

United States Cultures Report

“How has the American Disability Act (ADA) influenced building construction?”



Columbia University Northwest Science Building

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Executive Summary:

The focus of this United States (US) Cultures Report is to answer the following question.

“How has the American Disability Act (ADA) influenced building construction?”

A study of the ADA’s laws concerning building construction will be addressed throughout this report. Building design is believed by the author to be influenced greatly by the ADA. A Penn State building case study will be addressed, along with the author’s senior thesis building, Northwest Science Building, concerning this US Cultures Study.

This US Cultures Report is intended to provide the author with the following knowledge gained.

- Cultivate knowledge concerning issues of physical disability.
- Cultivate knowledge of United States social identities not in isolation, but in relation to one another, specifically, the interaction between physical disability with legal requirements for the built environment.

Goals of US Cultures Report:

- Research and discuss the ADA’s laws concerning building construction.
- Provide a case study involving the Northwest Science Building’s design components fulfilling ADA requirements.
- Provide one study of a building built before the ADA act was signed into law.
- Conclude on the main influences of the ADA on building construction.

The Columbia University Northwest Science Building has many design elements fulfilling ADA requirements. Examples include toilet room, site, sidewalk, and auditorium accessibility. These examples will be discussed within this report showing that the ADA has a great impact on design decisions for the built environment.

Penn State Sackett Building was retrofitted to provide ADA requirements. The building was built before the ADA was signed into law. It is important to note that historic buildings are not except to ADA’s influence on buildings.

American Disability Act (ADA) – Laws Concerning Building Construction

The ADA was signed into law on July 26, 1990. It is an extensive document of law that prohibits discrimination based on disability. Disability is defined by the ADA as “a physical or mental impairment that substantially limits a major life activity.”

Below is a general description of the disability requirements buildings must fulfill due to the ADA.

ADA Title III: Public Accommodations

“Public accommodations must comply with basic nondiscrimination requirements that prohibit exclusion, segregation, and unequal treatment. They also must comply with specific requirements related to architectural standards for new and altered buildings; reasonable modifications to policies, practices, and procedures; effective communication with people with hearing, vision, or speech disabilities; and other access requirements. Additionally, public accommodations must remove barriers in existing buildings where it is easy to do so without much difficulty or expense, given the public accommodation’s resources.”

This quote was referenced from the U.S. Department of Justice (Civil Rights Division) document “A Guide to Disability Rights Laws.” As discussed in the quoted paragraph, buildings not only have to accommodate accessibility requirements of physical disabled persons, but also accommodate people with hearing and vision loss, along with speech disabilities.

Due to this law requirement outlined above in ADA Title III the International Building Code (IBC) includes Chapter 11 titled “Accessibility” exclusively for controlling the design and construction of facilities for accessibility to physically disabled persons. IBC also includes Appendix E related to supplementary accessibility requirements for design and construction of buildings. These appendix provisions are not mandatory unless they are specified in the building’s adopting ordinance.

IBC Chapter 11 and Appendix E are very detailed and contain a lot of design and construction requirements. Therefore, a few of the design and construction requirements will be discussed below. The requirements to be discussed were chosen due to their importance to the Columbia University Northwest Science Building design.

Section 1104 – Accessible Route

Site Arrival Points: Requires that accessible routes shall be provided to the building for public transportation stops and public sidewalks.

Section 1108 – Special Occupancies**Assembly Area Seating:**

- Wheelchair Spaces: In assembly areas accessible wheelchair spaces must be provided according to the table below.

**TABLE 1108.2.2.1
ACCESSIBLE WHEELCHAIR SPACES**

CAPACITY OF SEATING IN ASSEMBLY AREAS	MINIMUM REQUIRED NUMBER OF WHEELCHAIR SPACES
4 to 25	1
26 to 50	2
51 to 100	4
101 to 300	5
301 to 500	6
501 to 5,000	6, plus 1 for each 150, or fraction thereof, between 501 through 5,000
5,001 and over	36 plus 1 for each 200, or fraction thereof, over 5,000

Table provided by International Building Code (IBC)

- Dispersion of Wheelchair Spaces in Multilevel Assembly Seating Areas: Wheelchair spaces shall be provided on the main floor level and on one of each two additional floor levels.
- Assistive Listening Systems: Each assembly area where audible communications are integral to the use of the space shall have an assistive listening system.

Section 1109 – Other Features and Facilities

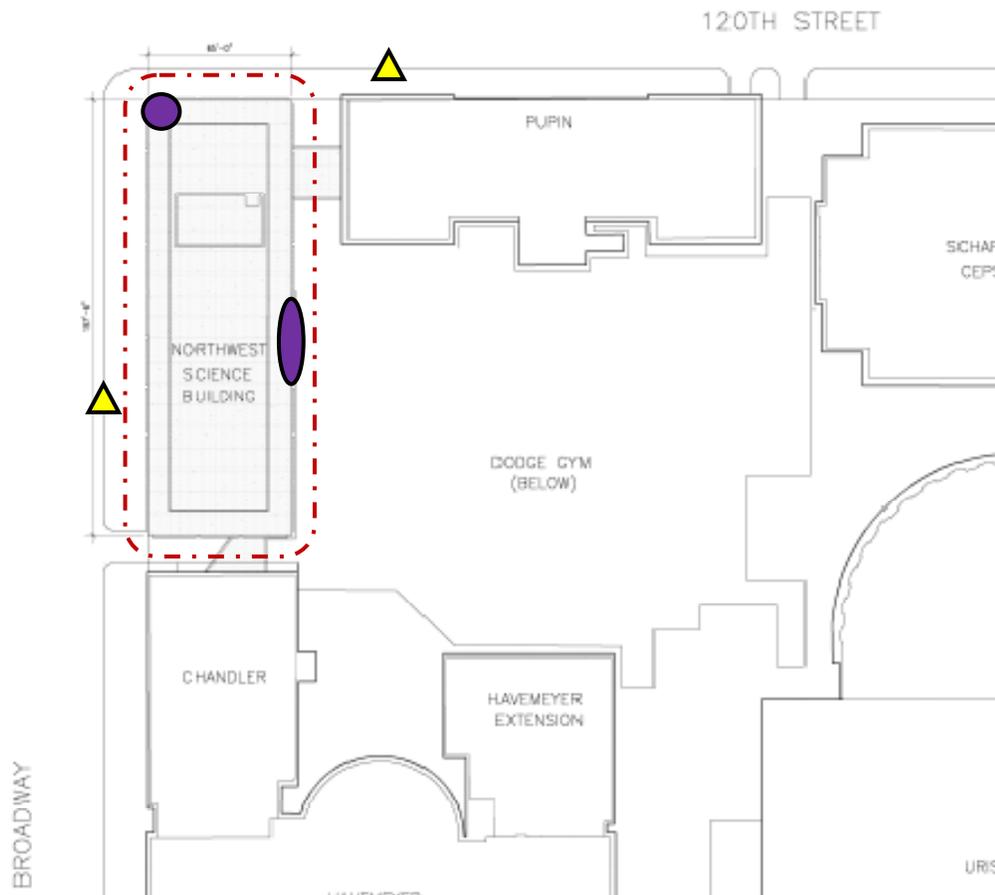
Toilet and Bathing Facilities: Toilet rooms shall be accessible. Toilet rooms shall not be located on an inaccessible floor. At least one type of fixture, element, control or dispenser in each toilet room shall be accessible.

The next section “Northwest Science Building’s ADA Design Elements” will provide a visual example of each accessible design requirement discussed.

Northwest Science Building's ADA Design Elements:

Site Arrival Points:

Site Accessible Plan – Northwest Science Building

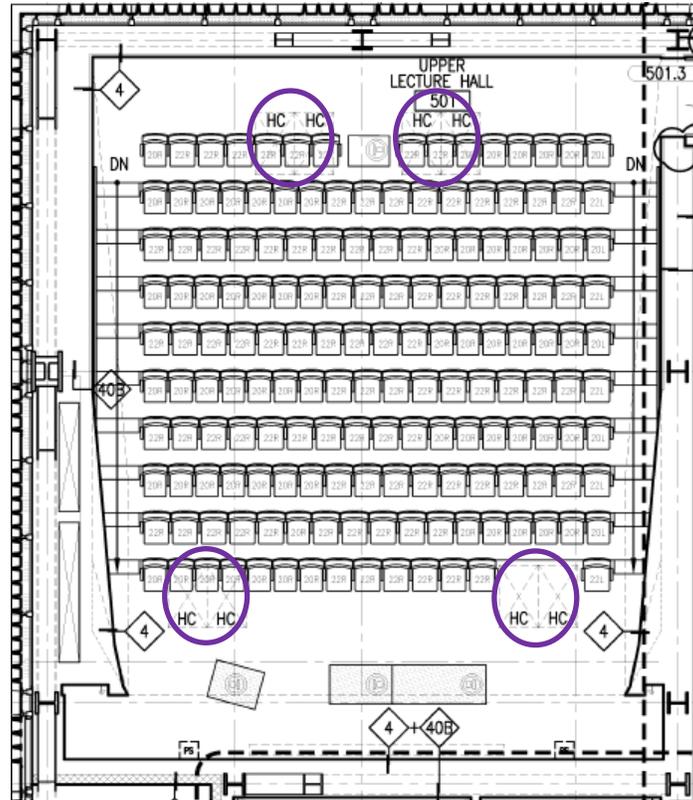


Legend	
	<i>Accessible Bus Stop</i>
	<i>Main Entrance Two Building</i>
	<i>Accessible Path Around Building Perimeter</i>

It is required by the American Disability Act and the International Building Code that accessible routes shall be provided to the building for public transportation stops and public sidewalks. As shown in the plan image above, the Columbia University has two accessible bus stops close to the site. These stops provide a curb that is lowered to street level, and also are serviced by buses that meet ADA requirements. Also, the red dashed path around the building perimeter is a sidewalk that is accessible to wheelchair access. Therefore, both main entrances can be accessed appropriately for people using wheelchairs.

Assembly Area Seating:

Northwest Science Building Auditorium



- Wheelchair Spaces

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Table provided by International Building Code (IBC)

Northwest Science Building's auditorium seats 170 people. With this capacity the auditorium is expected to provide at least 5 wheel chair spaces as shown in the table above. The auditorium provides 8 spaces for wheelchairs. Two of the spaces are always handicap accessible, while the other six have removable seats. These 8 spaces meet the ADA's requirements for the assembly area.

- Dispersion of Wheelchair Spaces in Multilevel Assembly Seating Areas

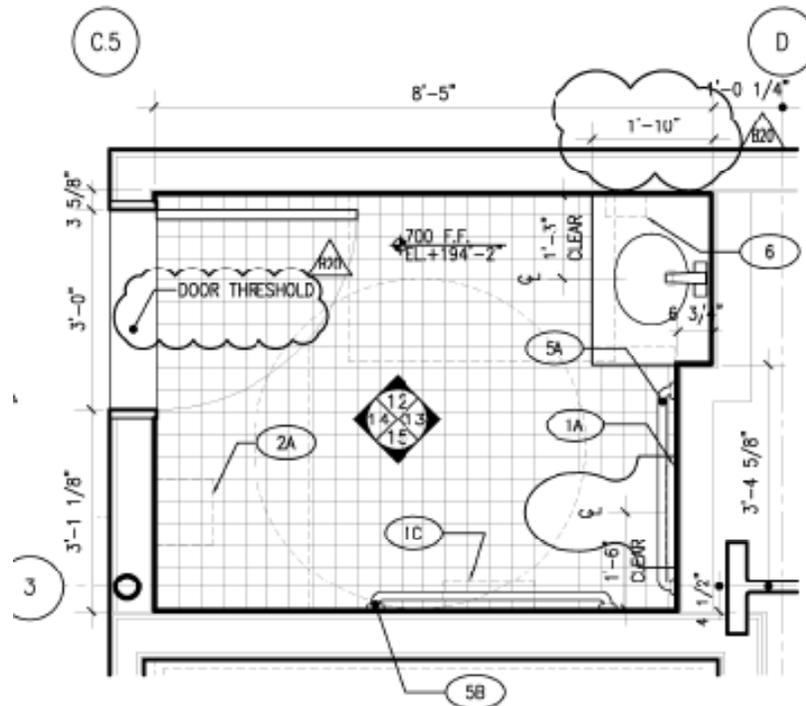
This requirement states that wheelchair spaces shall be provided on the main floor level and on one of each two additional floor levels. As shown on the auditorium plan on the previous page, there are four wheelchair spaces provided on the main bottom floor and 4 spaces provided on the top floor. This design meets the requirements for dispersion of wheelchair spaces.

- Assistive Listening Systems

This requirement states that each assembly area where audible communications are integral to the use of the space shall have an assistive listening system. The Northwest Science Building's auditorium provides a microphone and speaker system. Speakers are provided along the sides of the auditorium, and on the ceiling. Lectures are able to be broadcasted over the system, helping students to hear clearly.

Toilet and Bathing Facilities:

Below is an image of a typical female toilet room. This toilet room is required by ADA requirements to have wheelchair access and to have all fixtures and controls accessible. As shown the toilet room provides adequate turning space for a wheelchair, while also providing grab bars for fixture accessibility.



TOILET ACCESSORY SCHEDULE

SYMBOL	DESCRIPTION
1A	TOILET-SEAT-COVER DISPENSER
1C	TOILET TISSUE DISPENSER
2A	PAPER TOWEL DISPENSER
3	NAPKIN/TAMPON VENDORS
4	SURFACE-MOUNTED UTILITY HOOK
5A	GRAB BAR - 36" L
5B	GRAB BAR - 42" L
6	SOAP DISPENSER

Penn State Sackett Building Case Study:

Penn State's Sackett Building was constructed in the late 1920s. The image provided below is an image after construction was completed.



Image provided by Penn State Libraries (www.libraries.psu.edu)

Today Sackett Building contains two additional wings that were added on during the construction of Hammond Building in the 1950s. The highlighted regions are where the wing additions were added. These additions caused many ADA concerns.



The wings when constructed did not have floors that were at the same elevation of the original structure. This caused addition of steps at the intersection of the structures. When the wings were constructed it wasn't a major concern to have these steps. However, if ADA laws were in place during the addition of these wings, they would have been designed differently. Over the years Sackett Building has gone through wheelchair accessibility renovating. Ramps along with steps can now be found where the wings intersect the existing building. These ramps provide access for wheelchairs. However, these ramps do not meet proper slope requirements. These slope requirements were able to be overlooked due to the ADA's clause outlined at the beginning of this report.

“Public accommodations must remove barriers in existing buildings where it is easy to do so without much difficulty or expense, given the public accommodation’s resources.”

In the case of Sackett Building, it would have cost an extensive amount and wasted a large amount of space to provide the proper ramping requirements. Due to the fact that Sackett Building was built before such ADA accommodations were put into place, providing a ramp without proper slope was seen to be acceptable.

This case study on Penn State's Sackett building reveals that ADA laws affect both newly designed and historic buildings.

Conclusions “Main Influences of the ADA on Building Construction”:

The Northwest Science Building is seen to provide accessibility requirements throughout and around the building. The hallways, sidewalks, bus stops, restrooms, and auditorium were all seen to provide proper ADA requirements. Not only are most of the spaces, wheelchair accessible, they also provide proper hearing and visual accommodations.

Sackett Building was also seen to go through proper ADA adjustments to retrofit an existing building for accessibility requirements. Every building you walk through today was designed with ADA accessibility in mind.

Final Thought:

As shown throughout this report, a designer must be aware of ADA requirements within and around a building. If accessibility for disabled people is not provided where needed, it could point toward discrimination and possibly a lawsuit. A designer must be aware of all people using a building and provide access for all people.

Works Cited:

International Building Code. International Code Council, 2006. Print.

"Sackett Exterior Northwest View." *Digital Library Collections*. Web. 17 Apr 2010.
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