

# Classroom Accessibility Standards (CAS): Implementation Guidance

This document serves as a supplemental guideline for the Classroom Accessibility Standards (CAS), and will further the rationale for many of the standards listed. The information presented will discuss the importance of each benchmark in the CAS standards.

Please note: This document, and the supporting CAS standards list, does not reflect all the 2010 ADA standards, but merely items pertaining specifically to general purpose classrooms. The 2010 ADA Standards for State and Local Government facilities (hereafter, “the 2010 ADA Standards”) provides the backbone for our accommodation requirements in State University of New York classrooms. Per the compliance information in the 2010 ADA Standards, should construction begin after March 15, 2012 (IE, new construction), the 2010 ADA standards should be followed. Buildings with no renovations post March 15, 2012 can follow the 1991 standards OR the 2010 standards; both of which make similar provisions.

For additional information, please review the following reference: [2010 ADA Standards for Accessible Design](#) may be reviewed at this website. To add, a comprehensive comparison of the standards may be found at [Comparison of the 2010 and 1991 ADA Standards for Accessible Design](#) (PDF).

## **Table of Contents**

- ❖ Assisted Listening Systems Availability
  - Receivers and Room Size
  - Assisted Listening shall be capable of providing audio at a sound pressure range between 110dB and 118dB, with a volume sweep of 50dB
  - Hearing Loop Installation
  - Summed audio output available in room AV system
- ❖ Classroom Controls – Color Blindness
  - Color choices on control systems should reflect universal design for common color blindness accommodation
  - Emergency notifications in classrooms should reflect universal design for common color blindness accommodation.
- ❖ Classroom Seating and Access
  - Total seats to wheelchair spaces
  - A single wheelchair space is defined as 36” x 48”
  - Wheelchair spaces shall provide similar lines of sight to the instructor’s area as other student stations
  - Accessible pathways into and out of classrooms shall be 36” wide, with no less than 32” of passing clearance based on wall features
  - Doors and doorways to classrooms shall conform to section 403 standards based on how the classroom is set up.
  - Wheelchair turnaround space shall be accommodated based on space needs of wheelchair spaces, including instructor area.
  - Bariatric seating options should be made available wherever possible
- ❖ Signage
  - Accessible room features like Assisted Listening Systems shall include appropriate signage indicating their availability and information on how to obtain them.
  - Doors at exit passages shall include tactile signage at 48” above the finished floor
  - Wheelchair accessible student stations are to be identified by common symbol

## Assisted Listening Systems Availability

Assisted Listening Systems come in many shapes and delivery methods. Wi-Fi, FM, RM, and Bluetooth systems can be leveraged in order to keep costs low. Systems specific to individuals may be used in lieu of installed system, and still meet the regulations.

### Receivers and Room Size

Required

#### What it Means

The installation of an assisted listening system inside of the classroom is required when the room contains an audio amplification system. The number of receivers (the appliance handed out to the student) fluctuates based on the number of seats in the classroom.

#### Why it Matters

Spaces of a significant size, or rooms with public address systems, often create additional barriers to students experiencing hearing loss. Regulations on the number of available units are important to ensure enough available systems based on potential need.

#### How to Implement

Assisted Listening Systems usually broadcast from a line level source and operate on either web protocols, radio frequencies (RF), or infra-red (IR). Newer technologies continue to improve system reliability and lower cost. Considerations to ensure room systems do not overlap with each other should be taken, and perhaps make a stronger case for web or IR systems. Single-user systems like USB-based wireless mics can be deployed for very low cost, and for specific users. Be sure to send the line level to the broadcast post final mixer, before the amp, as you want to be sure that you are sending fully summarized sound (microphone and source) and not just one source.

#### How to Test

Many receivers offer various attachments for T-coil, hearing loop, single ear, etc. Plugging in a typical 3.5mm audio headset can provide sound through the headset to ensure you are getting signal from the room, and not signals from other rooms.

#### Reference:

- [Section 219 of the 2020 ADA Standard](#)

**Assisted Listening Systems shall be capable of providing audio at a sound pressure range between 110dB to 118dB, with a volume sweep of 50dB.**

Required

#### What it Means

Assisted Listening Systems must be sufficiently loud enough.

### **Why it Matters**

Hearing loss disabilities are not standardized and may fluctuate significantly in what level of volume must be reached for the individual to hear the audio source. Having systems with significant gain capabilities are important.

### **How to Implement**

Most formal production hardware are produced at this dB range as companies are aware of the standard. If developing an in-house system, be sure to test it's dB range upon completion.

### **How to Test**

Various hardware/software applications can provide readouts of sound pressure level. Some apps on mobile devices exist as well.

### **Reference:**

- [Section 706 of 2010 ADA Standard](#)

### **Hearing Loop Installation**

Strongly Recommended

### **What it Means**

NYC Resolution 0882-2015 states that capital projects in New York City exceeding \$950,000.00 shall include at least one assembly area that includes the induction loop hearing system. Additional provisions and requirements can be found at the link listed in the MCAS Standards list.

### **Why it Matters**

Induction Loop systems work by boosting the technical ability of the user's hearing aid. It requires no additional ear pieces and has a very high fidelity for the user.

### **How to Implement**

Hearing (induction) Loop systems are installed during building construction, and are done by a licensed installer. Reach out to local vendors or audiologists for a list of licensed vendors.

### **How to Test**

A licensed installer can guarantee functionality. More information may be found at [www.hearingloop.org](http://www.hearingloop.org).

### **Reference**

- [New York City Hearing Loop Mandate](#)

### **Summed audio output available in room AV system.**

Strongly Recommended

### **What it Means**

Ensuring that a summarized audio output of the room (all microphone and source volume) is available is an important inclusion for accessibility.

### **Why it Matters**

Many specialized accommodations (Remote CART services, Remote Live Captioning, etc..) will require the student user to open up a remote web conferencing service to receive their accommodation live over the web. This type of need requires the student to receive a quality audio signal from the instructor. This is often accomplished by wireless USB microphones, which are sometimes costly and have battery needs, or through the boundary microphone on the student's laptop, which has poor quality in large spaces. Providing this output during design will allow the school to quickly make these accommodations when asked.

### **How to Implement**

Many sound and AV hardware companies provide variable audio outputs on their mixers, switchers, and amps. Connecting this output to a simple 3.5mm female jack will provide the necessary input options when asked for an accommodation.

### **How to Test**

Simply connecting a headset to the output should allow listening to audio feeds from the main AV system.

## **Classroom Controls - Color Blindness**

**Color choices on control systems should reflect universal design for common color blindness accommodation (top choices would be black, yellow/orange, blue).**

Strongly Recommended

### **What it Means**

Classroom control systems that have visual cues (System On vs Off, input select, volume level, etc) should be colored to accommodate people with color blindness.

### **Why it Matters**

If the control program uses color schemes like "Red for off, Green for on" or active input buttons are shown as colored green versus yellow, etc. These color palette choices are eliminated when people have color blindness. Color choices should reflect common color blindness palettes (or other symbol / code options) to ensure all users can navigate the system correctly.

### **How to Implement**

Common Red/Green color blindness makes it impossible for individuals to differentiate between the colors red and green. These colors should be avoided for control system notifications. Color choices easily distinguishable by people of all visual acuity are Black, White, Blue, Yellow / Orange, Brown.

### **How to Test**

Look at the control systems and check what options or systems use Red and Green to distinguish system state. Ensure programming choices follow the appropriate palette choices.

### **Reference**

- [Set of colors that is unambiguous to colorblind and non-colorblind people](#)

**Emergency notifications in classrooms should reflect universal design for common color blindness accommodation (Top choices would be black, yellow/orange, blue).**

Strongly Recommended

### **What it Means**

Classroom notification systems like phone ring lights, “on air” lights, occupancy lighting, even fire systems, should follow color schemes viewable by all individuals.

### **Why it Matters**

If the classroom uses systems to silently / visually contact professors when certain events occur, those systems should be viewable by all individuals. A distance learning classroom that has a recording light in the rear of the room, for example, should not use ‘Red’ and ‘Green’ to differentiate between a room on the air and a room off. These colors would not be distinguishable by individuals with common ‘red’ / ‘green’ color blindness.

### **How to Implement**

Work with the AV systems team and contractors to make sure light fixtures and / or other notification systems follow the common color palette for all individuals: Black, White, Blue, Yellow / Orange, Brown.

### **How to Test**

Look at the classroom notification systems and check what options or systems use Red and Green to distinguish system state. Ensure the choices follow the appropriate palette choices.

# NON EIT APPENDIX

## Classroom Seating and Access

### **Total seats to wheelchair spaces**

Required

#### **What it Means**

The number of wheelchair accessible spaces required in a classroom depends on the number of total seats in the classroom. The required number of wheelchair accessible spaces must be met.

#### **Why it Matters**

The ratio of wheelchair seats to overall seats is a national summary average. This ensures the institution is fully covered for any type of event in the space.

#### **How to Implement**

Work with the facilities/interior design team during furniture/room planning/renovation to ensure required wheelchair accessible spaces are appropriately available.

#### **How to Test**

Count the number of total seats and compare to the number of wheelchair accessible spaces and confirm the campus has an appropriate number of wheelchair accessible spaces in regards to the total number of seats overall.

#### **Reference**

- [Section 221 of the 2010 ADA Standard](#)

**A single wheelchair space is defined as 36" x 48", making provisions for space entry, turnaround, and knee/toe clearance.**

Required

#### **What it Means**

Wheelchair space is defined by not only the space for the wheelchair, but also taking into account entry space, room for turnaround, and clearance for knees and toes.

#### **Why it Matters**

Having a wheelchair space does not meet the requirement if there is not adequate room to get into the space, also accounting for needing to turn the wheelchair around. Once in the space there needs to be adequate clearance so the wheelchair's occupant is not hitting their knees or toes.

#### **How to Implement**

Work with the facilities/interior design team to ensure the required wheelchair space is met and that there is adequate room for space entry, turnaround, and knee/toe clearance.

### **How to Test**

Measure the wheelchair space to ensure it meets the required dimensions. Can a wheelchair user enter the space, have room to turnaround, and have clearance for their knees and toes?

### **Reference**

- [Sections 802, 304, 305, 306 and 221 of the 2010 ADA Standard](#)

## **Wheelchair spaces shall provide similar lines of sight to the instructor's area as other student stations**

Required

### **What it Means**

The wheelchair space should be able to see the instructor's area as well as other student seating.

### **Why it Matters**

The instructor's space should be equally viewable regardless of seat type.

### **How to Implement**

Work with the facilities/interior design team to ensure the line of sight from the wheelchair spaces are similar to the lines of sight from other seating.

### **How to Test**

Sit at the wheelchair space and see if your line of sight is obstructed or is comparable to line of sight from other seating.

### **Reference**

- [Section 802 of the 2010 ADA Standard](#)

## **Accessible pathways into and out of classrooms shall be 36" wide, with no less than 32" of passing clearance based on wall features**

Required

### **What it Means**

Pathways into and out of the classroom need to meet minimum width requirements. If there are wall features (such as sound absorbing panels) then the width can be narrower for limited lengths.

### **Why it Matters**

Pathways need to be wide enough for wheelchairs to navigate into and out of the classroom.

### **How to Implement**



Work with the facilities/interior design team to ensure the pathways into and out of the classroom meet the minimum width requirements.

### **How to Test**

Measure the pathways, have a wheelchair navigate into and out of the classroom and to a wheelchair space.

### **Reference**

- [Section 403 of the 2010 ADA Standard](#)

**Doors and doorways to classrooms shall conform to section 403 standards based on how the classroom is set up (entry and exit points, hallways, door opening direction, double doors, etc.)**

Required

### **What it Means**

Wheelchairs should be able to navigate through doors and doorways to get to and from the classroom.

### **Why it Matters**

An accessible classroom is not accessible if it cannot be entered or exited.

### **How to Implement**

Work with your facilities/interior design team to ensure the doors and doorways are of the appropriate width and type to allow wheelchair access.

### **How to Test**

Measure the doors and doorways, have a wheelchair navigate through to ensure access.

**Wheelchair turnaround space shall be accommodated based on space needs of wheelchair spaces, including instructor area. Various provisions exist based on room layouts.**

Required

### **What it Means**

Wheelchairs need adequate room to turn around.

### **Why it Matters**

Wheelchairs need to be able to navigate freely, including the ability to turn around. We would not ask a person to walk backwards out of a classroom. Similarly, we should not require a wheelchair user to navigate backwards either.

### **How to Implement**

Work with the facilities/interior design team to ensure that adequate turn around space is accommodated.

### **How to Test**

Measure space to ensure adequate turn around, have a wheelchair navigate the space and turn around.

### **Reference**

- [Section 305 of the 2010 ADA Standard](#)

### **Bariatric seating options should be made available wherever possible**

Strongly Recommended

### **What it Means**

Bariatric seating is designed to support more weight than typical classroom furniture, with widths up to 36 inches. Best effort should be made to ensure available bariatric seating.

### **Why it Matters**

People come in all shapes and sizes. Having seating options accommodating this improves the classroom experience for everyone.

### **How to Implement**

Work with the facilities/interior design team during furniture/room planning/renovation to ensure bariatric seating options are appropriately available.

### **How to Test**

Confirm bariatric seating is available in the classroom.

## Signage

**Accessible room features like Assisted Listening Systems shall include appropriate signage indicating their availability and information on how to obtain them (or responsible office contact information). Signage shall be conspicuously placed.**

Required

### **What it Means**

Ensure that the classroom has appropriate signage in the front of the room, in full view.

### **Why it Matters**

Advertising the availability of accessibility systems like Assisted Listening Systems is important; both for letting students know they are available, and to follow the ADA Standard.

### **How to Implement**

Ensure the signage complies with the standards laid out in the ADA 703 section. Make sure they include the appropriate symbols.

### **How to Test**

Make sure signage and symbols are visible from each seating area in the room.

### **Reference**

- [Section 703 of the 2010 ADA Standard](#)

**Doors at exit passages shall include tactile signage at 48" above the finished floor.**

Required

### **What it Means**

Classroom exits shall be marked with signs that can include braille, at appropriate heights for braille reading (48" above finished floor).

### **Why it Matters**

Blind students, in emergency situations, will need to be able to identify door exits from other potential doors or areas in the classrooms.

### **How to Implement**

Be sure to follow the mounting and braille instructions outlined in ADA sections as to the height, location, and size of the signage with respect to the doors.

### **How to Test**

Make sure the signage meets all requirements.

### **Reference**

- [Sections 216 and 703 of the 2010 ADA Standard](#)

## **Wheelchair accessible student stations are to be identified by common symbol.**

Required

### **What it Means**

Classroom features installed specifically for wheelchair user students have to be identified as such.

### **Why it Matters**

Ultimately this is to prevent students from arguing over desks meant for students with specific needs. Making sure the desks are marked appropriately will help mitigate issues where a student with a disability has to ask another student to move.

### **How to Implement**

Follow the appropriate signage / symbols outlined in section 703 of the ADA standards. Work with the furniture vendor to ensure they are attached during purchasing and installation.

### **How to Test**

Double check handicap (wheelchair accessible) stations have appropriate signage after installation.

### **Reference**

- [Section 703 of the 2010 ADA Standard](#)