Universal Access in Historic Buildings

Frank Heitzman, AIA
Prepared for ADA 25 Chicago panel discussion on accessibility in historic buildings September 28, 2015

Buildings in their most basic form provide security, shelter, and functional places in which to work, play and live. But buildings also bind cultures. Historic buildings can help us to understand our culture’s past, linking the past and present in ways not always demonstrable in textbooks. It is important then that historic buildings be accessible to all.

However, if you are physically disabled, or temporarily disabled, you may know that older buildings are among the least accessible buildings.

You may have been dismayed when you approached a building and were met with a long flight of stairs leading up to a narrow entrance door. The elevated entrance, long a tradition in western architecture and dating at least to the classical Greek period, has denied access to countless people.

One of the most famous and influential houses in history, the seventeenth century Villa Rotunda by Palladio, sported a temple front and a grand stair on each of its four sides. Palladio’s villa served as a model for Thomas Jefferson’s Monticello and for a great many others in the succeeding years. It was not until the appearance of the midwestern Prairie School style that grade level entrances were considered aesthetically acceptable.

Ironically, the Jeffersonian notion of “life, liberty, and the pursuit of happiness” has been extended in its fullness to only to those able-bodied, sighted, and hearing individuals who are able to freely enter and use the buildings where we shop, eat, bank, work and worship. The unintended exclusion of the disabled from our public life has led to a vast misconception of the extent of their numbers. For those building owners who remark “I don’t reallyh need to make my building accessible since disabled persons never come here” the act of exclusion is a self-fulfilling prophesy.
Accessibility

Accessibility is a daunting challenge in all buildings, but particularly in and around historic buildings. It involves rethinking the design of not only buildings themselves but also urban sites, public transportation systems, landscapes, parks, interior spaces within buildings, and sacred places, as well as all types of recreational programs offered by our communities. Only in the last thirty years has society become sensitive toward these issues.

Today, accessibility is an assumed requirement in most new man-made environments that are designed to be fully accessible to nonambulatory, blind, and deaf persons. Both state and federal laws provide regulations to ensure accessibility. New buildings account for only about 10 percent of our total built environment. The challenge lies in providing access to the other 90 percent, which will exist far into the future. How do we make that larger part of our world accessible to disabled persons? One way would be to eventually replace every existing building with a new accessible one. That would take many years to accomplish and would not allow for the preservation of historic buildings. Another approach would be to accept differences in the level of accessibility of new and existing buildings, with acceptance of even greater differences between historic and non-historic buildings. That is the approach that both state and federal governments have taken in an effort to ensure accessibility to all of our built environment.

Building Codes

Many laws affect the way buildings are designed and built. The aim of those laws is to assure the public that buildings are safe against fire, wind, and other acts of nature, that they are structurally strong, and that they will be reasonably usable for their intended purpose. But when expediency and a fast return on investment for the owner pushes the design in a certain direction, our sense of community must nudge the building design in the direction of the public good. In that manner we have created zoning regulations that stipulate what kinds of activities may occur in certain designated areas of our cities. Our governments likewise also enforce building codes that insist on fire safety provisions and emergency exits. Most of us are appreciative of those protective regulations.
Both the state and the federal governments have created rules that regulate the making of both new and existing buildings accessible to disabled persons. Safety is not the primary consideration, rather insuring an opportunity for free and equal access to the active life of our communities is the goal.

Sometimes the standards and building code requirements conflict with efforts to preserve a building’s historic integrity, such as a code requirement for an additional fire escape in an existing building that was originally designed with only one internal open fire stair, or removing an unstable terra-cotta cornice from a high-rise building. There are ways that a preservation-sensitive owner can resolve these conflicts. The federal law that mandates provisions for accessibility is the Americans with Disabilities Act of 1990, referred to simply as the ADA. The ADA differs from most building codes in that the owner of any building that is construed as a “public accommodation,” whether or not it is historic, is required to make immediate modifications to the building to meet a certain level of accessibility, as long as it is “readily achievable” to do so.

**Historic Buildings**

Virtually all building codes have special allowances for making changes to existing buildings, and many have special categories for historic buildings. It is generally accepted that existing buildings are not expected to conform to new building standards retroactively, but safety improvements are expected to be made as additional monies are invested in the building. For historic buildings in particular, the elements that are required to keep a building safe can sometimes be modified to retain historically significant features.

Making historic buildings accessible can be more difficult than making nonhistoric buildings accessible. People generally want access to a historic building *because* of its historic quality, which may be compromised if ordinary accessibility solutions are provided. For instance, one of the easiest ways to meet the letter of accessibility codes requiring access to the entrance of a historic building would be to remove a portion of the entrance stairs and build a ramp in front of the building. That might expediently solved one problem, but could also dramatically threaten the historic appearance of the building’s façade. Moreover, historic buildings frequently have multiple impediments to access, including: no parking lot near the entrance; no smooth path for wheelchairs from parking lot to
building entrance; steps leading to the front entrance door; narrow and thick front doors; doorknobs and encumbering door closers; no spaces for wheelchairs in auditoria and other rooms; narrow corridors and interior doors; no public toilet rooms, or the toilets are on raised floors or are too small for wheelchairs; and no visible (an many times no audible) emergency warning systems. Virtually every one of these items can have an effect on the historic significance of a property. It is obvious that special consideration should be given to historic buildings when providing accessibility features.

State Accessibility Code

The State of Illinois has been at the forefront of the effort to make buildings accessible to disabled persons. In 1965 the Illinois General Assembly passed the “Facilities for the Handicapped Act,” which mandated accessibility for all state-owned public buildings. The scope of the law broadened in 1978 with the creation of the Accessibility Standards, Illustrated, which was made a more readily-enforceable statute with the advent of the Illinois Environmental Barriers Act of 1985. Three years later it was supplemented again with the Illinois Accessibility Code, which was again revised to accord with the ADA in 1997.

Today Illinois has one of the most comprehensive sets of requirements in the country for this complex area of building design. In addition to regulating the design of virtually all new buildings, the code also includes requirements for additions to existing buildings, alterations to buildings, minimum requirements for buildings used by state or local governments, and provisions for work on historic buildings. The provisions dealing with changes to historic buildings are unique in the country (and probably in the world). The Illinois code provides a special list of “technical alternates” for historic buildings. Those alternates provide accessibility for disabled persons, but permit a reduction in the ease of access. For instance, doors do not have to be as wide, and ramp slopes may be slightly steeper. If one cannot make the main entrance door to a historic building accessible without compromising its historic integrity, a different access location for disabled persons may be provided.

State requirements for accessibility come into play only if changes are made to an existing building. There are no so-called “retroactive” or minimum requirements for buildings in Illinois unless the building is used by a state or local government
body. There is an escalating series of requirements depending on the extent of the proposed alterations work as compared with the cost of rebuilding the entire building. For instance, if the cost of alterations is less than 15% of the cost of reconstructing the building and more than $100,000 is spent on alterations within a period of 30 months, only the portion of the building being changed must be made accessible. A hypothetical situation illustrates this point: an old stair is proposed to be rebuilt at a cost of $150,000. The complete reconstruction cost of the building is estimated at $3 million dollars. The proposed work is thus only 5% of the cost of rebuilding the entire building, therefore only the new stair that is replaced must comply with the accessibility code. The code requires that the new stair have no protruding nosings on the treads, that it be designed so that the treads are at least 11 inches wide and the risers are no higher than 7 inches, and that the handrails extend 12 inches horizontally beyond the highest riser and 23 inches beyond the lowest riser. Obviously, in some buildings the existing stair shaft may not be large enough to accommodate the new stair with its new riser-tread proportion. In that case, the stair shaft would have to be rebuilt to accommodate the new stair. However, if the rebuilding of the stair shaft would require that a major structural “load-bearing” member be relocated, the code says that the requirements would be waived due to “technical infeasibility.” The local building department official would have to agree that this is, in fact, the case.

**Basic Philosophy**

In Illinois a higher level of accessibility requirements comes into effect if the cost of remodeling is between 15 percent and 50 percent of the estimated cost of rebuilding. In that case, not only must the part being remodeled be made accessible, the following must also be provided: one or more sixteen-foot-wide accessible parking spaces if parking for the building exists; an accessible path of travel from the parking lot (or from the street) to the building; an accessible entrance into the building; an accessible toilet room for each sex; and an accessible path to the altered portion of the building (this might mean providing an elevator if the remodeling takes place on the upper levels of the building).

In the case of our hypothetical building, which would cost $3 million dollars to reconstruct, the 15 percent threshold would be reached at a remodeling cost of $450,000. At that point, all of the other associated accessibility work listed above
would have to be done. At potential new construction costs of $200 per square foot, the $3 million dollar building would likely represent a 15,000 square foot building, possibly on two floors of 7,500 square feet each. Only “general construction work” is included in the remodeling cost totals to compare against the reproduction costs. That means that mechanical, electrical, plumbing piping, reroofing, interior redecoration, and exterior redecoration work are not included. That work can account for half or more of the total construction cost. Therefore, the state requirements are, in most cases, not as difficult to meet as they may seem at first glance. Finally, the Illinois Code says that if a building is being remodeled to more than 50 percent of the reconstruction costs, the entire building must be made completely accessible, just as if it were a new building. Given the exclusions for various costs, this 50 percent level would imply a “gut rehab” effort. Thus, it would not be difficult to meet the accessibility requirements at this level without additional construction cost.

Buildings that are designated by the state as “historic” for the purpose of the accessibility code are buildings that are individually listed on the National Register of Historic Places or are contributing structures located within a National Register district, or are listed as local landmarks by a local historic preservation commission. The local commission or the Illinois Historic Preservation Agency can provide assistance in determining a building’s landmark status. If any building that is designated as historic is proposed to be remodeled, it must conform to the same accessibility requirements as any other building being remodeled, with the following exceptions:

**Technical Alternates for Historic Buildings in Illinois**

1. Maximum ramp slope 1:10 for 6" rise.
2. Maximum ramp slope 1:8 for 3" rise.
4. Where access is limited to controlled groups with assigned tour guides, detachable ramps may be used.
5. Where access is limited to controlled groups with assigned tour guides, the following requirements are waived:
   a. Doors and threshold heights (except door widths)
   b. Storage
   c. Controls and operating mechanisms where they are not intended to be operated by the public
   d. Detectable warnings
   e. Signage

6. Where access is limited to controlled groups with assigned tour guides or where a full-time door attendant is provided at the door, there are no special requirements for door hardware or operation (push force).

7. Where alteration of a door will not meet the Secretary of Interior Standards for Rehabilitation, doors must be improved to the greatest extent possible, but widths may be reduced (accepted to be greater than 29 ½”).

8. If the main entrance cannot be altered without threatening or destroying the historic character of the building, then access at another unlocked entrance may be provided, with directional signage at the primary entrance and a notification system.

9. If a stair cannot be altered without destroying or greatly altering the historic aspects of the building, requirements for stair accessibility are waived.

10. Where full extension of stair handrails would be hazardous or impossible due to plan configuration, they are not required.

11. Where existing shaft or structural elements prohibit compliance with minimum dimensions of elevator cars, then new elevator cars may be minimum floor area of 48” x 48”.

12. Accessible seating in assembly areas may be located in collected areas on an accessible route if it is technically infeasible to disperse the seating.
One might ask why a public toilet room would have to comply with the Illinois Accessibility Code when there is no way a person in a wheelchair could even enter the building. The answer to that question underlies the basic philosophy behind the Illinois Accessibility Code. The theory is that eventually, over time, the building will undergo alterations to every portion. As each part is altered, it will be made to comply. Thus, at some time in the future, the whole building will be made accessible.

**Federal Accessibility Law (the ADA) and Existing Buildings**

Owners of a building that is a place of “public accommodation” are required by federal law to make that building accessible to disabled persons, whether or not any remodeling work is proposed. Owners, however, are expected to make a building accessible only as long as it is within their financial means to do so. The level of accessibility that one can afford for a building is called “readily achievable” accessibility by the ADA. Only the owner can determine what is readily achievable for his or her own situation. One must compare the cost of making the building accessible against how much money one has to spend. There are no guidelines for this given in the law. Everyone is on their honor, so to speak. The expectation is that every owner will need to make some effort. A small business with marginal income will not be expected to spend very much, but a large, multi-location business with a good profitability is expected to dedicate a larger portion of their profit toward removing architectural barriers. The actual amount that an owner is expected to spend will be pin-pointed eventually, but only after a considerable body of court cases have been adjudicated. Since there has not been much litigation in this area at the U.S. Justice Department level to date, it may take 20 or 30 years to accumulate a history that can be relied upon. The best thing that an owner can do at this time is to make an honest effort to do those things that are affordable immediately, and develop a plan for spending a certain amount of the surplus each year to make further improvements. The ADA states clearly that the removable of barriers should be a continual and on-going process in every building.

Buildings classified under the ADA as “public accommodations” require that all of their barriers be removed to the extent that it is readily achievable to do so.
“Public Accommodations” include all privately owned buildings except the following building types: housing, private clubs, buildings that are controlled by religious organizations (not just churches), factories, warehouses, and office buildings.

The ADA includes a detailed list of the types of barrier removal that would be normally considered to be “readily achievable:”

1. Installing ramps (see also the note below)
2. Making curb cuts in sidewalks
3. Repositioning shelves
4. Rearranging tables, chairs, vending machines, display racks and other furniture
5. Repositioning telephones
6. Adding Braille markings on elevator control buttons
7. Installing flashing fire alarm lights
8. Widening doors
9. Installing offset hinges to widen doorways
10. Eliminating turnstiles or providing alternative accessible paths
11. Installing accessible door hardware (such as lever handle locks)
12. Installing grab bars in toilet stalls
13. Rearranging toilet partitions to increase maneuvering space
14. Installing pipe insulation under lavatories and sinks to prevent burns
15. Installing raised toilet seats (note that this is not permitted in Illinois)
16. Installing full-length bathroom mirrors
17. Repositioning paper-towel dispensers in a bathroom
18. Creating designated accessible parking spaces
19. Installing accessible paper-cup dispensers at an existing drinking fountain
20. Removing high-pile low-density carpeting
21. Installing hand controls

The Technical Assistance Manual published by the Justice Department, which explains the intent of the ADA further, states that providing access to spaces that can be reached only by a flight of steps would not normally be considered readily achievable if it “would require extensive ramping or an elevator.” Furthermore, if a building contains less than 3,000 square feet per floor or is only two stories tall,
the owner does not have to install an elevator to reach the upper floor or basement – even if the building is being remodeled – unless those floors contain a doctor’s office, shopping center, or transportation terminal. The federal law also stipulates the required priorities for barrier removal, assuming that not all the items listed above are going to be readily achievable initially. Those priorities are:

1. First, an owner of a public accommodation should take measures to provide access to the building of from public sidewalks, parking or public transportation. Those measures include, for example, installing an entrance ramp, widening an entrance door, and providing accessible parking spaces in the parking lot (if a parking lot is provided by the building). Portable ramps could be used when installation of a permanent ramp is not readily achievable.

2. Second, an owner of a public accommodation should take measures to provide access to areas within the building where goods and services are made available to the public. Those measures include, for example, adjusting the layout of display racks, rearranging tables, providing Braille and raised character signs, widening doors, providing visual alarms, and installing ramps. Note, however, that the rearrangement of temporary or movable structures, such as furniture, equipment, and display racks is not considered to be readily achievable if it results in a significant loss of selling or serving space.

3. Third, an owner of a public accommodation should take measures to provide access to at least one existing restroom in the building (assuming restrooms are provided for public use). Those measures include, for example, removal of obstructing furniture or vending machines, widening doors, installation of ramps, providing accessible signs, widening of toilet stalls, and installation of grab bars.

4. Fourth, an owner of a public accommodation should take any other measures necessary to provide access to the goods, services, facilities, privileges, advantages, or accommodations offered within the building.

If an owner cannot remove all of the barriers for full accessibility due to cost, he or she must attempt to make all the changes possible using a less-expensive
method. This may not result in accessibility for all, but would probably make the building accessible to the majority. The acceptable alternates cited by the ADA are providing a slightly steeper ramp that that specified in the ADA standards, or providing a slightly narrower door than that required.

If the owner cannot accomplish this “lesser quality” barrier removal due to cost, he or she still has to make the goods and services in the building available to disabled persons through some other means, such as providing curb service or home delivery, retrieving merchandise for the customer from inaccessible shelves, or by relocating activities to another accessible location.

Business owners are also required to effectively communicate about their goods and services to disabled persons through written documents, tape recordings, Braille materials, large-print materials, or through persons who are fluent in sign language. For instance, a restaurant’s menu may have to be read to a blind person, or spoken instructions may have to be written for a deaf person.

Keep in mind that all of these requirements need to be met only to the extent that they are able to be done without causing “significant difficulty or expense.” However, the limit on significant difficulty or expense has not definitively been set by the government, and an owner must determine for himself or herself what that limit would be in their circumstance.

Where there are many tenants in a building, the question might arise concerning who is responsible for barrier removal. Normally, a tenant would be responsible for removable of barriers within his or her leasehold space, while the owner of a building would be responsible for removing barriers in the common spaces shared by multiple tenants. But this may not always be the case if the lease states otherwise. It is possible that a tenant could be responsible for maintaining his own space as well as the building lobby (if there were only one tenant on a floor, for instance). On the other hand, if the owner of the building agreed to “build out” the tenant’s space, the owner could be charged with also making it accessible. There is no clear-cut answer to this question. The prudent thing to do at this time would be to review and perhaps renegotiate the lease to make the division of responsibility clear.
Remodeling in accordance with the ADA

If an owner is going to remodel a building, or only part of it, the ADA requires that all parts of the building to be remodeled be made fully accessible. This applies both to buildings that are “public accommodations” as well as “commercial buildings” such as factories, warehouses, and office buildings. For instance, if a new electrical switch to control the lights in a room is installed, it must be placed within reach of a person in a wheelchair. Also, if a door is replaced, the new one must be wide enough to accommodate a person in a wheelchair. Considering the earlier example of the rebuilding of the stair, under federal law, one would be required to remodel the stair so that it meets the accessibility standard as if it were in a new building: that is, the treads and risers would need to be re-proportioned, and handrail extensions would be required. Like the Illinois law, the federal law makes an exception for those modifications that are called “technically infeasible.” This means that the modification would require moving a structural member that is “an essential part of the structural frame.” Therefore, a wall constructed of 2x4 studs and plaster or gypsum board, even though it might be a load-bearing wall, could not be considered a structural member under this definition because it is technically not part of a structural “frame.” So widening a door in this type of wall, or having to move such a wall to accommodate a longer stair would not be technically infeasible, and thus it must be done to comply with the ADA. The idea of a “frame” means columns and beams that are fastened together and act as a single supporting structure that holds up the walls, floors and roof. Taking out a column of beam in this type of building would require a great deal of expense to reframe the structure. If a particular accessibility provision is deemed to be “technically infeasible” or if adequate space is not available, the ADA allows the building owner to substitute the following alternates:

1. Ramp slopes may be built steeper than normal – 1 inch vertical rise to 10 inch horizontal run for a 6 inch maximum height, or 1 inch vertical rise in 8 inch horizontal run for a 3 inch height, instead of the normal 1 inch in 12 inch.

2. Handrail extensions are not required if they would be located in such a way as to be hazardous.
3. Minimum elevator cab dimensions may be 48 inches x 48 inches, instead of 51 inches x 68 inches.

4. Minimum clear door width is 31 3/8 inches instead of 32 inches.

5. Minimum 3 foot wide accessible toilet stalls instead of 5 foot wide stalls.

6. Spaces for wheelchairs may be clustered rather than dispersed in assembly areas.

7. Platform lifts may be used instead of elevators.

8. One accessible dressing room may serve both sexes instead of providing one for each sex.

**ADA “Path of Travel” Requirements**

By the ADA, whenever any part of the structure that contains the building’s primary functions is remodeled, it must have an accessible path of travel from the street or parking lot to that remodeled part. One accessible toilet room for each sex, an accessible drinking fountain, and an accessible telephone must also be provided. However, the building owner is required to spend only an additional 20 percent of the cost of remodeling to do this extra work. If the complete “path of travel” cannot be done within the 20 percent allowance, the owner must do whatever can be done within that amount. The 20 percent allowance must be spent in the following order of priority:

1. An accessible entrance to the building.

2. An accessible route to the altered area, for example, by widening doorways or installing ramps.

3. At least one accessible restroom for each sex, by enlarging toilet stalls, installing grab bars in toilet stalls, and installing accessible faucet controls on the lavatories.
4. One or more accessible telephones, by relocating an existing telephone to an accessible height, installing amplification devices, and possibly installing a telecommunications device for deaf persons (TDD).

5. One or more accessible drinking fountains with the spout 36 inches above the floor.

6. Accessible parking stalls that are 16 feet wide.

7. Accessible storage.

8. Visual and audible alarms

The division of building owner and tenant responsibility is well defined in cases of remodeling. If a tenant remolds only the space that the tenant occupies, this will not trigger the “path of travel” requirements. But if the owner of the building remolds a part of the building, the path of travel requirements must be met.

**Historic Buildings under the ADA**

Like the Illinois law, the ADA provides for special consideration of historic buildings. The following buildings fall under the ADAs definition of “historic:”

1. A building that is listed in the National Register of Historic Places.

2. A “contributing building” located in a National Register historic district.

3. A building that is “Eligible” for listing in the National Register (as determined by the State Historic Preservation Officer).

4. A building that has been designated as historic by a local historic preservation commission.

Existing historic buildings that are not intended to be remodeled or restored must be made accessible to the maximum extent that can be afforded (the so-called “readily achievable” standard), as long as the proposed changes do not “threaten or destroy” the historic character of the building. The Illinois State Historic
Preservation Officer (the “SHPO”) is obligated to determine whether the required accessibility provisions will threaten or destroy the historic character. Local historic preservation commissions can also assist building owners in making those determinations. The Illinois office of the SHPO is located in the Illinois Historic Preservation Agency in Springfield. Available from that office or online at http://www.illinois.gov/ihpa/Preserve/Pages/Store.aspx is the Secretary of Interior’s Standards for Rehabilitation, which lists ten basic criteria for guiding decisions concerning remodeling or additions to historic buildings to retain their historic integrity. If the SHPO determines that any particular accessibility provision will threaten or destroy the historic character of the building, that provision does not have to be implemented. However, alternate and perhaps less accessible provisions must still be made, and goods and services must still be available to disabled persons through other means.

How does the SHPO determine whether an accessibility requirement will threaten or destroy the historic character of the building? Decisions regarding the effects of renovation on historic buildings are a normal part of the work of the state historic preservation office as well as local historic preservation commissions. To guide these decisions, a step-by-step process is followed.

Step one: A basic analysis of the building is made to determine the level of historic, architectural, or cultural significance of the affected historic resources. Those elements that are part of the major public areas of the building, such as the primary street elevation, the front door, and the formal public rooms would generally be considered highly significant and would, therefore, be most adversely affected by accessibility changes. Basements, closets, and bathrooms are not generally considered to be historically significant spaces and usually can be altered. A historical analysis of an entire facility is not normally required to make decisions about specific architectural elements. Most historic buildings have areas that are of greater or lesser historic importance. For example, it is often possible to locate the accessible entrance at a location of lesser architectural or historical importance – a typical alternative access treatment for many historical buildings. A sign at the front entrance or base of the entry stairs will direct individuals to a side or rear accessible entry.

Step two: If proposed accessibility changes would threaten or destroy the historic character of the building, a list of “alternative requirements” for historic
preservation work may be applied. These alternative (or so-called “minimum” requirements) are as follows:

1. Only one accessible path of travel to an accessible entrance need be provided.

2. One entrance door, instead of all, may be made accessible. If no public entrance can be made accessible without negatively affecting the historic integrity, then a secondary entrance may be made accessible, as long as directional signs are provided at one or more of the non-accessible entrances.

3. Ramp slopes may be made steeper over short distances. A maximum slope of 1 inch rise in 6 inches horizontal run may be used for a maximum length of 24 inches on the exterior only.

4. Access must be provided to all publicly-used spaces on the level of entrance.

5. Displays and written information must be located so that they can be seen by seated persons (no higher than 44 inches above the floor).

If the application of alternate provisions would also threaten or destroy the historic character of the building, the alternates would not be required. According to the U.S. Justice Department, that situation would be unusual. Step three, then, is to apply the lower level, lesser quality barrier removal, just like requirements for other historic buildings that do not undergo remodeling. In addition, the same type of exemptions that are available for non-historic buildings are also available for historic buildings.

Providing accessible vertical circulation throughout a small historic building, such as a historic house museum, may be difficult. It may be impossible to install an interior elevator to avoid major structural changes or compromises to historic rooms. In that case, the acceptable alternative by ADA standards would be to provide access to the principal floor, but no other levels, and then provide a video or photographic program showing the entire house in an accessible visitor’s center. The Frank Lloyd Wright Home and Studio in Oak Park has done this...
successfully. Even some older ambulatory visitors opt to see the video rather than climb all of the various stairs at that site.

Scale is another important issue in measuring the effect of accessibility changes on historic structures. Changes that may have little overall impact on a large commercial historic building could easily destroy the character-defining features of a small residential structure. Small additive features that do not require demolition to make a building more accessible will likely not threaten or destroy its historic character. These might include the addition of a small handrail at the front steps, signs, alarm systems, and portable ramps. The key to designing those elements is what preservationists call “reversibility” - installing items without destroying historic materials, so that if they were removed later, the building would be intact.
Principles of Universal Design

In 1989, visionary architect Ron Mace, FAIA, founded the Center for Accessible Housing at the University of North Carolina. Since 1996, this organization is called The Center for Universal Design. Mace coined the phrase “Universal Design” in his work with the Center to refer to broad-based principles that he and his staff developed in making buildings usable equally to both persons with disabilities as well as non-disabled persons. The seven principles of Universal Design are as follows:

1: Equitable Use
The design is useful and marketable to people with diverse abilities.
- Provide the same means of use for all users: identical whenever possible; equivalent when not.
- Avoid segregating or stigmatizing any users.
- Provisions for privacy, security, and safety should be equally available to all users.
- Make the design appealing to all users.

2: Flexibility in Use
The design accommodates a wide range of individual preferences and abilities.
- Provide choice in methods of use.
- Accommodate right- or left-handed access and use.
- Facilitate the user's accuracy and precision.
- Provide adaptability to the user's pace.

3: Simple and Intuitive Use
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
- Eliminate unnecessary complexity.
- Be consistent with user expectations and intuition.
- Accommodate a wide range of literacy and language skills.
- Arrange information consistent with its importance.
- Provide effective prompting and feedback during and after task completion.
4: Perceptible Information
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.
- Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.
- Provide adequate contrast between essential information and its surroundings.
- Maximize "legibility" of essential information.
- Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions).
- Provide compatibility with a variety of techniques or devices used by people with sensory limitations.

5: Tolerance for Error
The design minimizes hazards and the adverse consequences of accidental or unintended actions.
- Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded.
- Provide warnings of hazards and errors.
- Provide fail safe features.
- Discourage unconscious action in tasks that require vigilance.

The edges of the boardwalk prevent users from accidentally leaving the path of travel

6: Low Physical Effort
The design can be used efficiently and comfortably and with a minimum of fatigue.
- Allow user to maintain a neutral body position.
• Use reasonable operating forces.
• Minimize repetitive actions.
• Minimize sustained physical effort.

7: Size and Space for Approach and Use
Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user’s body size, posture, or mobility.
• Provide a clear line of sight to important elements for any seated or standing user.
• Make reach to all components comfortable for any seated or standing user.
• Accommodate variations in hand and grip size.
• Provide adequate space for the use of assistive devices or personal assistance.

The low height of this concession stand counter permits use by customers of varying heights

These principles should be applied in making decisions about how to make historic buildings accessible to all persons, regardless of disability. This is a philosophical approach, which goes beyond building codes and the ADA, which must be satisfied in any event, but following codes alone do not always provide the best accessibility. We sometimes get caught up in adherence to the letter of codes without fully understanding the principles that underlie the reason behind the code requirement.
Typical Accessibility Problems and Solutions

Basic things that should be done to assure access are as follows:
1. Park nearby or on site
2. Get onto the building site
3. Approach an entrance door via ramp or lift
4. Get through an entrance door
5. Get around the first floor through doors and hallways
6. Get onto upper and lower floors via ramp or lift
7. Read signs
8. Use public toilet rooms
9. Use public drinking fountains
10. Use public telephones
11. Conduct business face to face
12. Hear or see alarm signals
13. Exit the building safely in an emergency

Getting into the Building. The most difficult part of access into a historic building is getting in the door. Typically, the first floor will be located from 6 inches to 4 feet above the ground. Where the rise is minimum, the sidewalk can be simply raised to meet the first floor level, but that becomes very noticeable for differences in height above 12 inches.

Driveway and sidewalk raised to level of entrance to make this historic building accessible without changing its historic integrity
Sometimes a new door at grade level can open into an intermediate level carved out of the interior, where a vertical platform lift is located. Simple versions of such lifts cost about $20,000 installed. The additional structural work necessary to cut the exterior opening and reframe the interior could cost another $20,000 – considerably less than the cost of installing a full elevator. Vertical platform lifts are legal for existing buildings in accordance with both the Illinois law and the ADA. A platform lift, unlike an elevator, is rated for only about 500 pounds of load and can lift only one individual in a wheelchair. A lift has no pit below or mechanical penthouse above, and does not necessarily have a fireproof shaft around it. And while an elevator can serve multiple floors, a lift can serve only two or three levels.

Pleasant Home, Oak Park, George Maher, architect, 1898
Original porch at rear of house encloses original stair and new vertical platform lift

Vertical platform lift at lower landing    Vertical platform lift at upper landing
Access to the Martin-Mitchell Mansion, Naper Settlement, Naperville, using a vertical platform lift concealed within an existing porch structure.

Another option is an “inclined platform lift,” which operates a platform alongside a stair on a track. The inclined platform lift is sometimes a less expensive alternative, but it is generally more visible and can be intrusive on the historic integrity of the building. Ideally, a disabled person should be able to operate the lift independently. Inclined platform lifts reduce the available exit capacity of the stair when deployed, and are, therefore, not very usable if only a single exist stair exists.
The least intrusive method is a vertical platform lift designed to disappear into the ground. When the lift is activated, its safety railings rise out of the ground, followed by the platform. These cost around $30,000, plus building alterations costs. The Lincoln Home in Springfield is equipped with such a device.
The Everhard “Disappearing Lift” shown in three positions at the historic Lieutenant Governor’s Mansion in Frankfort, Kentucky

If one cannot afford the disappearing platform lift, try avoiding making irreversible changes to the building when adding vertical circulation devices. Thus at some time in the future, if a better technological solution is invented, the changes can easily be reversed.

Getting through the door. If the entrance door has a minimum clearance of 31 3/8 inches, the door meets accessibility requirements, but the hardware may require modification to allow turning the latch without grasping a knob. This may mean replacing the knob with a lever device. It may also mean adding an electrical operator to the door that is activated by a gentle push or an electric eye. Door attendants are not preferred. The goal is to allow a person with disabilities to maintain independence. If a door is too narrow by no more than 2 inches, offset hinges may be used to allow the door to swing clear of the frame, effectively widening the clear opening. Normal wheelchairs are about 26 inches wide, so it is physically possible to squeeze through that narrow of a door, but the wheelchair user would need to tuck his or her elbows in and would be unable to push the wheels while passing through the door opening.
Use of the offset hinge
Reversible addition to an existing door threshold to make it accessible

Door knob has been unobtrusively retrofitted with a handle to make it accessible (National Park Service File Photo)
Hemingway Birthplace Home, Wesley Arnold, Architect, 1895

Vertical platform lift installed to provide access to front porch

Interior “LULA” elevator installed to provide access to all levels
Elevator shaft added to rear of house without compromising its historic integrity

*Vertical circulation within building.* Providing accessibility to upper floors is not required by law if it is not readily achievable, or if it is structurally impracticable. However, if an elevator is desired, the easiest to install is a hydraulic type. The elevator itself can be relatively small – about 4 feet square – and may be concealed in a closet or storeroom. The total cost will be about $100,000 for installing a four-stop elevator.
“Access stair,” combination stair and vertical lift in one unit, manufactured by Vertical Mobility, LLC, Dayton, Ohio 45414, telephone (937)236-2888

www.verticalmobility.com

Oak Park Temple, Walter Sobel, Architect, 1955
Ramp added from parking lot to match stone facade
Split level interior levels

Accessed by new elevator opening to all levels

Lower accessible checkout counter at Dole Learning Center, Oak Park
**Minor changes of level.** Often there are small changes of level in a historic building that may be accommodated by ramps. Ramps are an option if the height to be traversed is no more than 30 inches. For a 30-inch vertical rise, the ramp will need to be 30 feet long (a 1:12 slope) – the maximum length of ramp that is allowed without providing an intermediate landing. Keep in mind that wheelchair users will expend a great deal of energy in ascending such a ramp. A 5-foot clear landing at the top and bottom of the ramp must be provided, and 5-foot square landings at turns. The minimum width of a ramp is 36 inches clear between handrails. Handrails must be located on both sides of the ramp. A ramp has a maximum slope of 1 in 12 (or 1-inch rise per foot of run). Sloped sidewalks or ramps with grades of 1 in 20 or less do not require handrails.

**Accessible toilet rooms.** Very few existing or historic buildings have large enough toilet rooms to accommodate wheelchairs. The preferred solution is to create additional individual toilet rooms that will accommodate one person. The minimum space required is about 5 feet by 7 feet if the door opens out. A single user, unisex toilet room would be acceptable for use in an existing historic building.
Plan of 5’ x 7’ accessible single user toilet room
Effective Communication. Having made physical access to your historic building allows wheelchair users to experience the interior and participate in activities within the building, but does not always allow persons with sight or hearing disabilities full access. It is important to provide enhanced communication methods or assistive devices to communicate with those persons.
A sign language interpreter may be appropriate for tours in which hearing disabled persons are present.

**Financial Assistance from the Government**

The federal government currently offers two programs to assist the building owner or tenant in making accessibility provisions less costly. Title 26 of the Internal Revenue Code (1990) allows for a maximum tax deduction of $15,000 per year for removal of barriers.

A tax credit is also available to businesses with $1 million or less in gross receipts or thirty or fewer full-time employees during the preceding year. The credit is 50% of the amount between $250 and $10,250 spent during the year for removal of barriers to comply with the ADA. The maximum tax credit is $5,125 per year.
Conclusion

All of us should be continually searching for ways to make our built environment more accessible to everyone. It is mainly a question of being sensitized toward the issues. Codes and standards only take us part way and are only as enforceable as we allow them to become. The major part of our task is learning to understand the difficulties that persons with disabilities are faced with in carrying out the ordinary activities of everyday business. That cannot be codified, but must come from our sense of humanity.
### Summary Comparison Between the Illinois Accessibility Code and the ADA for Historic Buildings

Shaded areas indicate the requirement that provides better accessibility, and therefore, should be used.

<table>
<thead>
<tr>
<th>Illinois Accessibility Code (IAC)</th>
<th>Americans with Disabilities Act Guidelines (ADAAG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Includes buildings listed or eligible for listing on National Register, a contributing building in a National Register Historic District, state or local landmarks, and buildings which undergo historic reconstruction</td>
<td>Includes buildings listed or eligible for listing on the National Register, state or local landmarks</td>
</tr>
</tbody>
</table>

**Exemptions:**

1. Privately owned single and two-family residences
2. Privately owned apartment buildings less than four stories in height or containing less than ten units
3. Individual dwelling units in privately owned apartment buildings four or more stories high and containing ten or more units which are not designated to be adaptable or accessible units
4. Privately-owned apartment buildings four or more stories high and containing ten or more units which are altered with private funds only
5. Housing owned or financed by the state or local government where there are fewer than five dwelling units on one site
6. All but one level of a multi-level

**Exemptions:**

1. All housing (except common public facilities)
2. Catwalks
3. Parts of buildings which would require removing or altering a load-bearing member which is an essential part of the structural frame
4. Alterations which would be prohibited by existing physical or site constraints
5. Buildings owned by religious organizations or entities controlled by religious organizations
6. Private Clubs. (Note that there are very stringent requirements for what the Department of Justice interprets is a “private club”)
7. Security observation galleries
8. Non-state or local government-owned and occupied office buildings, factories or
<table>
<thead>
<tr>
<th>Illinois Accessibility Code (IAC)</th>
<th>Americans with Disabilities Act Guidelines (ADAAG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>platform (as long as the same functions and services are available on the accessible level) 7. Security observation galleries 8. Non-occupiable spaces accessed only by ladders, catwalks, crawl spaces, very narrow passageways and frequented only by service personnel for repair purposes 9. Basement, mezzanine, or 2nd floor of a two-story building up to 1000 square feet maximum area 10. Parts of buildings which would require removing or altering a load-bearing member which is an essential part of the structural frame as approved by the building department 11. Alterations which would be prohibited by existing physical or site constraints as approved by the building department 12. Temporary construction buildings</td>
<td>warehouses are not considered to be “places of public accommodation” and are therefore exempt from accessibility requirements under the ADA. However, if a disabled person is hired to work in these types of buildings, accessibility must be provided under Title I of the ADA 9. Elevators are not required in 2-story buildings, unless they are a shopping center, shopping mall or professional office of a health care provider. 10. Elevators are not required in buildings of any number of stories that have less than 3000 square feet per story unless they are a shopping center, shopping mall or professional office of a health care provider.</td>
</tr>
<tr>
<td>No barrier removal is required unless alterations take place</td>
<td>Barrier removal must be done to an existing building to the extent that it is readily achievable, regardless of whether alterations will take place</td>
</tr>
<tr>
<td>The SHPO must be consulted by the Owner and the Secretary of Interior Standards for Rehabilitation must be used as a guide to determine whether proposed or required alterations will “threaten or destroy” the historic character of a landmark. If so,</td>
<td>The SHPO “should” be consulted by the Owner to determine whether proposed or required alterations will “threaten or destroy” the historic character of a landmark. If so, “alternative ADA access provisions” may be used.</td>
</tr>
<tr>
<td>Illinois Accessibility Code (IAC)</td>
<td>Americans with Disabilities Act Guidelines (ADAAG)</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>“alternative Illinois Accessibility Code access provisions” may be used.</td>
<td>Definition of alterations: Any modification of a building that affects the usability of the facility, except routine maintenance, reroofing, painting or wallpapering, and changes to mechanical or electrical systems (unless these changes affect the “usability” of the building).</td>
</tr>
<tr>
<td><strong>Definition of alterations:</strong> Any modification of a building, except normal maintenance, reroofing, interior or exterior redecoration, changes to mechanical and electrical systems, replacement of plumbing piping or valves, asbestos removal, and installation of fire sprinkler systems (unless these changes affect the “usability” of the building).</td>
<td><strong>Definition of alterations:</strong> Any modification of a building, except normal maintenance, reroofing, interior or exterior redecoration, changes to mechanical and electrical systems, replacement of plumbing piping or valves, asbestos removal, and installation of fire sprinkler systems (unless these changes affect the “usability” of the building).</td>
</tr>
<tr>
<td><strong>Definition of reproduction cost:</strong> The estimated cost of constructing a new building of like size, design and materials at the site of the original building.</td>
<td>Definition of reproduction cost is not required</td>
</tr>
<tr>
<td>If alteration costs spent within a period of 30 months are 15% or less of reproduction cost, the element or space altered must comply with the code for new construction - alternative access provisions may be used if the SHPO determines that the alterations will “threaten or destroy” the historic character of the building.</td>
<td>Extent of accessibility required is not based on % of reproduction cost spent. The element or space altered must comply and an accessible horizontal and vertical path of travel to the element or space must be provided, as long as that path of travel does not exceed 20% of the cost of the alteration of the element or space - alternative access provisions may be used if the Owner determines that the alterations will “threaten or destroy” the historic character of the building.</td>
</tr>
<tr>
<td>If alteration costs spent within a period of 30 months are 15% or more of reproduction cost for “Historically</td>
<td>Same as above</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Illinois Accessibility Code (IAC)</th>
<th>Americans with Disabilities Act Guidelines (ADAAG)</th>
</tr>
</thead>
</table>
| Interpreted Buildings” (such as historic house museums), the following must be done:  
1. An accessible route must be provided to one principle level with displays open to the public  
2. An audible and visual information source must be provided adjacent to the main entrance to give directions and information  
3. Displays must be able to be seen by seated persons – no higher than 44” above the floor  
4. One unisex accessible toilet provided within 200 ft from main entrance  
5. One accessible drinking fountain within 200 ft from main entrance  
6. Accessible parking spaces where parking is provided  
7. An accessible route from parking to an accessible entrance | Same as above |
| If alteration costs spent within a period of 30 months are 15% or more of reproduction cost for buildings which are not “Historically Interpreted Buildings” the following must be done:  
1. Part altered must comply  
2. An accessible entrance and an accessible means of egress  
3. Horizontal and vertical accessible routes between an accessible entrance or accessible means of egress and the part altered | Same as above |
<table>
<thead>
<tr>
<th>Illinois Accessibility Code (IAC)</th>
<th>Americans with Disabilities Act Guidelines (ADAAG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. One unisex accessible toilet</td>
<td></td>
</tr>
<tr>
<td>5. Accessible parking spaces where parking is provided</td>
<td></td>
</tr>
<tr>
<td>6. An accessible route from parking to an accessible entrance</td>
<td></td>
</tr>
<tr>
<td>Alternative access provisions</td>
<td>Alternative access provisions</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>1. Maximum ramp slope 1:10 for 6&quot; rise</td>
<td>1. Maximum ramp slope 1:10 for 6&quot; rise</td>
</tr>
<tr>
<td>2. Maximum ramp slope 1:8 for 3&quot; rise</td>
<td>2. Maximum ramp slope 1:8 for 3&quot; rise</td>
</tr>
<tr>
<td>4. Where access is limited to controlled groups with assigned tour guides, detachable ramps may be used</td>
<td>4. Where full extension of stair handrails would be hazardous or impossible due to plan configuration, they are not required</td>
</tr>
<tr>
<td>5. Where access is limited to controlled groups with assigned tour guides, the following requirements are waived:</td>
<td>5. Where existing shaft or structural elements prohibit compliance with minimum dimensions of elevator cars, then new elevator cars may be minimum floor area of 48” x 48”</td>
</tr>
<tr>
<td>a. Doors and threshold heights (except door widths)</td>
<td>6. Minimum existing door widths may be 31 3/8” clear</td>
</tr>
<tr>
<td>b. Storage</td>
<td>7. Maximum existing threshold height may be ¾” if sides are beveled</td>
</tr>
<tr>
<td>c. Controls and operating mechanisms where they are not intended to be operated by the public</td>
<td>8. If the main entrance cannot be altered without threatening or destroying the historic character of the building, then access at another unlocked entrance may be provided, with directional signage at the primary entrance and a notification system.</td>
</tr>
<tr>
<td>d. Detectable warnings</td>
<td></td>
</tr>
<tr>
<td>e. Signage</td>
<td></td>
</tr>
<tr>
<td>6. Where access is limited to controlled groups with assigned tour guides or where a full-time door attendant is provided at the door, there are no special requirements for door hardware or operation (push force)</td>
<td></td>
</tr>
<tr>
<td>7. Where alteration of a door will not meet the Secretary of Interior Standards for Rehabilitation, doors must be improved to the greatest extent possible, but widths may be reduced to 29 ½”</td>
<td></td>
</tr>
<tr>
<td>Illinois Accessibility Code (IAC)</td>
<td>Americans with Disabilities Act Guidelines (ADAAG)</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>building, then access at another unlocked entrance may be provided, with directional signage at the primary entrance and a notification system. 9. If a stair cannot be altered without destroying or greatly altering the historic aspects of the building, requirements for stair accessibility are waived 10. Where full extension of stair handrails would be hazardous or impossible due to plan configuration, they are not required 11. Where existing shaft or structural elements prohibit compliance with minimum dimensions of elevator cars, then new elevator cars may be minimum floor area of 48” x 48” 12. Accessible seating in assembly areas may be located in collected areas on an accessible route if it is technically infeasible to disperse the seating</td>
<td></td>
</tr>
</tbody>
</table>
For Further Reading

http://www.cdb.state.il.us/forms/download/iac.pdf (includes the Illinois Environmental Barriers Act, Signage and Parking Regulations)


ADA Standards for Accessible Design. This contains the technical requirements for the ADA, published by the US Department of Justice  

ADA Title II Regulations (28 CFR PART 35).  

ADA Title III Regulations (28 CFR PART 36).  


Jester, Thomas C. and Sharon C. Park, AIA. Making Historic Properties Accessible. National Park Service Preservation Brief 32  
http://www.nps.gov/tps/how-to-preserve/briefs/32-accessibility.htm
