

## Yale University

### Guidelines for Making Buildings Accessible to Persons Who Have Disabilities

Revised: 20 April 2020

These Guidelines, prepared by the Provost Advisory Committee on Accessibility Resources, are intended for the use of University planners, architects, engineers, and consultants who design, construct, renovate, and manage facilities projects. Their purpose is two fold: first, to clarify some of the ambiguities or inconsistencies found in the various applicable codes including the Americans with Disabilities Act of 1990 Accessibility Guidelines (ADAAG), the Connecticut State Building Code which incorporates by reference the American National Standards Institute (ANSI) A117.1; and second, to present additional design guidelines that Yale University has elected to adopt based on the practical experience of the University population as regards accessibility and the physical nature of its uniquely historic campus settings. The Guidelines provide additional considerations for the University's projects and are meant to be supplemental, not to reduce the requirements already in place through applicable codes.

The Guidelines were first developed in 1994 and updated in 2007 after careful consideration of the practical experiences students and employees with disabilities have shared with Committee members regarding access to the University's facilities and its programs, services, and activities. The Guidelines are intended to promote the objective of the fully integrated participation of students, faculty, staff, and visitors with disabilities at the University.

These revised Guidelines are to be reviewed, amended as required, and approved annually by the Provost Advisory Committee on Accessibility Resources. Departures from these Guidelines should be discussed with the Committee. The Committee welcomes comments from the Yale Community and ideas about ways to improve the application of the guidelines.

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## A. PATHWAYS

Objective: To provide access routes throughout the Campus that support the use by all Community members and guests.

Identify main and secondary routes to the building – both pedestrian and vehicular - and provide accessible routes at the main and secondary routes. Avoid separate pathways. Employ coincident pathways for people of all abilities, with the same starting and ending points.

1. All exterior pathways should be as level and smooth as possible to best accommodate the movement of mobility devices and to reduce tripping hazards for sight impaired users and those using walking assistance devices.
  - a. Where possible, concrete finished pathways are preferred.
  - b. When using a stone walk, a concrete base should be used rather than a sand or loose screen base.
  - c. Additionally, a maximum of half-inch mortar joints is preferred to minimize the “rutting” of wheels on mobility devices.
  - d. Avoid pathway construction that will result in uneven pathways and heaved up stone.
2. Provide an accessible route for mobility device users when interior access exists for movement between buildings for non-wheelchair users.

Application: In a residential college, a wheelchair user should not have to go outside to get to a dining hall when other students have access via an interior route.
3. Address potential drainage problems that cause puddles of water or form icy areas along accessible paths with particular attention to accessible building entries and curb cuts at crosswalks.
  - a. Provide a cross pitch for drainage perpendicular to pathways and sidewalks within the range of 1/8” per foot to 1/4” per foot.
  - b. Use freeze-free drains.
  - c. Slope accessible paths away from entry doors within the range of 1/8” per foot to 1/4” per foot.
  - d. Ensure exterior path finish materials meet slip coefficient standards.
4. New curb cuts and crosswalks should be positioned so that all pathways allow a mobility device user to follow established and predicted traffic patterns set by pedestrians.

## B. PARKING

Objective: To provide reasonably convenient access to buildings and other destinations throughout the Campus that support the use by all Community members and guests.

1. When a new building is constructed, or when an existing building renovated and made accessible, the issue of accessible automobile parking for wheelchair users should be reviewed. Code minimum allocation of accessible parking is required with attention to proximity to building entry doors.

2. Parking lots or off-the-street spaces are the preferred solutions for accessible parking. If such a space is not reasonably adjacent to a building, accessible street parking must be considered. Such parking must be located as close as possible to a curb cut in order to avoid lengthy travel distances in the street or in parking lots.
3. Accessible parking must include the code required allocation of lift-equipped van spaces. Vans often have lifts which, when in use, open to the traffic side. One-way streets present a different safety consideration, so in such conditions, parking spaces should be available on both sides of the street in order to provide safe use.
4. Ensure pathways for safe traverse of parking area by people of all abilities, including accessible ways in/out of parking areas, and create alternatives for parking spaces eliminated during construction.

### **C. RAMPS**

Objective: To provide convenient access throughout the campus with a minimal need for ramps, especially for building access.

1. In new construction, do not use ramps (use slopes of 1:20 or less). In pre-existing conditions, eliminate ramps where possible.
2. Gradual slopes equal to or less than 1:20 are preferred to steeper ramps with railings. Exterior ramps between 1:12 and 1:20 slope require railings. Such railings should be designed to prohibit the securing of bicycles. Design should allow for ample width for turning and passing traffic. The landings should be distanced so as to avoid long rises without breaks.
3. Ramps should not be made of wood. They should be constructed of permanent and durable materials, be easy to clean and clear off snow during the winter.
4. Covering an outdoor ramp should be considered, if architecturally appropriate, in order to protect both the ramp and its users from severe weather.
5. Where ramps required (subject to review by Facilities Subcommittee), they should be coincident with the main path of travel so that people of all abilities share the same pathway.

### **D. STAIRS**

Objective: When provided, stairs should be as negotiable as possible for those with limited mobility.

1. All stairs, even those with fewer than three risers, both inside and outside buildings, should have hand railings on both sides and at intermediate locations if excessively wide.
2. Stairs should be avoided on primary routes wherever possible.

3. It is preferred that the main entry to all buildings serve all those using the building. Whenever possible, it is preferred that a steep grade requiring steps to the main entry be avoided. When unavoidable, provide code required slopes (preferred) or ramps (if necessary, See C.1) for accessibility.
4. Railings should be designed to minimize catching on articles of clothing etc.

## **E. ELEVATORS**

Objective: Elevators should be consistently equipped for ease of operation by all users.

1. Code requires that an audible signal announce the position of the elevator car. An automatic voice announcement is preferred when this does not interfere with the primary functions of the building.
2. Areas of refuge must be designated and identified at each floor not directly accessible to an exterior exit, and have a way to communicate for assistance, e.g. a telephone. These areas are to be used in case of emergencies such as fire and must be kept clear.
3. If existing elevator sizes in a renovated building are such that they cannot accommodate an interior wheel chair turning radius, then a modified cab must be considered, having two doors at opposite ends and/or duplicate interior controls.

## **F. LIFTS**

Objective: Lifts are only used if all other means of achieving grade changes have been deemed unreasonable.

1. Wheelchair lifts are not allowed to be installed in new construction.
2. To date the University's experience with platform or wheelchair lifts has not been positive. They can be difficult to operate, they breakdown frequently, are inadequately maintained, and some cannot accommodate heavier, electric wheelchairs and scooters. Therefore, they should be installed only after all other alternatives have been explored and ruled out. Un-protected exterior lifts should never be used.
3. All lifts should have signs that explain how to operate the lift, identify a contact person for assistance to use the lift when necessary, and display an emergency number in case the contact person is unavailable. However, wheelchair users should be able to operate lifts without their having to call for assistance.
4. Accessibility lifts in new construction are prohibited. Existing lifts should be eliminated and replaced with alternate means of access if feasible. Accessibility lifts are to be located indoors and not be subject to weather.

## **G. DOORS**

Objective: Doors should be designed to meet code requirements so as not to hinder ease of movement into and through a building.

1. Main entrances and building vestibule doorways should have automatic door openers per Yale Standards.
2. All new buildings must have 36" wide doors at a minimum. Doors being renovated in existing buildings should also be 36" wide to provide required clearances for mobility devices. When this is not possible, then minimum ADA opening clearances must be maintained.
3. In accessible student rooms, door security peepholes should be placed at the eye level of a sitting person (46") as well as at the eye level of someone who is standing.
4. Eliminate thresholds/sill plates under doorways where possible in renovations. When unavoidable, minimize transition height to the minimum possible.
5. All interior doors in new construction should be designed in such a way that future retrofit with automatic opener is possible.
6. The maximum force required to open doors and delayed closers required by code are to be strictly adhered to and maintained.

## H. ENTRANCES TO BUILDINGS

Objective: Entrances to buildings should be accessible to all users of the facility.

1. The main entrance to a building must be accessible to all in new construction.
2. Other ground floor entrances should also be accessible. Renovated or altered existing facilities should provide accessibility through the main entrance. Access that requires the assistance of others, such as ringing a doorbell for service, is unacceptable.
3. Automatic doors should be used at main entrances to all buildings. If the entry can accommodate it, adjacent to the dedicated automatic door, an un-automated door(s) should be provided.
4. Attention should be paid to code required door opening sequences and paths of approach.
5. Snow and ice can make an otherwise accessible entrance dangerous to all, and inaccessible to a wheelchair user. If cost effective, an automatic snow melting system should be considered for installation at main building entrances as part of renovation projects and new construction. If architecturally appropriate, covered entrances should be considered as another way of keeping entrances free of ice and snow.
6. Floor mats should be placed inside at building entrances to reduce slippery floors. Surface mounted mats may present barriers or bumps to wheelchair users. When possible, mats should be recessed into the floor so that the adjacent surfaces are level with each other. Walk-off mats also control dirt and dust infiltration into the building which impacts the air quality of the space.
7. Landings with an entry door at the top of both stairs and a ramp should be wider than the minimum wheel chair turning radius. New ramps reaching these upper landings are often designed perpendicular to the axis of the entry stairs and doors. In such situations, turning to open the door exposes the wheelchair user's back to the flight of stairs, especially when the user has to also back away from the door swing. Locating the doors in protected areas, installing railings or providing a more generous landing depth should be considered to address the danger of a wheelchair rolling backwards down the stairs.

## I. TOILET FACILITIES

Objective: Provide toilet facilities that are user-friendly to the entire community.

1. Accessible toilet facilities should be located in convenient areas of buildings, ideally with other public restrooms. Public restrooms should be clearly identified with respect to accessibility. When the accessible restroom is not located adjacent to other restrooms, directions to the accessible restrooms should be clearly posted.

2. Toilet stall door latches should be easy to grasp with one hand and should not require tight grasping, pinching, or twisting of the wrist to operate. Doors in wheelchair accessible stalls should have pull handles near the hinge side of the door.
3. Where possible, single accessible toilet rooms should have doors that swing outward. The swing of the door should be such that in the event of someone falling and requiring assistance access can be gained without obstruction.
4. There should be a shelf or several hooks in the restroom where packages, garments, purses, backpacks, etc., can be placed. One hook should be placed at 46", reachable from a sitting position. Some people are unable to retrieve items up from the floor.
5. In large public buildings such as a museum, concert hall, or sports stadium, it is helpful to have at least one accessible restroom which will allow an attendant to assist a wheelchair user.
6. The lighting levels inside the ADA stall should be equal to that of the main restroom area.
7. Permanent fixtures such as soap and towel dispensers, and trash containers should be positioned within reach of a person using a wheelchair and should not obstruct wheelchair movement.
8. Changing tables should be provided at an accessible height in restrooms in public buildings.

#### **J. CLASSROOM, ASSEMBLY, AUDITORIUM, AND STADIUM AREAS**

Objective: Seating and use of all facilities should be designed so to respectably accommodate all users.

1. Classrooms and other assembly areas should be designed to provide integrated seating for wheelchair users with seating options in multiple locations, which permit them to be seated with friends or guests who do not use wheelchairs. When permanently affixed seating is required, the option of mechanically removing segments of seating should be minimized. It is preferred to have allocated loose seating that can be removed with minimal disruption.
2. In a classroom and auditorium where fixed seating is required, the perimeter of the room should have aisle clearances equal in width to that of the wheelchair turning diameter, at least 5ft. wide. When such classrooms also have fixed tables or tablets, one or two seating areas with free, separated chairs and tables should be provided.
3. In classrooms with tables, at least one should have an ADA specified knee clearances in order to accommodate a large wheelchair.
4. Wheelchair seating locations should be identified with signs. e.g. a sign on back of seat in front "priority seating for wheelchairs."
5. Projector screens should be able to be operated from a seated position.



6. Instructor tables, lecterns, and/or desks should be accessible and accommodate various heights. They should be accessible to persons who must be seated when they lecture by providing a 60 in. minimum turning radius behind any fixed counter, lectern, or furniture. All electronic devices should be accessible from a seated position and have handheld remote controls.
7. A floor level speaking area is preferable to a raised podium, or stage in tiered assembly rooms. Ramps, not wheelchair lifts, should be used to provide access to different levels of the auditorium including the stage level. Wheelchair lifts accessing a podium must not be used in new construction.
8. Wheelchair users should be able to enter and exit along the same primary routes as non-wheelchair users.
9. Consult with the Student Accessibility Services about the type of assisted listening systems to be installed in classrooms and assembly areas.

#### **K. DINING AREAS**

Objective: Seating and use of Dining Halls should be designed so to respectfully accommodate all users.

1. Provide a wheelchair accessible route to all service areas. Provide at least 36" clearances to maneuver between occupied tables and chairs.
2. Tables and chairs should not be permanently fixed to the floor.
3. Tables should have ADA specified knee clearance to accommodate large wheelchairs.

#### **L. LIVING QUARTERS**

Objective: Identified Living Quarters should be designed to comfortably house those needing special accommodation.

1. The principles of Universal Design are important in planning all living quarters on campus. Accessibility should be considered from both the occupants' and the visitors' point of experience.
2. A range of accessible housing options and types should be offered. For example, a residential college should not have only single rooms available to students with disabilities.
3. Controlling the temperature of accessible living quarters should be considered since the inability of one's body to adjust to extremes of temperature is a characteristic of certain disabilities.
4. Accessible rooms should provide specific electrical outlets for recharging batteries and other aids for living that are convenient to the user. Some outlets should be located above the heights of desks/chairs etc. so as to be easily accessible from a seated wheelchair position without having to move furniture.

5. Accessible room furnishings (desk, table, and chairs) should be adjustable.
6. Accessible room lighting fixtures should be rated for 100-150 watt bulbs or LED equivalent. Lighting fixture switches should be easily accessible at primary entrances, hallways and all rooms, and they should be able to be operated with a closed fist.
7. Secured storage should be available in the building for durable medical equipment.
8. Accessible closet space should offer adjustable height rods and shelves.
9. Bathrooms associated with accessible living quarters should offer roll in showers, adjustable height mirrors and shelving, and sinks with lever style handles. Where possible, accessible shower stalls should eliminate any curbs or floor transitions between the wet shower floor and the rest of the bathroom. An flip-down seat, adjustable height preferred, should be provided as some wheel-chair users cannot allow their chairs to get wet and will require this transfer seat option. The seat and all shower controls should be positioned so as to be within easy reach of someone using the shower from a seated position on a flip-down seat or in a shower chair.
10. All doors to accessible suites should be adaptable to automation.
11. Accessible toilet facilities located in potentially remote areas should not only have the required emergency alarms outside the toilet, but also a secondary alarm located in an area where the call for assistance will be clearly noticed at all times of the day.
12. Rooms should have the capability for visual or tactile fire alarms to be installed in order to supplement audio alarms.