comply with **521 CMR 12.00: RAMPS**, except as modified by the following:

- a. Sloped entries shall have a surface that is firm and stable. The surface is not required to be slip resistant.
- b. Sloped entries shall extend to a depth of 24 inches (610 mm) minimum and 30 inches (762 mm) maximum below the stationary water level. Where landings are required by **521 CMR 12.5, Landings**, at least one (1) landing shall be located 24 inches (610 mm) minimum and 30 inches (762 mm) maximum below the stationary water level. See **Figure 54.8a**.

Exception:

In wading pools, the sloped entry and landings, if provided, shall extend to the deepest part of the wading pool.



- c. At least two (2) handrails complying with **521 CMR 12.6, Handrails**, shall be provided.

Exception:

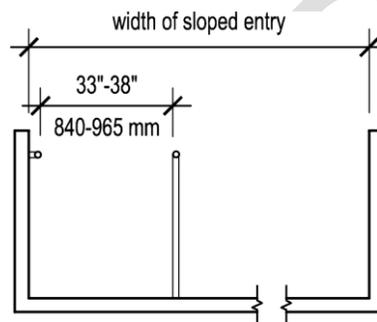
Sloped entries in wading pools shall not be required to provide handrails. If provided, handrails on sloped entries in wading pools shall not be required to comply with **521CMR 12.6, Handrails**.

- d. The *clear* width between required handrails shall be 33 inches (838 mm) minimum and 38 inches (965 mm) maximum. See **Figure 54.8b**.

Exception:

Where a sloped entry is provided for wave action pools, leisure rivers, sand bottom pools, and other pools where user access is limited to one area, the handrails shall not be required to comply with the *clear* width requirements of **521CMR 54.8d, Handrail Width**.

**Figure 54.8b**



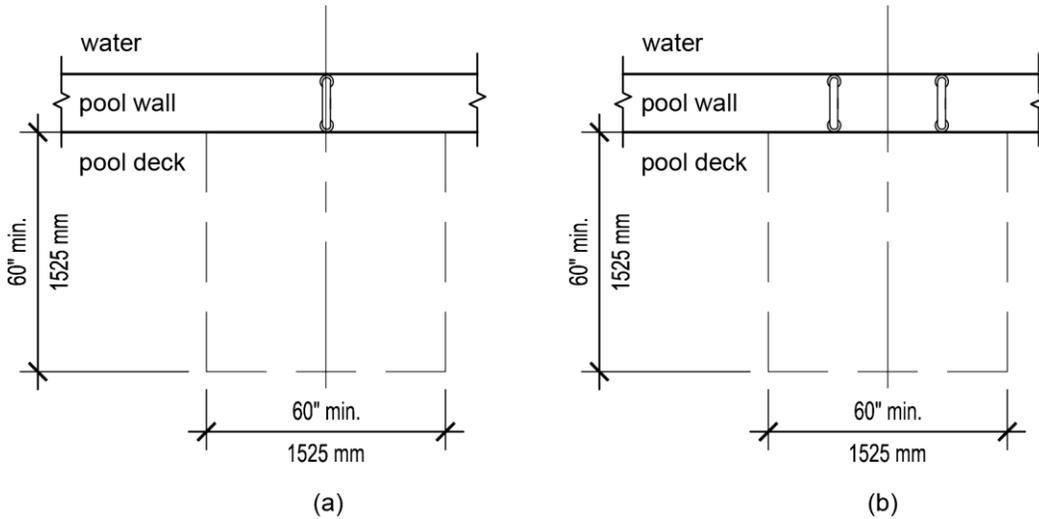
- e. Handrail extensions specified by **521CMR 12.00: RAMPS** shall not be required at the bottom landing serving a sloped entry.

## 54.9 TRANSFER WALLS

Transfer walls shall comply with the following:

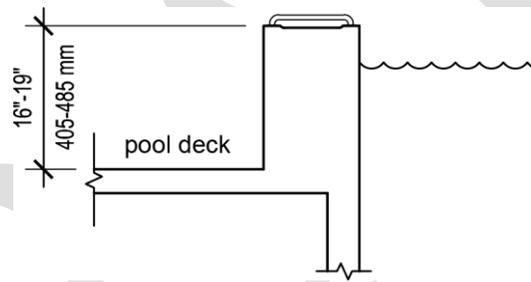
- a. A *clear* deck space of 60 inches (1525 mm) minimum by 60 inches (1525 mm) minimum with a slope not steeper than one-to-fifty (1:50) (2 percent) shall be provided at the base of the transfer wall. Where one (1) grab bar is provided, the *clear* deck space shall be centered on the grab bar. Where two (2) grab bars are provided, the *clear* deck space shall be centered on the clearance between the grab bars. See **Figure 54.9a**.

**Figure 54.9a**



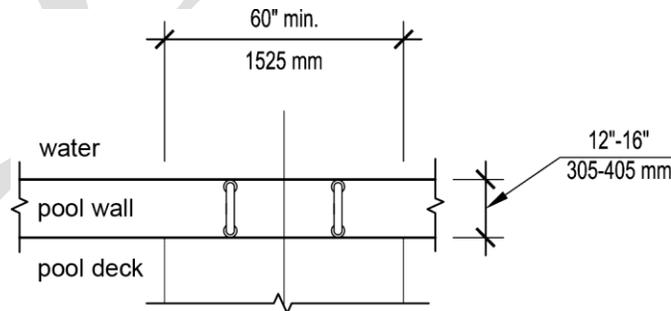
- b. The height of the transfer wall shall be 16 inches (406 mm) minimum and 19 inches (483 mm) maximum measured from the deck. See **Figure 54.9b**.

**Figure 54.9b**



- c. The depth of the transfer wall shall be 12 inches (305 mm) minimum and 16 inches (406 mm) maximum. The length of the transfer wall shall be 60 inches (1524 mm) minimum and shall be centered on the *clear* deck space. See **Figure 54.9c**.

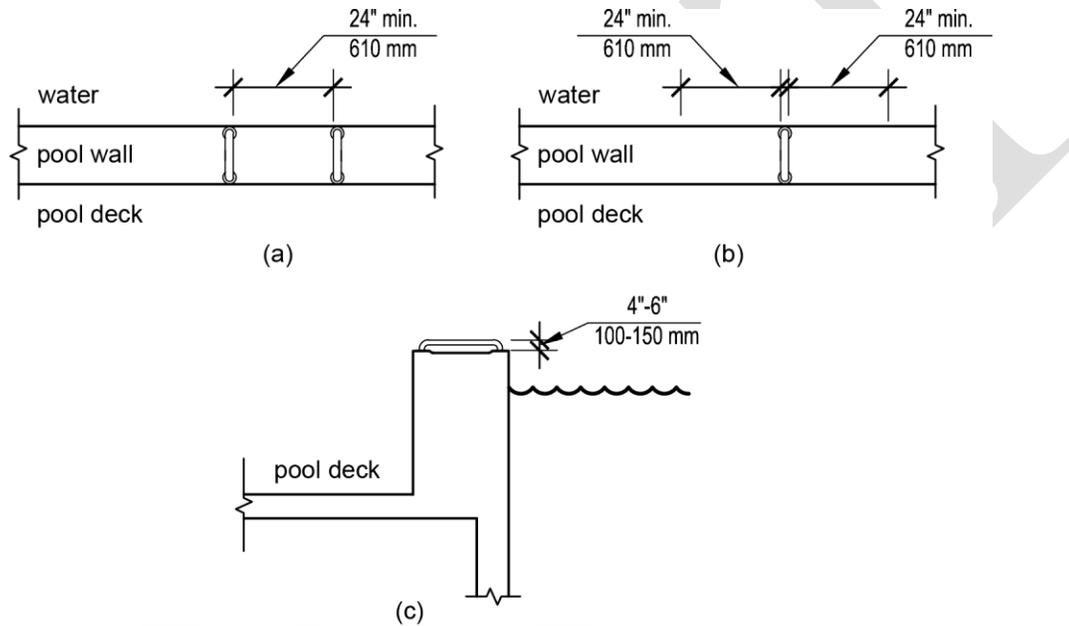
**Figure 54.9c**



- d. Surfaces of transfer walls shall not be sharp and shall have rounded edges.
- e. At least one (1) grab bar complying with **521 CMR 18.8, Grab Bars**, shall be provided on the transfer wall. See **Figure 54.9d**.

- i. Grab bars shall be perpendicular to the pool wall and shall extend the full depth of the transfer wall.
- ii. The top of the gripping surface shall be 4 inches (102 mm) minimum and 6 inches (152 mm) maximum above transfer walls.
- iii. Where one (1) grab bar is provided, clearance shall be 24 inches (610 mm) minimum on both sides of the grab bar.
- iv. Where two (2) grab bars are provided, clearance between grab bars shall be 24 inches (610 mm) minimum.

**Figure 54.9d**

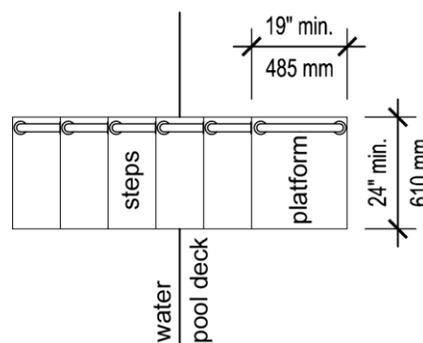


## 54.10 TRANSFER SYSTEMS

Transfer systems shall comply with the following:

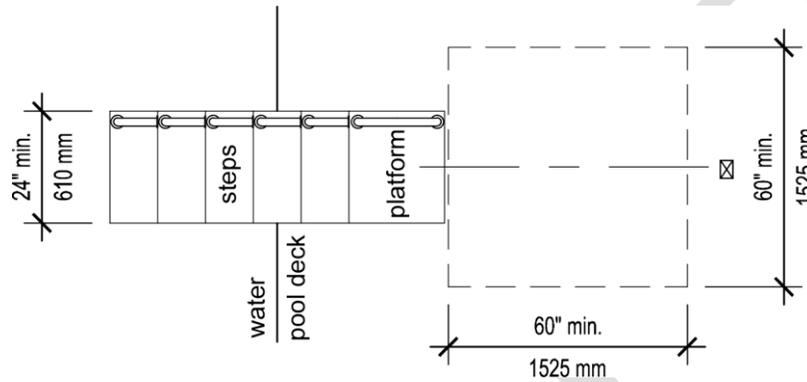
- a. A transfer platform shall be provided at the head of each transfer system. Transfer platforms shall provide 19 inches (483 mm) minimum *clear* depth and 24 inches (610 mm) minimum *clear* width. See **Figure 54.10a**.

**Figure 54.10a**



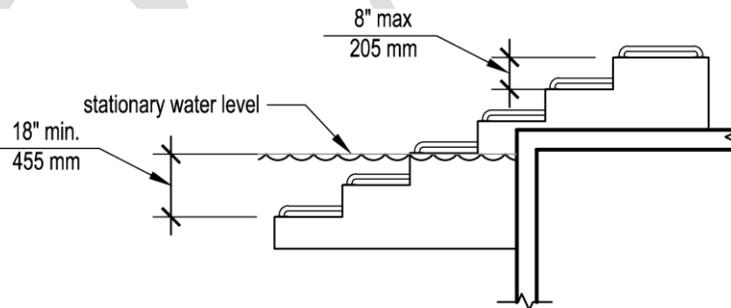
- b. A transfer space of 60 inches (1524 mm) minimum by 60 inches (1524 mm) minimum with a slope not steeper than one-to-forty-eight (1:48) (2 percent) shall be provided at the base of the transfer platform surface and shall be centered along a 24 inch (610 mm) minimum side of the transfer platform. The side of the transfer platform serving the transfer space shall be unobstructed. See **Figure 54.10b**.

**Figure 54.10b**



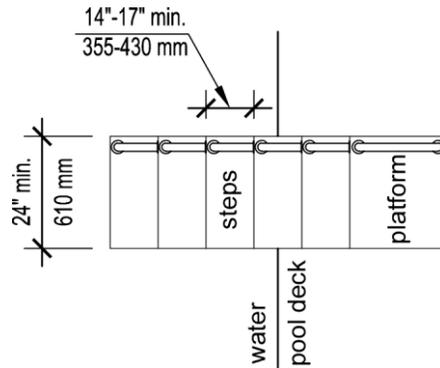
- c. The height of the transfer platform shall comply with **521 CMR 54.9b**.
- d. Transfer step height shall be 8 inches (203 mm) maximum. The surface of the bottom tread shall extend to a water depth of 18 inches (457 mm) minimum below the stationary water level. See **Figure 54.10c**.

**Figure 54.10c**



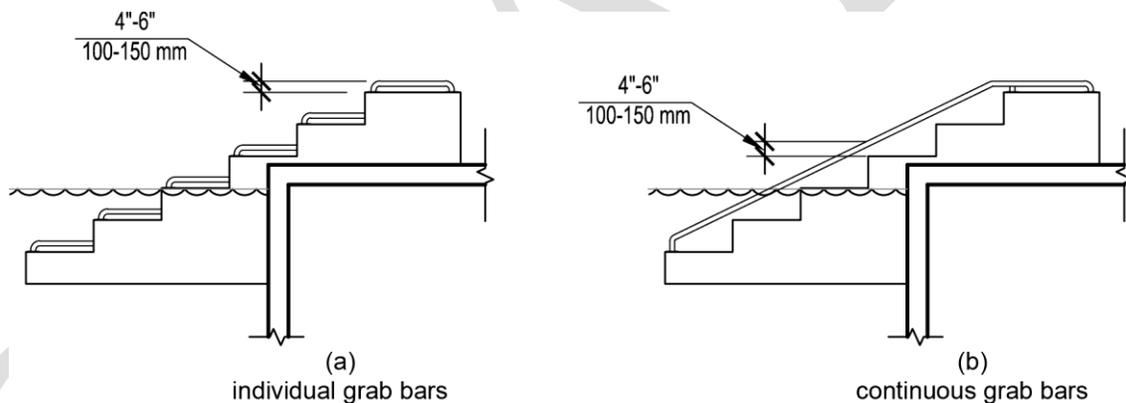
- e. The surface of the transfer system shall not be sharp and shall have rounded edges.
- f. Each transfer step shall have a tread *clear* depth of 14 inches (356 mm) minimum and 17 inches (432 mm) maximum and shall have a tread *clear* width of 24 inches (610 mm) minimum. See **Figure 54.10d**.

**Figure 54.10d**



- g. At least one (1) grab bar complying with **521 CMR 18.8, Grab Bars**, shall be provided on each transfer step and the transfer platform, or a continuous grab bar serving each transfer step and the transfer platform shall be provided. Grab bars shall be located on at least one (1) side of the transfer system. The grab bar located at the transfer platform shall not obstruct transfer. See **Figure 54.10e**.
- i. Where a grab bar is provided on each step, the tops of gripping surfaces shall be 4 inches (102 mm) minimum and 6 inches (152 mm) maximum above each step and transfer platform.
  - ii. Where a continuous grab bar is provided, the top of the gripping surface shall be 4 inches (102 mm) minimum and 6 inches (152 mm) maximum above the step nosing and transfer platform.

**Figure 54.10e**



### 54.11 POOL STAIRS

Pool stairs shall comply with **521 CMR 16.00: STAIRS**, except as modified by the following:

- a. The width between handrails shall be 20 inches (508 mm) minimum and 24 inches (610 mm) maximum.
- b. Handrail extensions, specified by **521 CMR 16.4g**, shall not be required at the bottom landing serving a sloped entry.

**521 CMR 55.00: BOWLING ALLEYS**

**55.1 BOWLING ALLEYS**

Where bowling lanes are provided, at least 5 percent, but no fewer than one (1) of each type of bowling lane, shall be on an *accessible route*, complying with **521 CMR 8.00: ACCESSIBLE ROUTES**.

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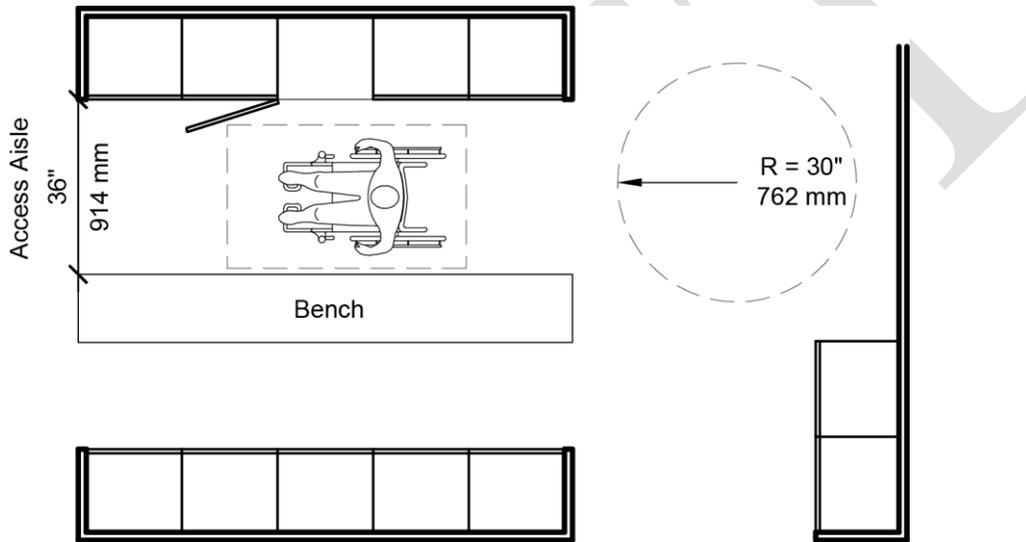
**521 CMR 56.00: LOCKER ROOMS**

Shall have a 36 inch (914 mm) wide *accessible route* around all lockers.

56.1 At least 5 percent of the lockers, hooks and shelves, but not less than one (1), shall be *accessible* and shall have locking/opening devices that shall comply with **521 CMR 41.00: CONTROLS / OPERABLE PARTS**.

56.2 If benches are provided, there shall be a 36 inch (914 mm) wide aisle between benches and lockers and a five (5) foot turning diameter near the *accessible* lockers. The benches provided shall comply with the requirements of **521 CMR 39.00: BENCHES**. See **Figure 56.2**.

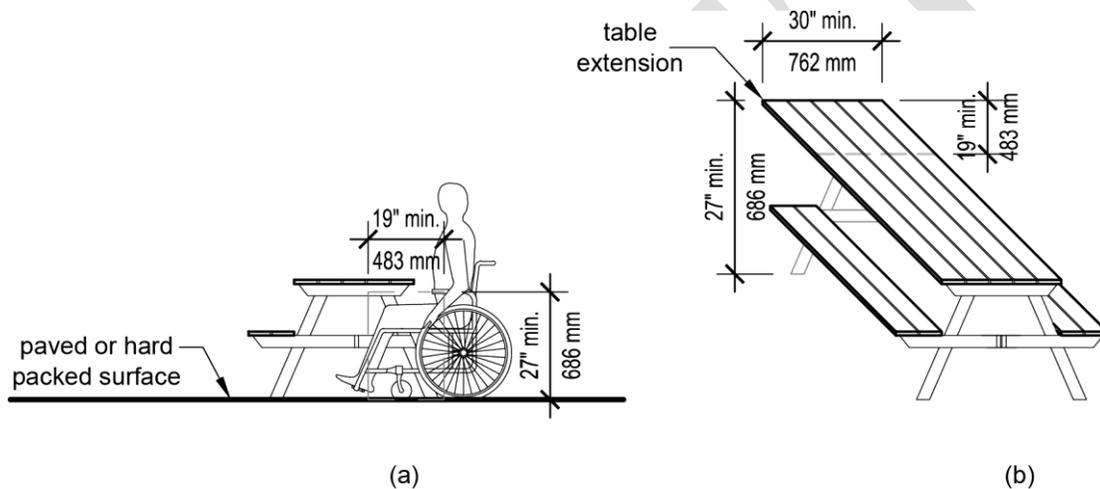
**Figure 56.2**



## 57.00: CAMPSITES

- 57.1 At least 5 percent of campsites shall be *accessible* and dispersed among those campsites that could be reached from an *accessible route*. Areas leading into such *sites* should be paved or hard packed.
- 57.2 At least 5 percent of tables shall be *accessible*. Tables for the *accessible sites* shall provide *clear floor or ground space* under the table top not less than 30 inches wide (762 mm) and 19 inches (483 mm) deep per seating space and not less than 27 inches (686 mm) *clear* from the ground to the underside of the table. See **Figure 57.2**.

**Figure 57.2**



**58.00: PICNIC AREAS AND HIGHWAY REST AREAS**

- 58.1 All picnic area and highway rest area *facilities* shall be *accessible* and shall be on an *accessible route* that is paved or hard packed. If *curb cuts* are provided, they shall comply with **521 CMR 13.00: CURB CUTS**.
- 58.2 At least 5 percent of tables, where provided shall be *accessible* and shall comply with **521 CMR 57.2**.

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## 59.00: PLAY AREAS

### 59.1 GENERAL

*Play areas* for children ages 2 and over shall comply with the following requirements.

Exceptions:

1. *Play areas* located in family child care facilities where the proprietor actually resides.
2. In existing *play areas*, where *play components* are relocated for the purposes of creating safe use zones and the ground surface is not altered or extended for more than one (1) use zone.
3. *Amusement attractions*; however they shall comply with the requirements of **521 CMR 48.00: AMUSEMENT RIDES**.

### 59.2 NUMBER AND TYPES

*Ground Level Play Components* or *Elevated Play Components*: Where provided, at least one (1) of each type shall be on an *accessible route* and shall comply with **521 CMR 59.3, Location**.

59.2.1 Where *elevated play components* are provided, *ground level play components* shall be provided in accordance with **Table 59.2**. Where two (2) or more required *ground level play components* or *elevated play components* are provided, per **Table 59.2**, they shall be dispersed throughout the *play area* and integrated with other *play components*.

Exception:

If at least 50 percent of the *elevated play components* are connected by a *ramp* and at least three (3) of the *elevated play components* connected by the *ramp* are different types of *play components*, the *play area* shall not be required to comply with **521 CMR 59.2.1**.

Number of <i>Elevated Play Components</i> Provided	Minimum Number of <i>Ground Level Play Components</i> Required to be on an <i>Accessible Route</i>	Minimum Number of Different Types of <i>Ground Level Play Components</i> Required to be on an <i>Accessible Route</i>
1	Not applicable	Not applicable
2 to 4	1	1
5 to 7	2	2
8 to 10	3	3
11 to 13	4	3
14 to 16	5	3
17 to 19	6	3
20 to 22	7	4
23 to 25	8	4
26 and over	8, plus 1 for each additional 3, or fraction thereof, over 25	5

### 59.3 LOCATION

Where separate *play areas* are provided within a *site* for specific age groups (e.g., preschool (ages 2 to 5) and school age (ages 5 to 12)), each *play area* shall independently comply with the requirements of **521**

**CMR 59.00: PLAY AREAS.** Where *play areas* are provided for the same age group on a *site* but are geographically separated (e.g., one is located next to a picnic area and another is located next to a softball field), they are considered separate *play areas* and each *play area* must comply with this section.

#### 59.4 ACCESSIBLE ROUTES

An *accessible route* shall be provided to reach playground equipment and around the perimeter of the playground for the following *play components*:

a. *Ground Level Play Components and Elevated Play Components*: At least one (1) *accessible route* shall be provided within the *play area*. The *accessible route* shall connect *ground level play components* and *elevated play components* required to comply with **521 CMR 59.2, Number and Types**, including entry and exit points of the *play components*.

Exceptions:

1. Transfer systems complying with **521 CMR 59.5, Transfer Systems**, shall be permitted to connect *elevated play components*, except where 20 or more *elevated play components* are provided no more than 25 percent of the *elevated play components* shall be permitted to be connected by transfer systems.

2. Where transfer systems are provided, an *elevated play component* shall be permitted to connect another *elevated play component* as part of an *accessible route*.

b. *Soft Contained Play Structures*: Where three (3) or fewer entry points are provided for *soft contained play structures*, at least one (1) entry point shall be on an *accessible route*. Where four (4) or more entry points are provided for *soft contained play structures*, at least two (2) entry points shall be on an *accessible route*.

Exception:

Transfer systems complying with **521 CMR 59.5, Transfer Systems** shall be permitted to be used as part of an *accessible route*.

c. *Water Play Components*: Where the surface of the *accessible route, clear floor or ground spaces*, or turning spaces serving *water play components* is submerged, it shall comply with **521 CMR 54.8, Sloped Entries**. Transfer systems complying with **521 CMR 59.5, Transfer Systems**, shall be permitted to connect *elevated play components* in water.

59.4.1 The ground surface of *use zones, accessible routes* and turning spaces within *play areas* shall be firm, stable and slip resistant, permanent, and constructed of materials such as rubber resilient surfacing, urethane rubber composites or similar; and comply with commonly accepted impact attenuation criteria for safety surfacing materials within the *use zones* of *play area* equipment. Loose fill surfaces and aggregate surfaces including wood fiber, bark mulch, wood chips, shredded rubber, shredded foam, etc. are not acceptable for *accessible routes* within the playground. Molded rubber mats, if utilized, require adhesion to a permanent surface beneath.

59.4.2 The *clear width* of *accessible routes* to *play components* shall comply with the following:

a. At ground level, the *clear width* of *accessible routes* shall be 60 inches (1524 mm) minimum.

Exceptions:

1. In *play areas* less than 1000 square feet (93 m<sup>2</sup>), the *clear width* of *accessible routes* shall be permitted to be 44 inches (1118 mm) minimum, if at least one (1) turning space complying with **521 CMR 6.2, Wheelchair Turning Space** is provided where the restricted *accessible route* exceeds 30 feet (9144 mm) in length.

2. The *clear width* of *accessible routes* shall be permitted to be 36 inches (914 mm) minimum for a distance of 60 inches (1524 mm) maximum provided that multiple reduced width segments are

separated by segments that are 60 inches (1524 mm) wide minimum and 60 inches (1524 mm) long minimum.

59.4.3 The *clear* width of *accessible routes* connecting *elevated play components* shall be 36 inches (914 mm) minimum.

Exceptions:

1. The *clear* width of *accessible routes* connecting *elevated play components* shall be permitted to be reduced to 32 inches (813 mm) minimum for a distance of 24 inches (610 mm) maximum provided that reduced width segments are separated by segments that are 48 inches (1219 mm) long minimum and 36 inches (914 mm) wide minimum.
2. The *clear* width of transfer systems connecting *elevated play components* shall be permitted to be 24 inches (610 mm) minimum.

59.4.4 Where *play components* require transfer to entry points or seats, the entry points or seats shall be 11 inches (280 mm) minimum and 24 inches (610 mm) maximum from the *clear floor or ground space*. Where *play components* require transfer to entry points or seats, at least one (1) means of support for transferring shall be provided per **521 CMR 59.6.3**.

Exception:

Entry points of slides shall not be required to comply with the requirements of **521 CMR 59.5.2, Entry Points and Seats**.

59.4.5 At least one (1) turning space complying with **521 CMR 6.2, Wheelchair Turning Space**, shall be provided on the same level as *play components*. Where swings are provided, the turning space shall be located immediately adjacent to the swing.

59.4.6 *Clear floor or ground space* complying with **521 CMR 6.1, Clear Floor or Ground Space for Wheelchairs** shall be provided at *play components*. *Clear floor or ground spaces*, turning spaces, and *accessible routes* are permitted to overlap within *play areas*.

59.4.7 Within *play areas*, *ramps* connecting *ground level play components* and *ramps* connecting *elevated play components* shall comply with the following:

- a. *Ramp* runs connecting *ground level play components* shall have a *running slope* not steeper than 1:16.
- b. The rise for any *ramp* run connecting *elevated play components* shall be 12 inches (305 mm) maximum.

59.4.8 Where required on *ramps* serving *play components*, the handrails shall comply with the following:

Exceptions:

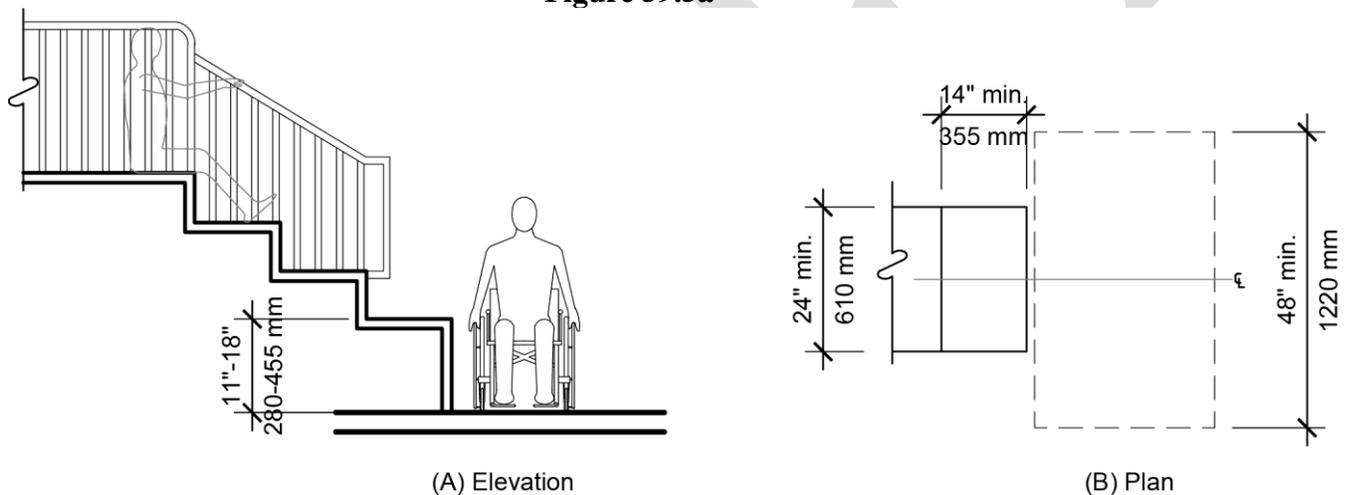
1. Handrails shall not be required on *ramps* located within ground level *use zones*.
2. Handrail extensions shall not be required.
  - a. Handrail gripping surfaces with a circular cross section shall have an outside diameter of 0.95 inch (24 mm) minimum and 1.55 inches (39 mm) maximum. Where the shape of the gripping surface is non-circular, the handrail shall provide an equivalent gripping surface.
  - b. The top of handrail gripping surfaces shall be 20 inches (508 mm) minimum and 28 inches (711 mm) maximum above the *ramp* surface.

## 59.5 TRANSFER SYSTEMS

Where transfer systems are provided, consideration should be given to the distance between the transfer system and the *elevated play components*. Moving between a transfer platform and a series of transfer steps requires extensive exertion for some children. Designers should minimize the distance between the points where a child transfers from a wheelchair or mobility device and where the *elevated play components* are located. Where *elevated play components* are used to connect to another *elevated play component* instead of an *accessible route*, careful consideration should be used in the selection of the *play components* used for this purpose.

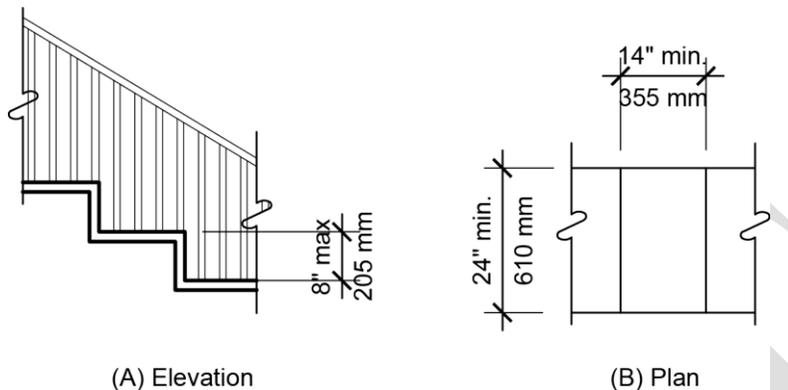
- 59.5.1 Transfer platforms shall be provided where transfer is intended from wheelchairs or other mobility aids. Transfer platforms shall comply with the following (See **Figure 59.5a**):
- Transfer platforms shall have *level* surfaces 14 inches (356 mm) deep minimum and 24 inches (610 mm) wide minimum.
  - The height of transfer platforms shall be 11 inches (280 mm) minimum and 18 inches (457 mm) maximum measured to the top of the surface from the ground or floor surface.

**Figure 59.5a**



- 59.5.2 A transfer space complying with **521 CMR 6.1, Clear Floor or Ground Space for Wheelchairs**, shall be provided adjacent to the transfer platform. The 48 inch (1219 mm) long minimum dimension of the transfer space shall be centered on and parallel to the 24 inch (610 mm) long minimum side of the transfer platform. The side of the transfer platform serving the transfer space shall be unobstructed.
- 59.5.3 At least one (1) means of support for transferring shall be provided. Transfer supports are required on transfer platforms and transfer steps to assist children when transferring. Some examples of supports include a rope loop, a loop type handle, a slot in the edge of a flat horizontal or vertical member, poles or bars, or D rings on the corner posts.
- 59.5.4 Transfer steps shall be provided where movement is intended from transfer platforms to levels with *elevated play components* required to be on *accessible routes*. Transfer steps shall comply with the following (See **Figure 59.5b**):
- Transfer steps shall have *level* surfaces 14 inches (356 mm) deep minimum and 24 inches (610 mm) wide minimum.
  - Each transfer step shall be 8 inches (203 mm) high maximum.

Figure 59.5a



### 59.6 PLAY TABLES

Where play tables are provided, knee clearance 24 inches (610 mm) high minimum, 17 inches deep (432 mm) minimum, and 30 inches (762 mm) wide minimum shall be provided. The tops of rims, curbs, or other obstructions shall be 31 inches (787 mm) high maximum.

Exception:

Play tables designed and constructed primarily for children five (5) years and younger shall not be required to provide knee clearance where the *clear floor or ground space* required by **521 CMR 59.5.4, Clear Floor or Ground Space** is arranged for a parallel approach.

## 60.00 RECREATIONAL BOATING FACILITIES

### 60.1 GENERAL

*Boat slips* required to comply with **521 CMR 60.2, Boat Slips**, and *boarding piers* at *boat launch ramps* required to comply with **521 CMR 60.3, Boarding Piers at Boat Launch Ramps**, shall be on an *accessible route*. *Accessible routes* serving recreational boating facilities shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**, except as specified or modified by **521 CMR 60.4, Accessible Routes**.

### 60.2 BOAT SLIPS

*Boat slips* complying with **521 CMR 60.5.1, Pier Space**, shall be provided in accordance with **Table 60.2**. Where the number of *boat slips* is not identified, each 40 feet (12192 mm) of *boat slip* edge provided along the perimeter of the pier shall be counted as one *boat slip* for the purpose of this section.

**Table 60.2 - Boat Slips**

<b>Total Number of Boat Slips Provided in Facility</b>	<b>Minimum Number of Required Accessible Boat Slips</b>
1 to 25	1
26 to 50	2
51 to 100	3
101 to 150	4
151 to 300	5
301 to 400	6
401 to 500	7
501 to 600	8
601 to 700	9
701 to 800	10
801 to 900	11
901 to 1000	12
1001 and over	12, plus 1 for every 100, or fraction thereof, over 1000

60.2.1 *Boat slips* complying with **521 CMR 60.5.1**, shall be dispersed throughout the various types of *boat slips* provided, such as single berths or double berths, shallow water or deep water, transient or longer-term lease, covered or uncovered, and slips equipped with telephone or water or electricity or cable

connections. There shall be a minimum of one (1) per type of *boat slips*. **60.3 BOARDING PIERS AT BOAT LAUNCH RAMPS**

Where *boarding piers* are provided at *boat launch ramps*, at least 5 percent, but no fewer than one (1), of the *boarding piers* shall comply with **521 CMR 60.5.2**.

#### **60.4 ACCESSIBLE ROUTES**

*Accessible routes* serving recreational boating *facilities*, including *gangways* and floating piers, shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**, except as specified or modified by **521 CMR 60.4**.

60.4.1 *Accessible routes* serving *boat slips* shall be permitted to use the following exceptions:

- a. *Gangways* shall not be required to comply with the maximum rise specified in **521 CMR 12.2, Slope and Rise**.
- b. Where the total length of a *gangway* or series of *gangways* serving as part of a required *accessible route* is 80 feet (24384 mm) minimum, *gangways* shall not be required to comply with **521 CMR 12.2, Slope and Rise**.
- c. Where *facilities* contain fewer than 25 *boat slips* and the total length of the *gangway* or series of *gangways* serving as part of a required *accessible route* is 30 feet (9144 mm) minimum, *gangways* shall not be required to comply with **521 CMR 12.2, Slope and Rise**.
- d. Where *gangways* connect to *transition plates*, landings specified by **521 CMR 12.5, Landings**, shall not be required.
- e. Where *gangways* and *transition plates* connect and are required to have handrails, handrail extensions shall not be required. Where handrail extensions are provided on *gangways* or *transition plates*, the handrail extensions shall not be required to be parallel with the ground or floor surface.
- f. The *cross slope* specified in **521 CMR 8.8, Slope and Cross Slope** and **521 CMR 12.3, Cross Slope** for *gangways*, *transition plates*, and floating piers that are part of *accessible routes* shall be measured in the static position.
- g. Changes in level complying with **521 CMR 9.4, Level Changes**, and **521 CMR 9.4.1**, shall be permitted on the surfaces of *gangways* and *boat launch ramps*.

60.4.2 *Accessible routes* serving *boarding piers* at *boat launch ramps* shall be permitted to use the following exceptions:  
a. *Accessible routes* serving floating *boarding piers* shall be permitted to use **Exceptions a, d, e, f and g** in **521 CMR 60.4.1.b**.  
b. Where the total length of the *gangway* or series of *gangways* serving as part of a required *accessible route* is 30 feet (9144 mm) minimum, *gangways* shall not be required to comply with **521 CMR 12.2, Slope and Rise**.  
c. Where the *accessible route* serving a floating *boarding pier* or skid pier is located within a *boat launch ramp*, the portion of the *accessible route* located within the *boat launch ramp* shall not be required to comply with **521 CMR 12.00: RAMPS**.

#### **60.5 CLEARANCES**

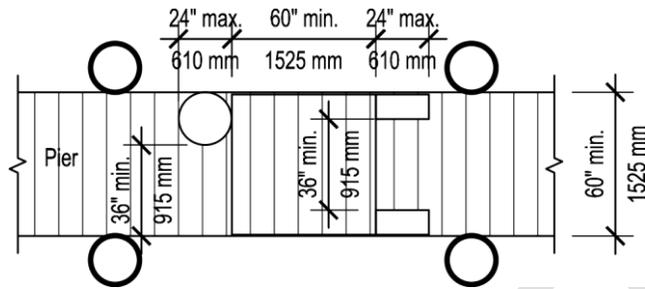
Clearances at *boat slips* and on *boarding piers* at *boat launch ramps* shall comply with the following:

60.5.1 *Boat slips* shall provide *clear pier space* 60 inches (1524 mm) wide minimum and at least as long as the *boat slips*. Each 10 feet (3048 mm) maximum of linear pier edge serving *boat slips* shall contain at least one (1) continuous *clear opening* 60 inches (1524 mm) wide minimum.

##### Exceptions:

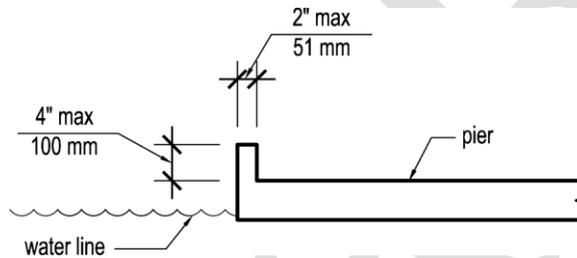
1. *Clear pier space* shall be permitted to be 36 inches (914 mm) wide minimum for a length of 24 inches (610 mm) maximum, provided that multiple 36 inch (914 mm) wide segments are separated by segments that are 60 inches (1524 mm) wide minimum and 60 inches (1524 mm) long minimum. See **Figure 60.5a**.

**Figure 60.5a**



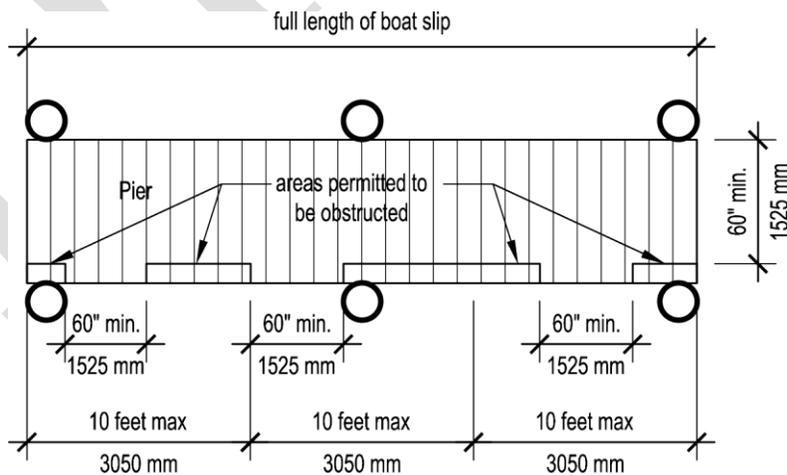
- Edge protection shall be permitted at the continuous *clear* openings, provided that it is 4 inches (102 mm) high maximum and 2 inches (51 mm) wide maximum. See **Figure 60.5b**.

**Figure 60.5b**



- In existing piers, *clear* pier space shall be permitted to be located perpendicular to the *boat slip* and shall extend the width of the *boat slip*, where the *facility* has at least one (1) *boat slip* complying with **521 CMR 60.5, Clearances**, and further compliance with **521 CMR 60.5, Clearances**, would result in a reduction in the number of *boat slips* available or result in a reduction of the widths of existing slips. See **Figure 60.5c**.

**Figure 60.5c**



60.5.2 *Boarding piers at boat launch ramps* shall provide *clear pier space* 60 inches (1524 mm) wide minimum and shall extend the full length of the *boarding pier*. Every 10 feet (3048 mm) maximum of linear pier edge shall contain at least one (1) continuous *clear opening* 60 inches (1524 mm) wide minimum.

Exceptions:

1. The *clear pier space* shall be permitted to be 36 inches (914 mm) wide minimum for a length of 24 inches (610 mm) maximum provided that multiple 36 inch (914 mm) wide segments are separated by segments that are 60 inches (1524 mm) wide minimum and 60 inches (1524 mm) long minimum. See **Figure 60.5a**.
2. Edge protection shall be permitted at the continuous *clear openings* provided that it is 4 inches (102 mm) high maximum and 2 inches (51 mm) wide maximum. See **Figure 60.5b**.

## **521 CMR 61.00: FISHING PIERS AND PLATFORMS**

### **61.1 GENERAL**

Fishing piers and platforms shall comply with **521 CMR 61.00: FISHING PIERS AND PLATFORMS**, except as specified or modified in **521 CMR 61.00: FISHING PIERS AND PLATFORMS**.

### **61.2 ACCESSIBLE ROUTES**

*Accessible routes* serving fishing piers and platforms, including *gangways* and floating piers, shall comply with **521 CMR 8.00: ACCESSIBLE ROUTES**.

#### Exceptions:

1. *Accessible routes* serving floating fishing piers and platforms shall be permitted to use **Exceptions a, d, e, f and g** in **521 CMR 60.4.1.2**. Where the total length of the *gangway* or series of *gangways* serving as part of a required *accessible route* is 30 feet (9144 mm) minimum, *gangways* shall not be required to comply with **521 CMR 12.2, Slope and Rise**.

### **61.3 RAILINGS**

Where provided, railings, guards, or handrails shall comply with the following:

- a. At least 25 percent of the railings, guards, or handrails shall be 34 inches (864 mm) maximum above the ground or deck surface.

#### Exception:

Where a guard complying with sections 1003.2.12.1 and 1003.2.12.2 of the International Building Code (2000 edition) or sections 1012.2 and 1012.3 of the International Building Code (2003 edition) (incorporated by reference, see "Referenced Standards" in Chapter 1) is provided, the guard shall not be required to comply with **521CMR 61.3a**.

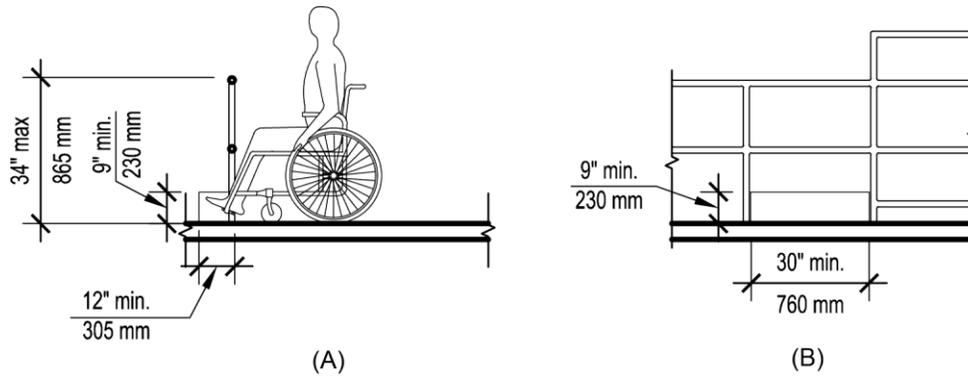
- b. Railings, guards, or handrails required to comply with **521 CMR 61.3a**, shall be dispersed throughout the fishing pier or platform. Different fishing locations may provide varying water depths, shade (at certain times of the day), vegetation, and proximity to the shoreline or bank.

### **61.4 EDGE PROTECTION**

Where railings, guards, or handrails complying with **521 CMR 61.3, Railings**, are provided, edge protection complying with **521 CMR 61.4a** or **61.4b**, shall be provided.

- a. Curbs or barriers shall extend 2 inches (51 mm) minimum above the surface of the fishing pier or platform.
- b. The ground or deck surface shall extend 12 inches (305 mm) minimum beyond the inside face of the railing. Toe clearance shall be provided and shall be 30 inches (762 mm) wide minimum and 9 inches (229 mm) minimum above the ground or deck surface beyond the railing. See **Figure 61.4**.

**Figure 61.4**



**61.5 CLEAR FLOOR OR GROUND SPACE**

At each location where there are railings, guards, or handrails complying with **521 CMR 61.3a**, a *clear floor or ground space* complying with **521 CMR 7.00: Ground and Floor Surfaces**, shall be provided. Where there are no railings, guards, or handrails, at least one (1) *clear floor or ground space* complying with **521 CMR 7.00: GROUND AND FLOOR SURFACES** shall be provided on the fishing pier or platform.

**61.6 TURNING SPACE**

At least one (1) turning space complying with **521 CMR 6.2, Wheelchair Turning Space**, shall be provided on fishing piers and platforms.