Moving around outdoors and inside buildings is the quintessential activity of urban life. Accessibility of resources, in its broadest sense, and the mobility required for that access is what cities are all about.

**Exterior Path Planning and Design**

The layout of path systems should establish a pattern that is safe and accommodates the needs of people on the site and in buildings. Planning should give consideration to the needs and preferences of people who move at different paces and may have varying abilities. Travel surfaces and dimensions should support comfortable and easy movement without hazards or barriers, except in locations where challenge is part of a recreational experience. People should not encounter unexpected obstacles on a path.

**Guidelines:**

- Provide easy and direct access to all facilities.
- Provide accessible pathways for the full range of path types on a site. Where there are both primary and secondary pathways, for example, each should be accessible.
Locate seating and rest stops near but out of the flow of pedestrian traffic.

Separate pedestrian, vehicular and bicycle/skating pathways. When adjacent to one another, clearly mark the boundaries between each.

Avoid steps and curbs in pedestrian and bicycle circulation areas. Even one step can be a hazard and a barrier.

Edges of pathways should be clearly marked (e.g., textured borders).

Surfaces should be smooth, firm, continuous and non-slip (e.g., broom finished concrete provides traction underfoot).

Avoid pavement surfaces that reflect a lot of light.

Eliminate obstructions and hazards that intrude into the path of travel (e.g., drainage grates, signs, overhanging trees, manholes, light fixtures or benches).

Avoid irregular textures, ridges, rough or uneven traveling surfaces (e.g., wide pavement joints or protruding joints).

All pedestrian pathways should be wide enough for two people, whether standing or sitting, to pass each other while traveling in opposite directions. A cross slope of 2% is recommended.

Major access routes should not exceed a 5% slope. Any steeper segments should be designed as ramps.

Where steep grade, difficult surfaces or obstacles exist on challenging recreation trails, provide information for the user who is not familiar with the trail.

As an alternative to shorter direct routes with steep grades, indirect access routes that are relatively level (i.e., less than a 5% slope) should be available to users who are easily fatigued.
All potentially hazardous stairs, ramps and transitions should be clearly marked with differences in color, texture or material to alert users.

**Street Crossings**

Street crossings provide continuity in the accessible path of travel.

**Guidelines:**

- Curb cuts and ramps should direct pedestrians into safe crossing areas.
- Reduce pedestrian crossing distance on major crossing routes through extensions or “bump-outs” at the corner or safe islands between center lanes. This reduces exposure time to traffic, provides a safe place to wait and helps to minimize hazards.
- Locate storm drains outside marked crossings.
- Crossings should be clearly marked with borders, color and/or texture.
- Pedestrian crossing signals should provide enough time for slower moving people to cross. These signals should be clearly detectable by motorists.
- Provide visual and auditory crossing signals at all busy crossings. Lower pitched signals are easier to hear than high-pitched.
- Provide higher illumination levels at all crossings. Lighting should highlight pedestrians. Approximately 70% of accidents at crossings occur at night due to poor lighting.
- In areas where there are particularly high levels of pedestrian and vehicular traffic, consider using pedestrian barriers to control crossing locations.

**Figure 4.1a.5.** A bollard and chain system was installed to separate pedestrian and vehicular traffic. This feature is a useful shoreline for travelers with reduced vision who use canes.

**Figure 4.1a.6.** There is an “extension” at the corner to reduce the crossing distance. The curb ramp extends completely around the corner for easy use by everyone.
Curb Ramps (Curb Cuts)

Curb ramps should provide a smooth transition in level changes within the pedestrian environment and be designed and located to reduce hazards.

Guidelines:

- Extend curb ramps across the entire crossing area where this is safe and feasible.
- Provide changes in pavement treatment including color and/or texture to help all users identify the beginning of the curb ramp.
- Where curb ramps must be kept to minimum size, they should be offset to the side of the crossing with a detectable edge.
- Avoid lips at the bottom of ramps to ensure that the curb cuts blend easily with the road surface.
- Provide either shallow sloped side flares or means to prevent pedestrians who are not crossing from traveling across the ramp.
- Add texture to ramp slopes to prevent slipping and falls in rainy or snowy weather.

Ramps and Stairs

It is important to ensure that ramps, stairs, steps and handrails are designed and constructed so that all pedestrians can use them safely.

Guidelines:

- Provide ramps and stairs at grade changes. Where ramps are short and the slope is less than 6.5%, the ramp alone is sufficient.
- Ramps should be wide enough to accommodate the expected...
pedestrian flow. This may be greater than the minimum required for wheelchair use.

Design ramps for all to use rather than as special accommodations for wheelchair users.

If ramps are long, provide level resting platforms periodically.

Provide no more than ten risers on stairways between landings.

Use non-slip and non-glare surfaces and edges.

Avoid winders and single, double and curved steps. These features are hazardous to everyone.

Treads should be wide enough (11-14 inches not including nosing) to allow the foot of the person descending the stairs to fall inside the nosing edge to lessen the risk of slipping.

Provide continuous railings that are easy to grip along all stairs and ramps.

Provide handrail extensions at the top and bottom of stairs and ramps to help people identify the change in grade and make the necessary adjustments in gait.

Handrail extensions should be turned down or returned to the wall for protection.

Wall surfaces adjacent to handrails should be non-abrasive.

Provide multi-sensory indicators to identify the beginning and end of a set of stairs, a change in direction, or the location of facilities.

Ramps and stairs should be marked and lighted evenly throughout their length.

Illuminate travel surfaces with low lighting to reduce shadows.

Mark and secure the underside of freestanding stairs to prevent users from inadvertently moving underneath.
Hallways and Corridors

Indoor circulation should be convenient, safe and comfortable.

Guidelines:

- Keep all stairways and ramps out of the direct path of travel. Locate them to the side or perpendicular to the travel path.
- Avoid side or overhead objects (e.g., signs, fire extinguishers, drinking fountains, etc.) that protrude into the circulation space.
- All floor surfaces should be non-slip.
- Avoid carpet and underlayment that could pose a tripping hazard or impede travel for people using wheeled mobility devices.
- Evenly illuminate all hallways and corridors. Where light levels change, provide a smooth transition from dark to light to accommodate the adaptation of the eyes.
- Hallways and corridors should be wide enough for two people, whether standing or sitting, to pass each other while traveling in opposite directions.

Mechanical Circulation Systems

Mechanical devices are used extensively in multi-story buildings. Although accessibility codes have requirements for elevator design, they do not cover escalators or moving pedestrian pathways, nor do they specify the best approaches to elevator design.

Guidelines:

- In large buildings, provide escalators from the main entries to key attractions to reduce congestion. Escalators cannot be used in place of elevators.
- Provide detectable floor surface changes at approaches to
Using Circulation Systems

- Escalators and moving pedestrian pathways or keep them out of the direct path of travel.
- Moving pedestrian pathways should be wide enough and safe for use by all people whether standing or sitting.
- Elevator panels should have high contrast signs and labels and be well lighted.
- Elevator cabs should have enough room to allow all users, whether standing or sitting, to enter, turn around and exit.
- Both verbal and visual announcements of floor levels are recommended. Verbal announcements of floor levels are more effective than a bell or buzzer sound as notification that the elevator has passed a floor.
- Plan mechanical circulation systems so that the people who use them are not inconvenienced or unduly separated from the main pattern of building use.

Escape and Refuge

In the event of an emergency, all users should be provided routes of escape or safe places to wait for rescue.

Guidelines:

- Provide two means of stairless egress when the topography makes it feasible to have entries at different grade levels.
- Plan at least one approved place of refuge during emergencies on every floor in strategic locations. Vestibules leading to fire stairs or elevator lobbies that are also served by stairways can be used for this purpose if they are large enough.
- Provide labeling and instructions for use of refuge areas.
- Develop an evacuation plan for people who cannot get out of a building on their own in an emergency.
- Provide public address announcements in both verbal and
visual formats during emergencies to inform everyone of the situation.

Provide signaling systems and signs that can help people escape from complex buildings where the way out is not easy to understand (e.g., underground facilities).

Figure 4.1a.13. In this building, a ramp and stair tower provide alternative means of circulation. The two are organized spatially to frame the main entry of the building.