Flushing it Out

Best Practices in Barrier-Free Design

With Kate Dailey & Joanne Koola

Perkins&Will

A4LE LearningSCAPES 2025 PHOENIX

Disability is a natural aspect of the human condition. As people live longer, as we fight more wars, as medical care continues to improve - more and more people who might have died in an earlier era will live. Perhaps with a disability. We should accept it. Plan for it. Build our society around it.

- Judith Heumann, *Being Heumann*, 2020

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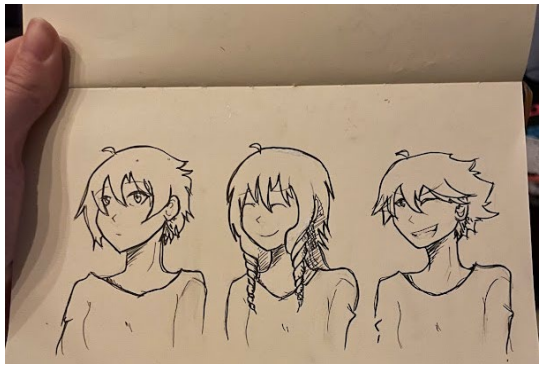
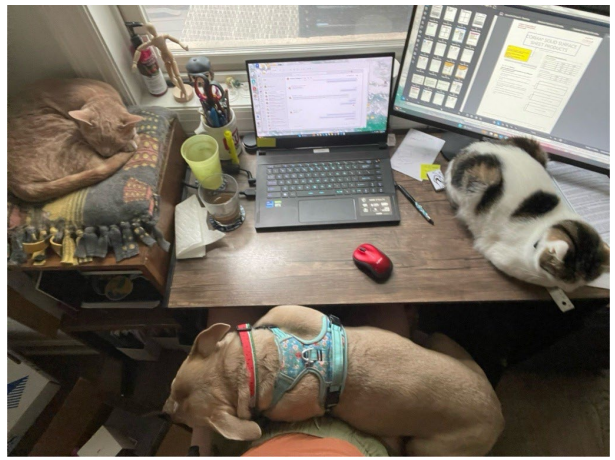
Kate Dailey

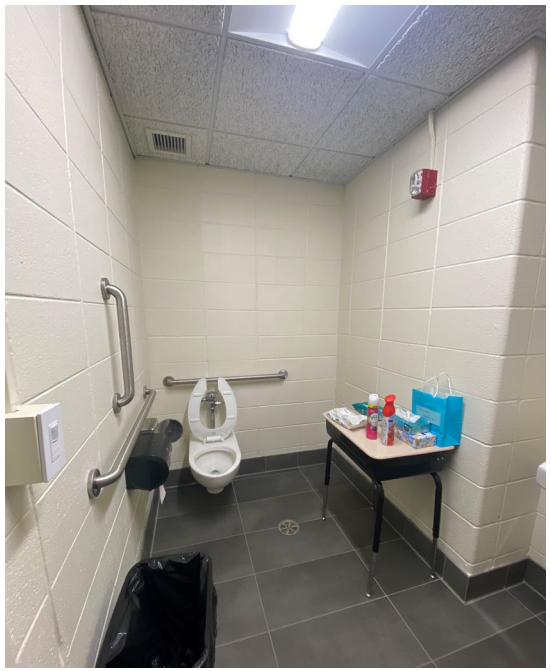
Project Architect, Inclusive Design Advisor

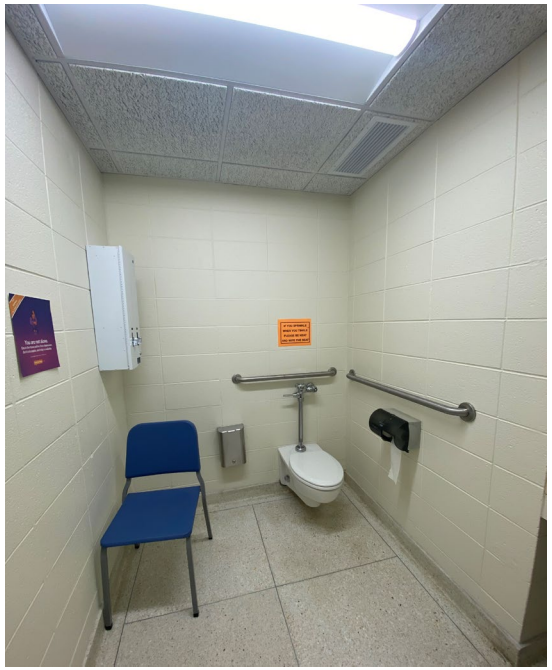




Joanne Koola

Designer III, K-12 Education Practice Area





Today

Agenda:

- **Basics of Barrier-Free Design**
- **What is Safe Harbor?**
- **Inclusive Design Ideas**
- **District-Preferred Accessories**
- **Child Height Considerations**
- **2017 A117.1 Updates**
- **Resources**

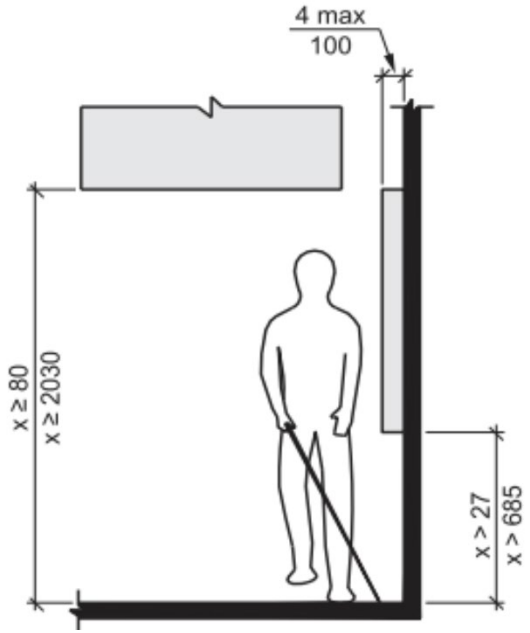
Learning Objectives:

1. Expand your knowledge of what makes a toilet room “barrier-free”.
2. Learn how to work with different types, and time periods, of existing conditions - to enhance the inclusivity of any toilet room.
3. Explore case studies regarding the intricacies of construction administration on a revamped toilet room in an existing school.
4. Learn about the updated toilet room requirements in the 2017 ICC A117.1 Accessible and Usable Buildings and Facilities.

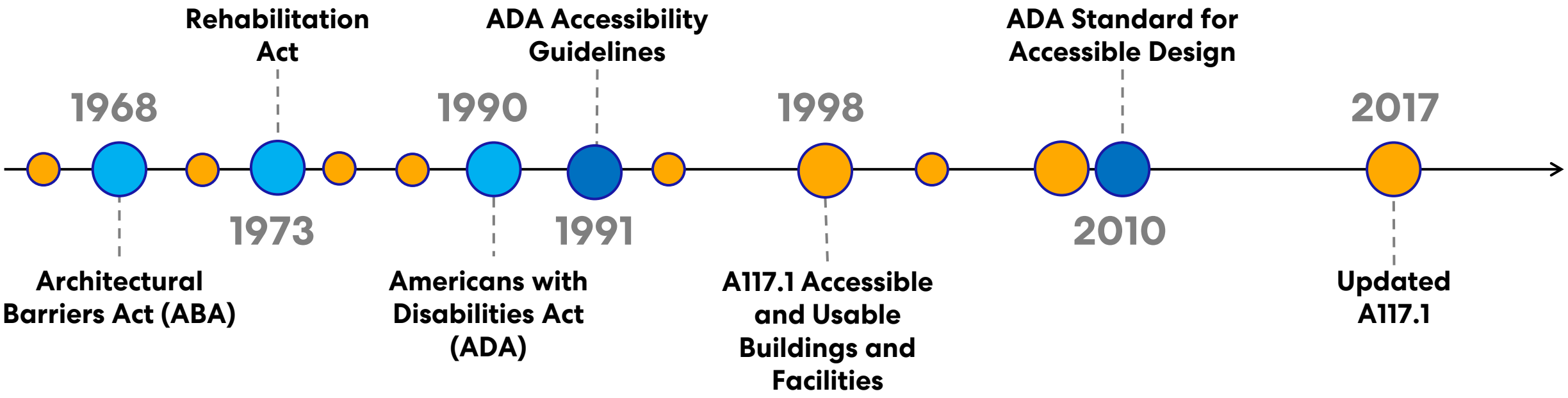
Definition

Barrier-Free Design, also commonly referred to as ADA, ensures that a design meets the bare minimum of codes and standards.

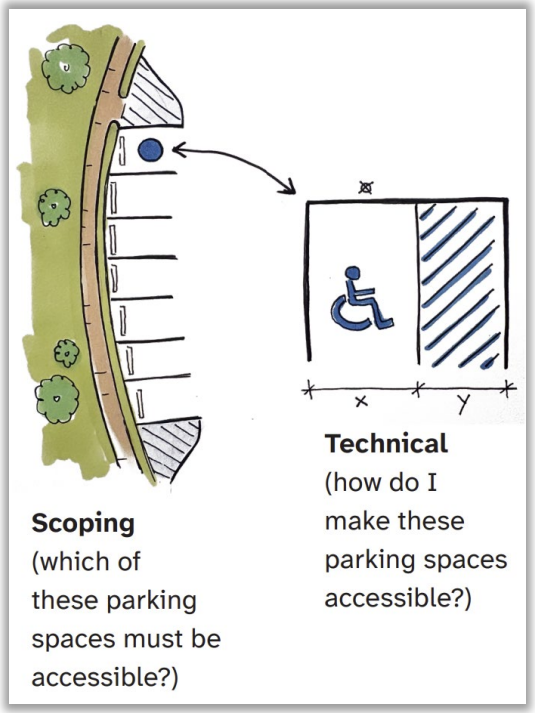
A commonly overlooked issue in barrier-free design is the dreaded “protruding object”. This topic is covered extensively in this presentation.



Timeline (extremely condensed!)



What's the Difference?



Americans with Disabilities Act

ADA

the "Why?"

The ADA is a federal law regarding inclusion in the built environment. The ADA Standards are the requirements of that law, both scoping and technical. The ADA Standards are not a building code.

Accessible and Usable Buildings and Facilities (ICC = Int'l Code Council)

ICC A117.1

the "How?"

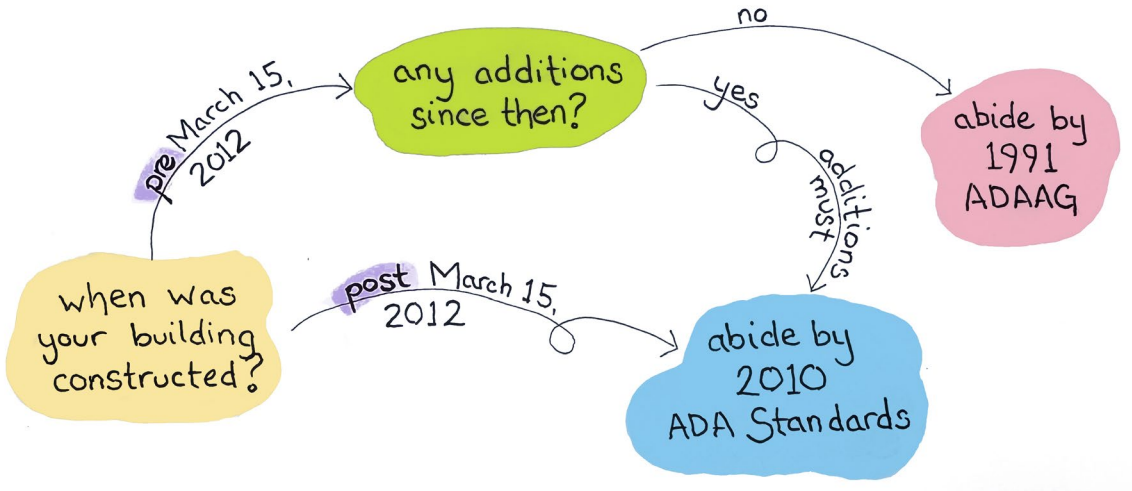
ICC A117.1 (formerly known as ANSI A117.1) describes technical requirements of accessible elements and is adopted as part of a building code (IBC).

IBC

the "Where?"

Chapter 11 of the International Building Code (IBC) describes scoping requirements (quantities, dispersion, etc.) of the accessible elements detailed in ICC A117.1.

First steps of barrier-free design

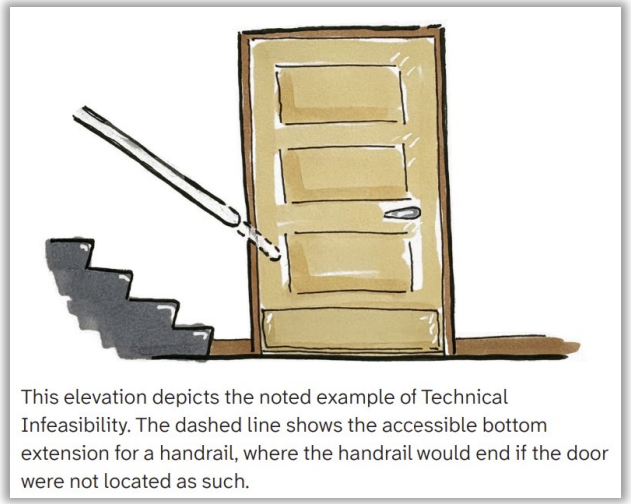


Check **which version of IBC** (or other building code) you will be using – this will determine which version of ICC A117.1 you will reference.

Identify **what is "new construction"** (including additions) **and "existing construction"** within your project.

Familiarize yourself with **the Access Board's Animation page** – helpful diagrams and FAQs on accessible design.

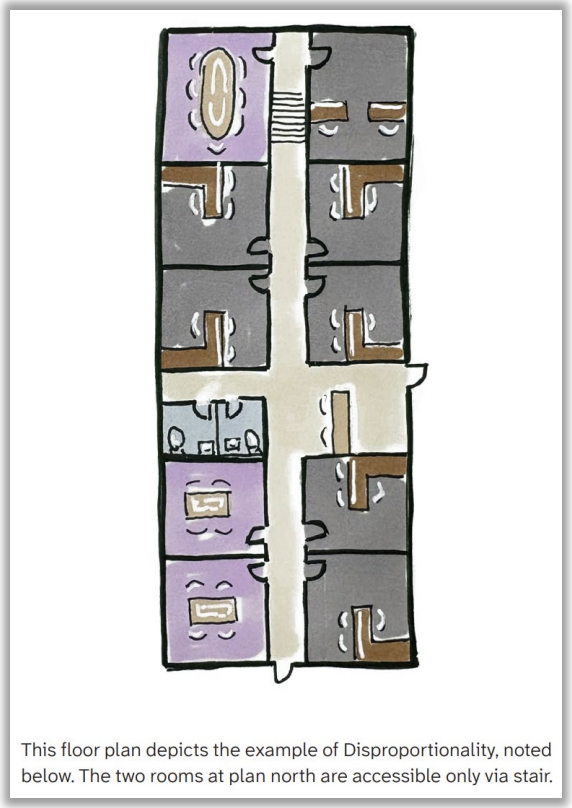
Second steps of barrier-free design



This elevation depicts the noted example of Technical Infeasibility. The dashed line shows the accessible bottom extension for a handrail, where the handrail would end if the door were not located as such.

Research! The locality may have its own accessibility code, on top of (or in lieu of) the ICC A117.1.

In existing construction, understand the ideas of **DISPROPORTIONALITY**, **TECHNICAL INFEASIBILITY**, and **SAFE HARBOR** found in the ADA Standards

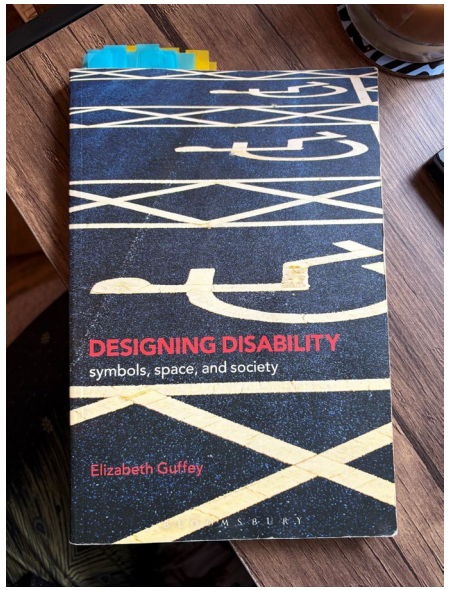


This floor plan depicts the example of Disproportionality, noted below. The two rooms at plan north are accessible only via stair.

Signage

when standards require the ISA by name, use this

ISA (International Symbol of Accessibility)



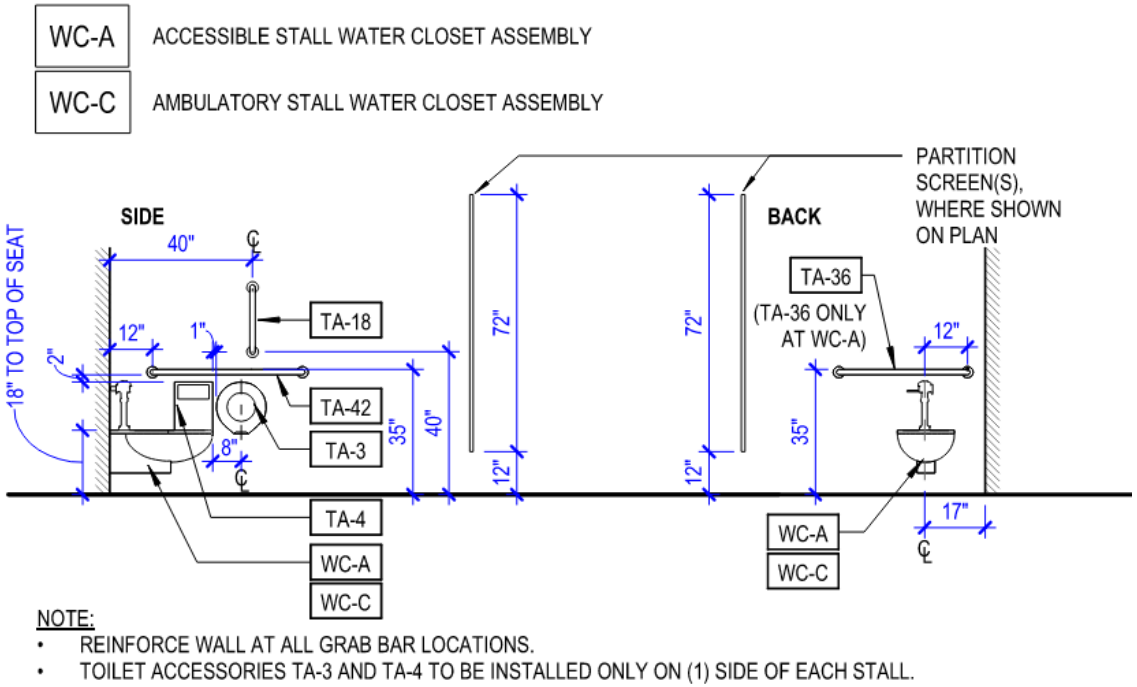
Accessible Icon

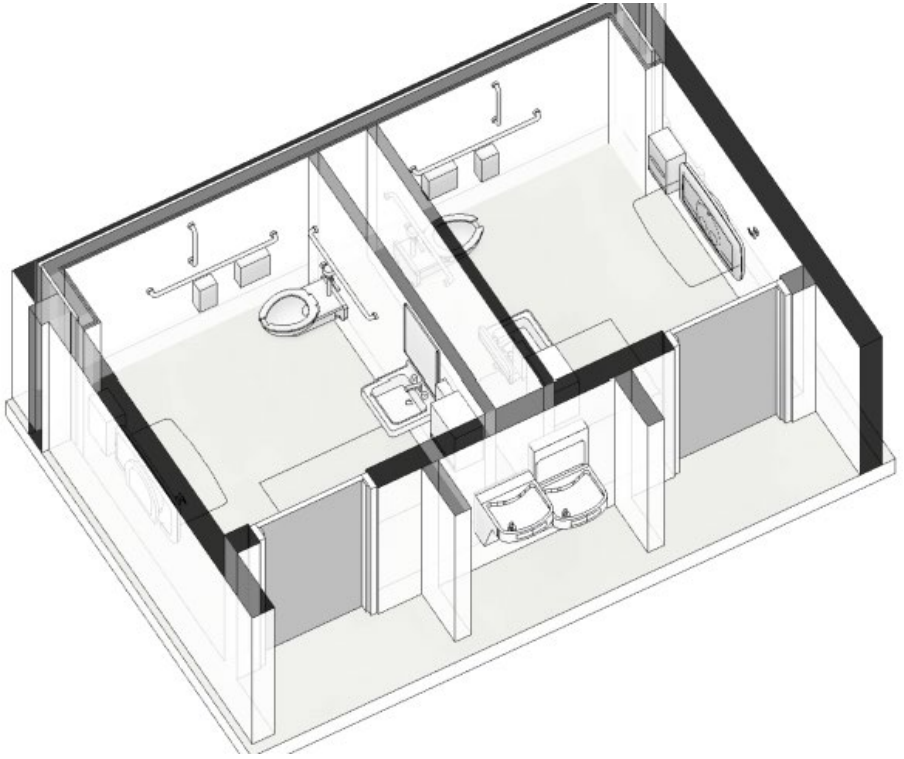
"We were surprised by its success and by the criticism. But we were glad, most of all, for the **newly awakened debate** it raised about disability, **a subject of unfinished rights and unscripted futures** that must continually be brought into the public eye." Sara Hendren, "What Can a Body Do?"

Signage

- **In new construction, all toilet rooms are required to be accessible.**
  - The caveat to this rule is that only 50% of single-user toilet rooms in any given area are required to be fully accessible.
- **If not all toilet rooms in a building are accessible:**
  - ISA is required at the accessible toilets.
  - Directional signage is required at the inaccessible toilets, telling a user where to go for accommodations.
- **If all toilet rooms in a building are accessible:**
  - ISA is not required at any toilet room, but it may be nice to provide.

What makes a toilet room barrier-free?





Case Study #1

604.9.2 Size

Wheelchair accessible toilet compartments shall comply with Section 604.9.2.1, 604.9.2.2 or 604.9.2.3 as applicable.

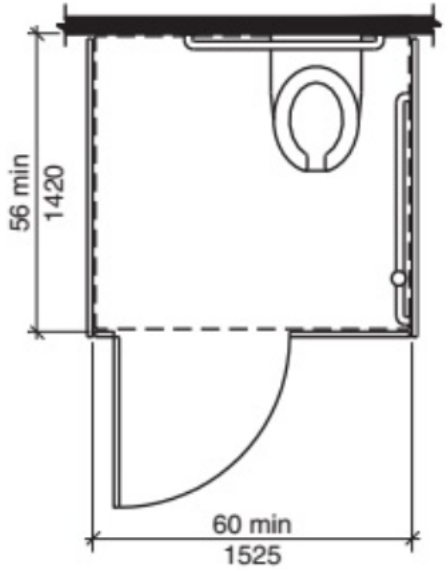
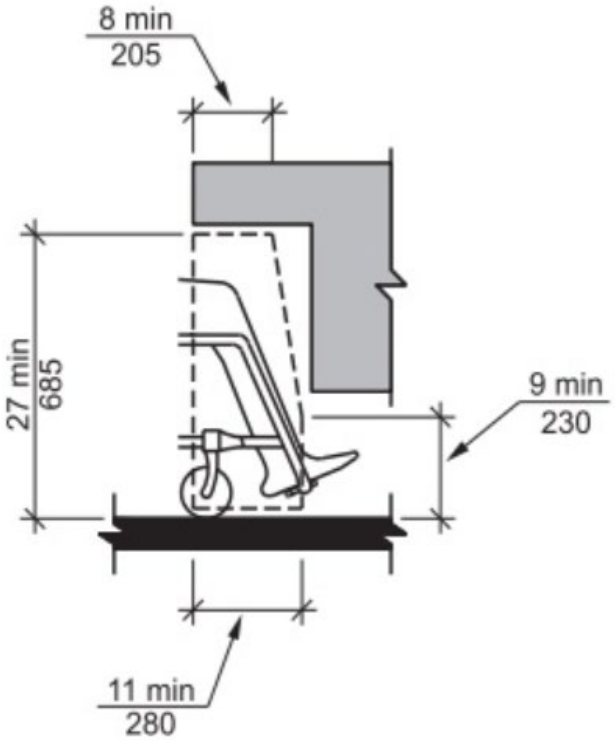


FIGURE 604.9.2(A)
WHEELCHAIR TOILET COMPARTMENTS WALL HUNG CLOSET, ADULT

Case Study #2

306.3 Knee Clearance



Case Study #3

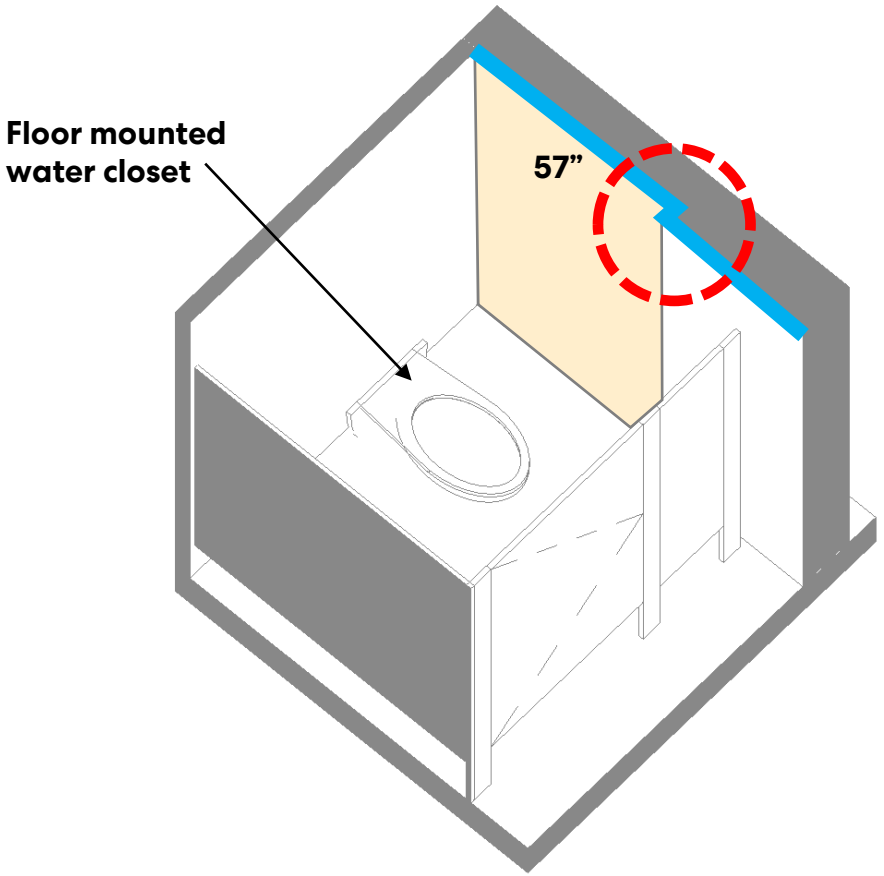
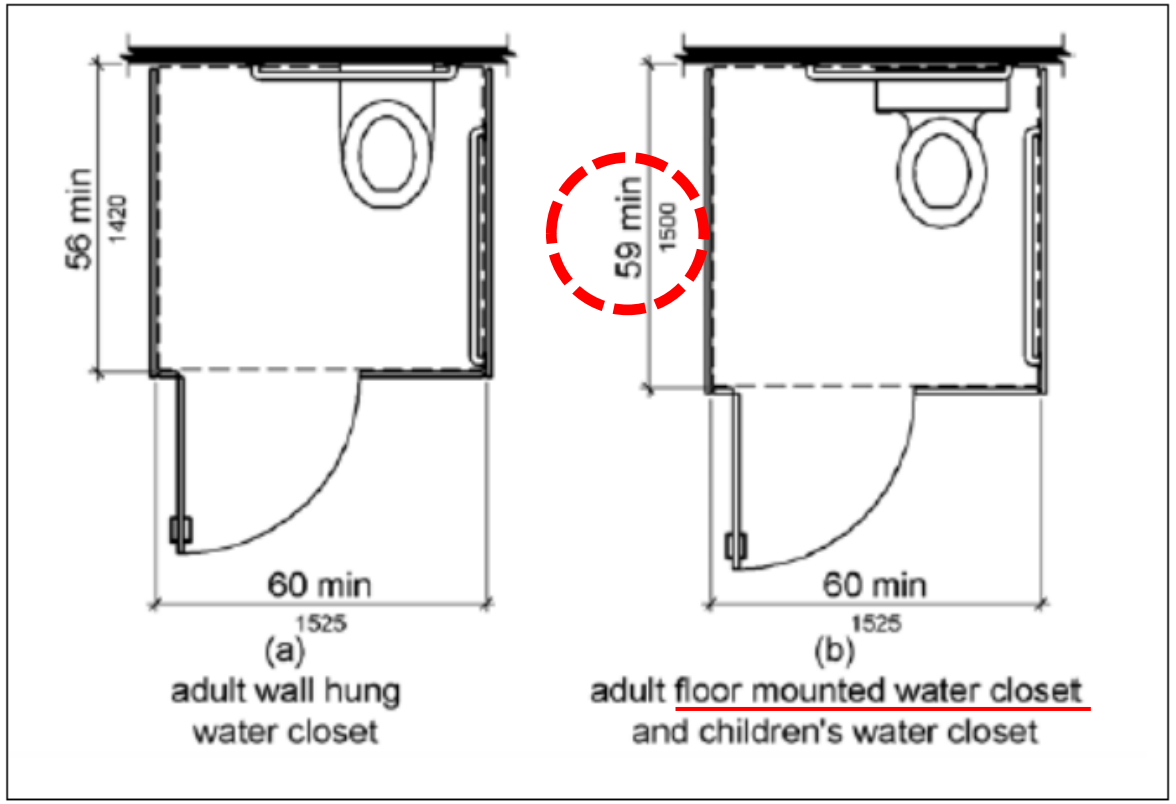


Figure 604.8.1.1

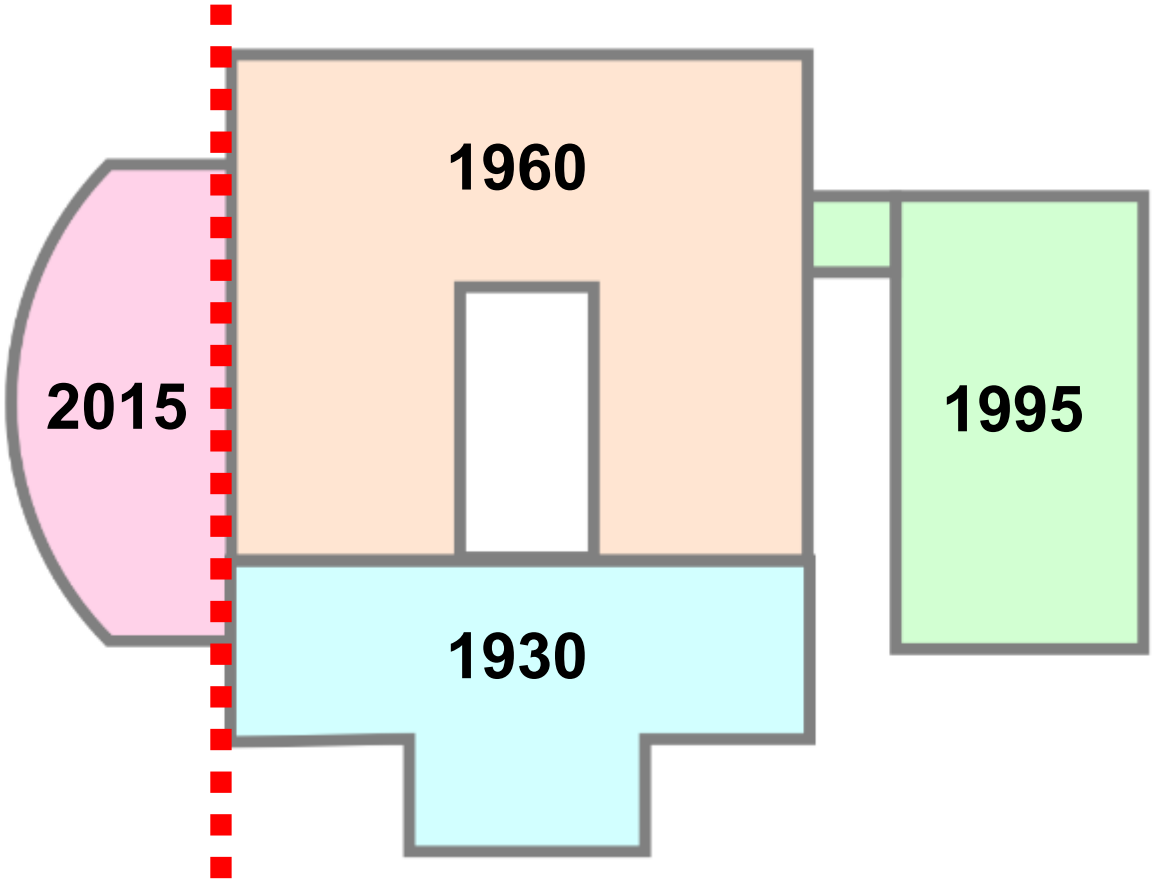


Size of Wheelchair Accessible Toilet Compartment

Case Study #3

Safe Harbor

2010 ADA Standards



1991 ADA Accessibility Guidelines

Safe harbor. ***If a public entity has constructed or altered required elements of a path of travel in*** *accordance with the specifications in either the 1991 Standards or the Uniform Federal Accessibility Standards before March 15, 2012,* ***the public entity is not required to retrofit such elements to reflect incremental changes in the 2010 Standards*** *solely because of an alteration to a primary function area. (28 CFR 35.151 New Construction and Alterations, part c)*

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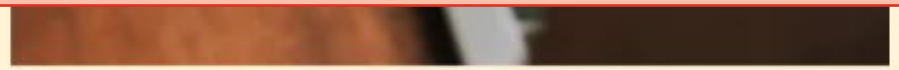
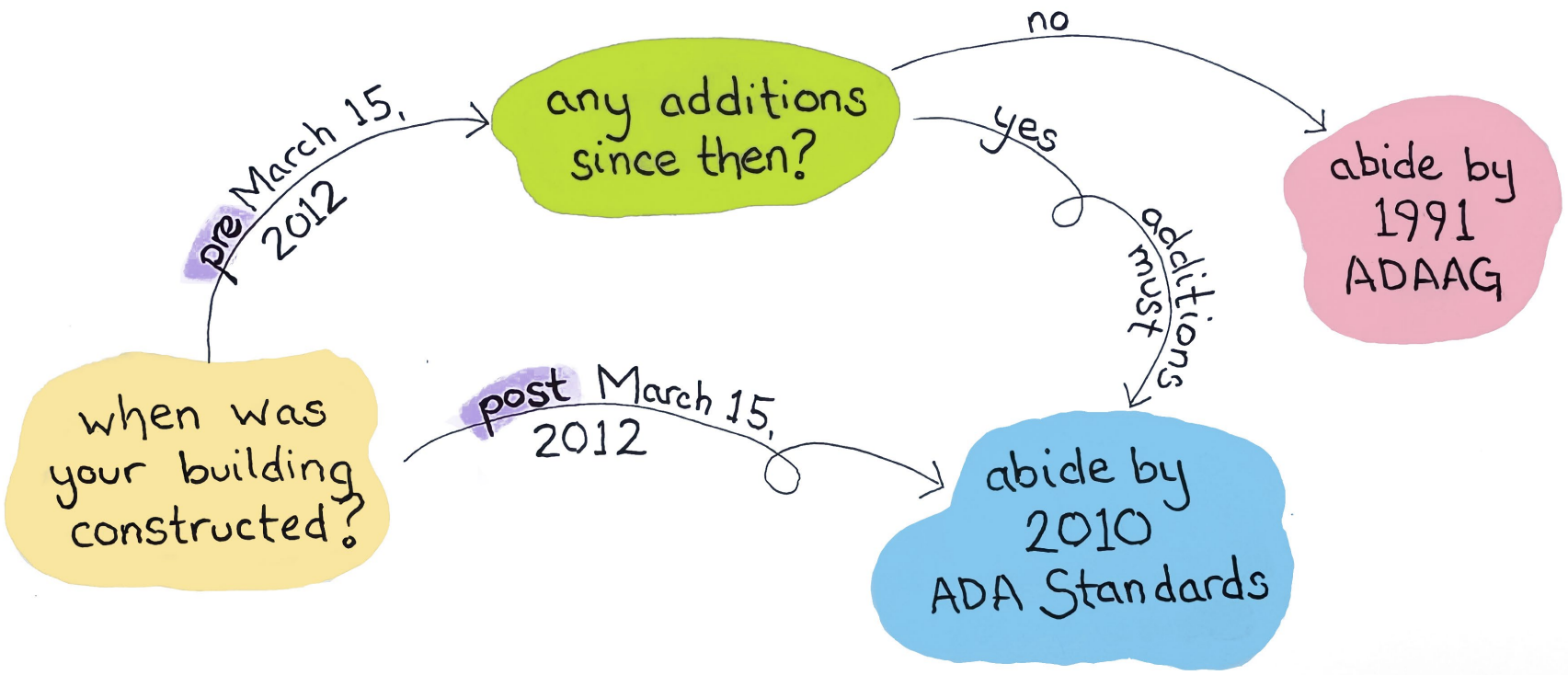


What version of ADA must I follow?



Maneuvering Clearance at Single-User Toilet Room

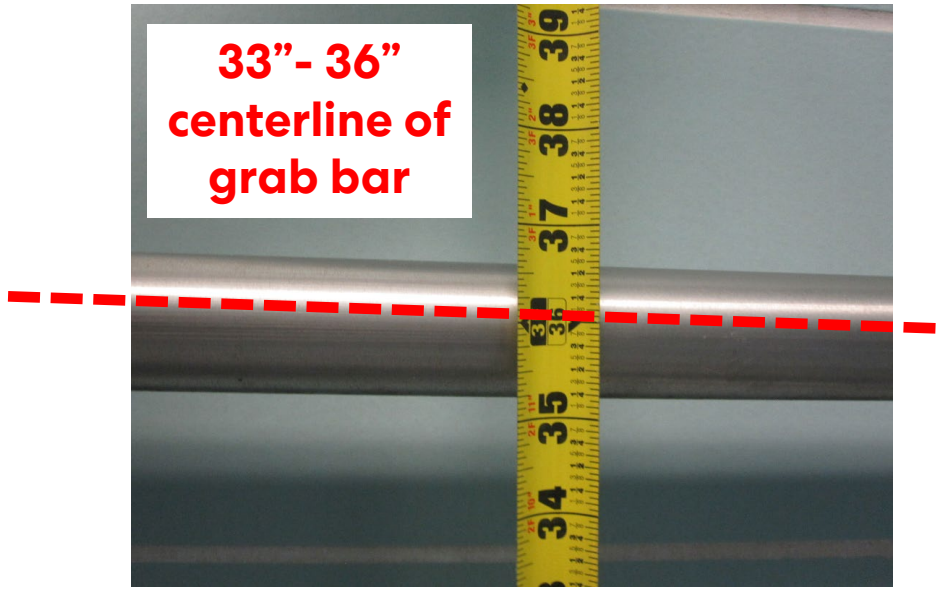
~ built before March 15, 2012 ~

1991 ADA Accessibility Guidelines

~ built after March 15, 2012 ~

2010 ADA Standards

Grab Bar Height



~ built before March 15, 2012 ~

1991 ADA Accessibility Guidelines

~ built after March 15, 2012 ~

2010 ADA Standards

Reach Range

~ built before March 15, 2012 ~

1991 ADA Accessibility Guidelines

~ built after March 15, 2012 ~

2010 ADA Standards

In many ways, the built environment – and by extension society as a whole – plays a profound role in determining who can access spaces, and who cannot.

- Elizabeth Guffey, *Designing Disability: Symbols, Space, and Society*, 2018

How Can We Make Toilet Rooms Even More Inclusive?

- **Consistency/predictability** of toilet room layout
- **Tactile map** at toilet room entrance
- **Occupancy indicators** – lights, locks
- **Label doors** for ambulatory/accessible stalls
- **Enlarge** non-accessible stalls – 32” vs 36”
- Use of **standard language**
- **Full-height** partitions

* Photo of toilet room in Kansas City, MO airport

* Snip from video on Molly Burke LinkedIn page, filmed at Guide Dogs Australia

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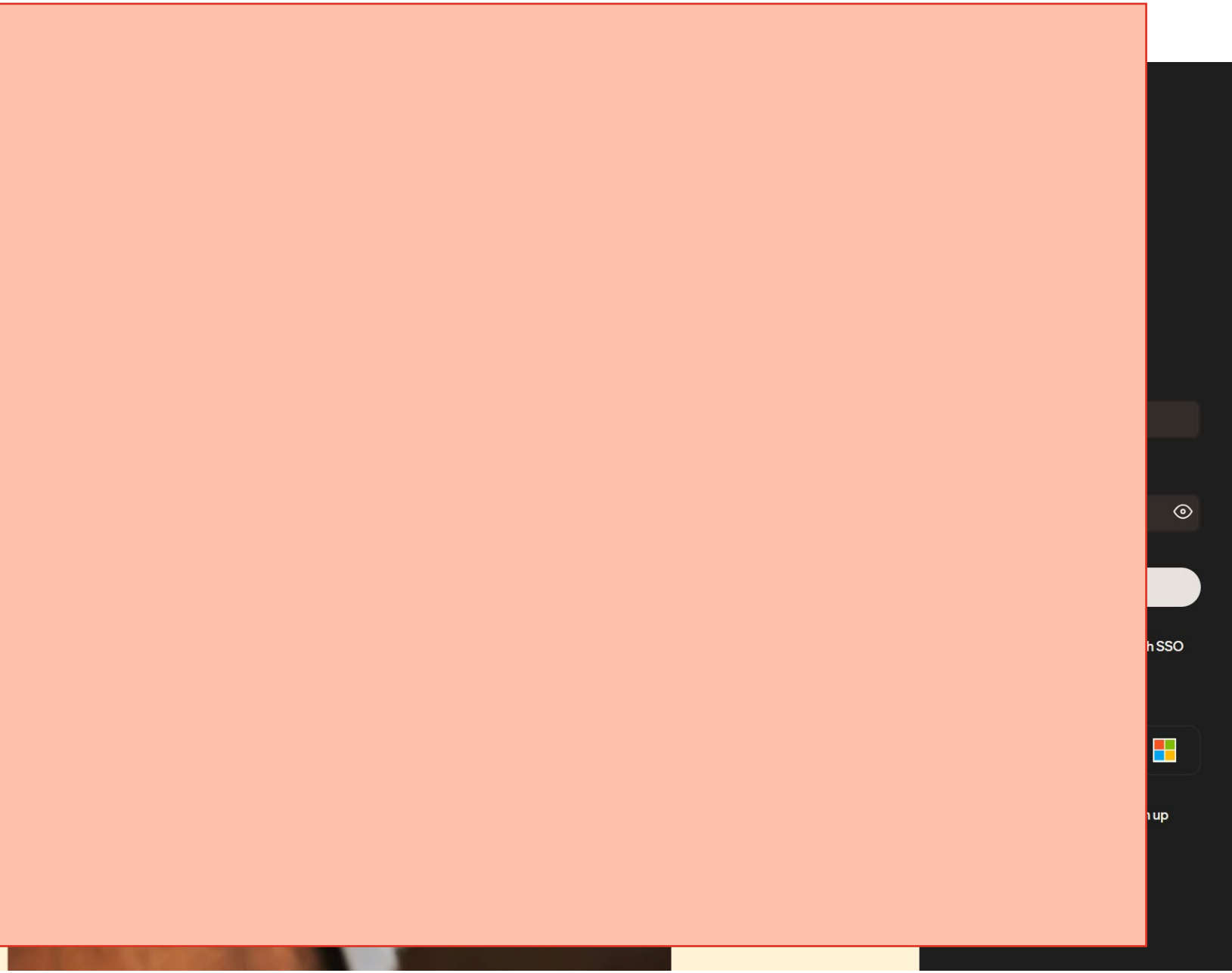
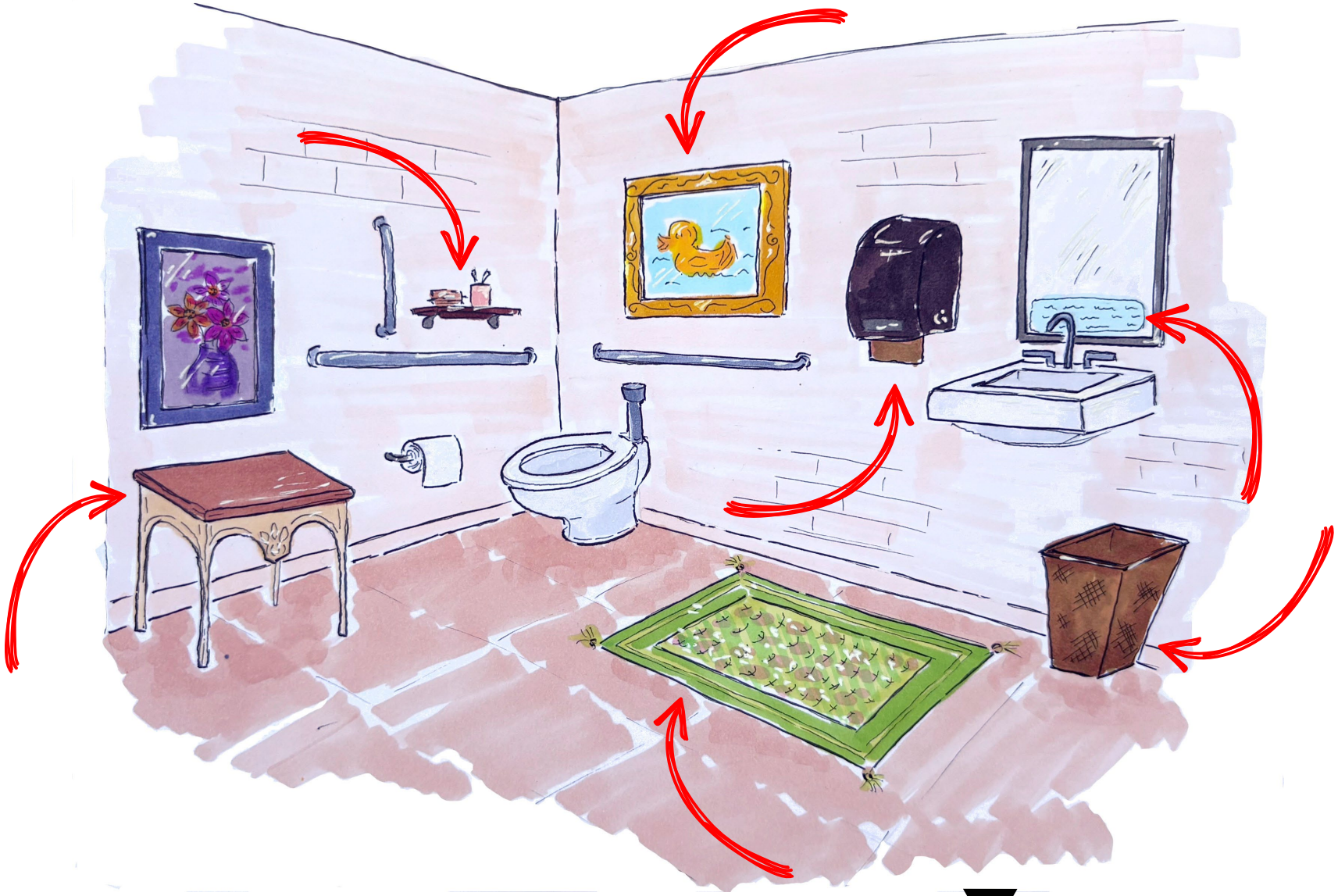
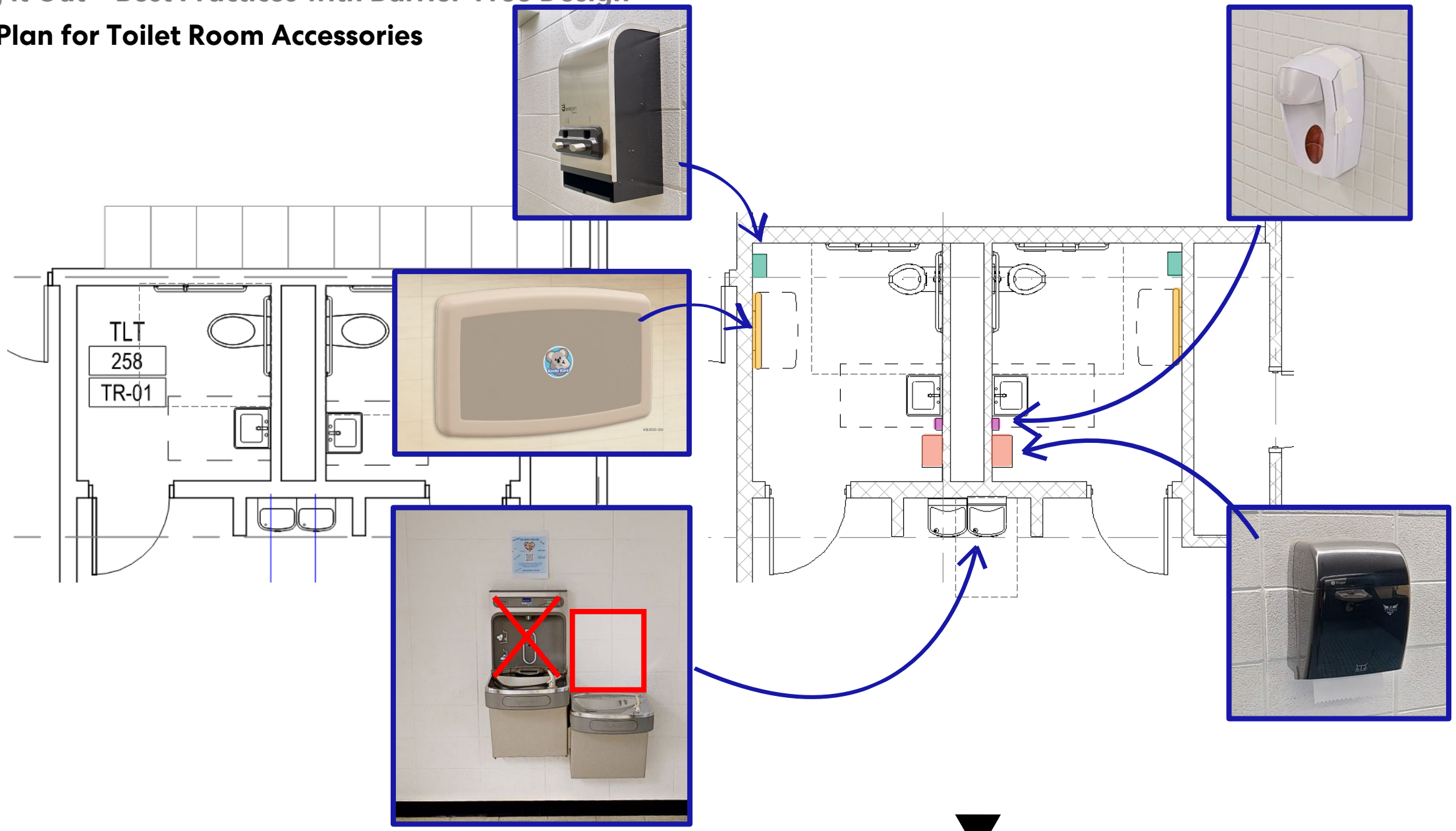


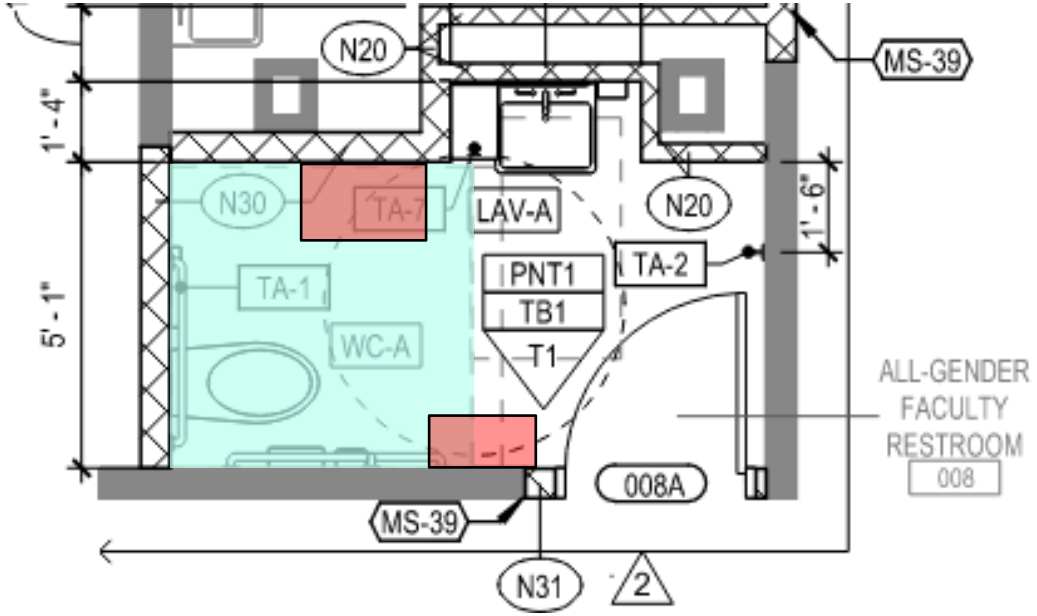
Accessible Toilet Rooms & Client Décor

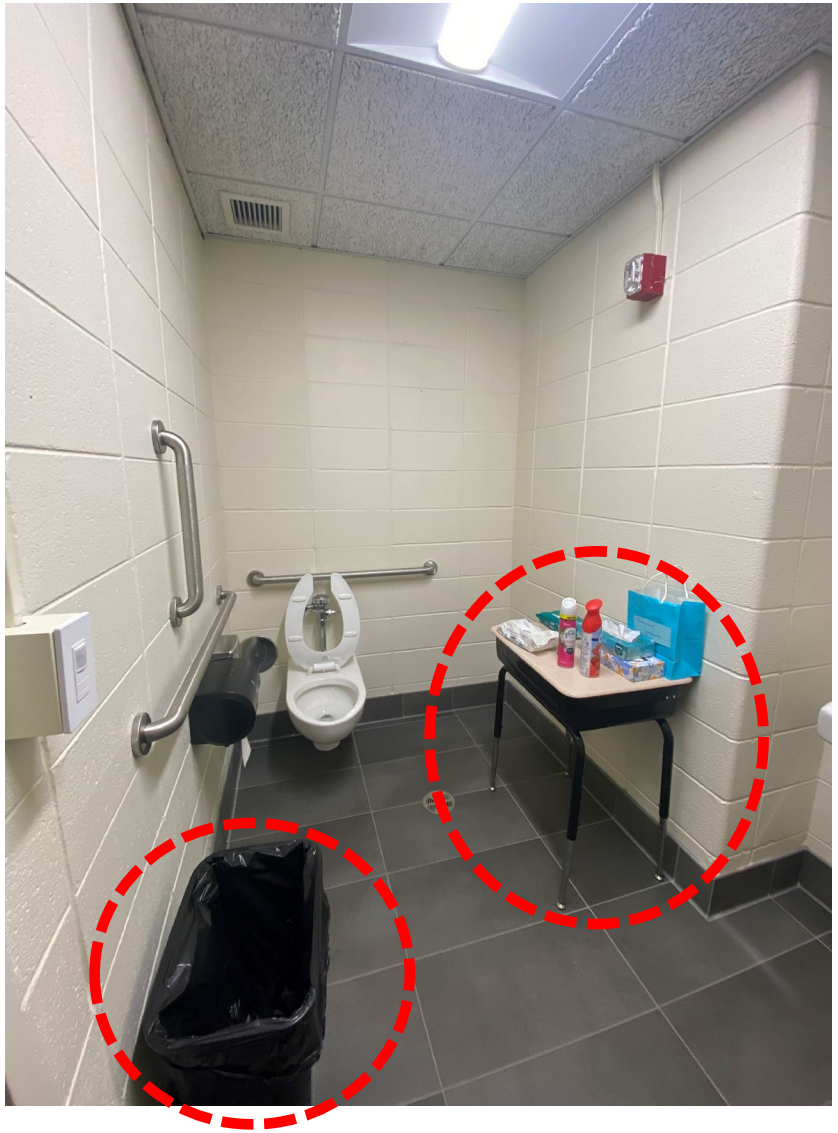


How to Plan for Toilet Room Accessories

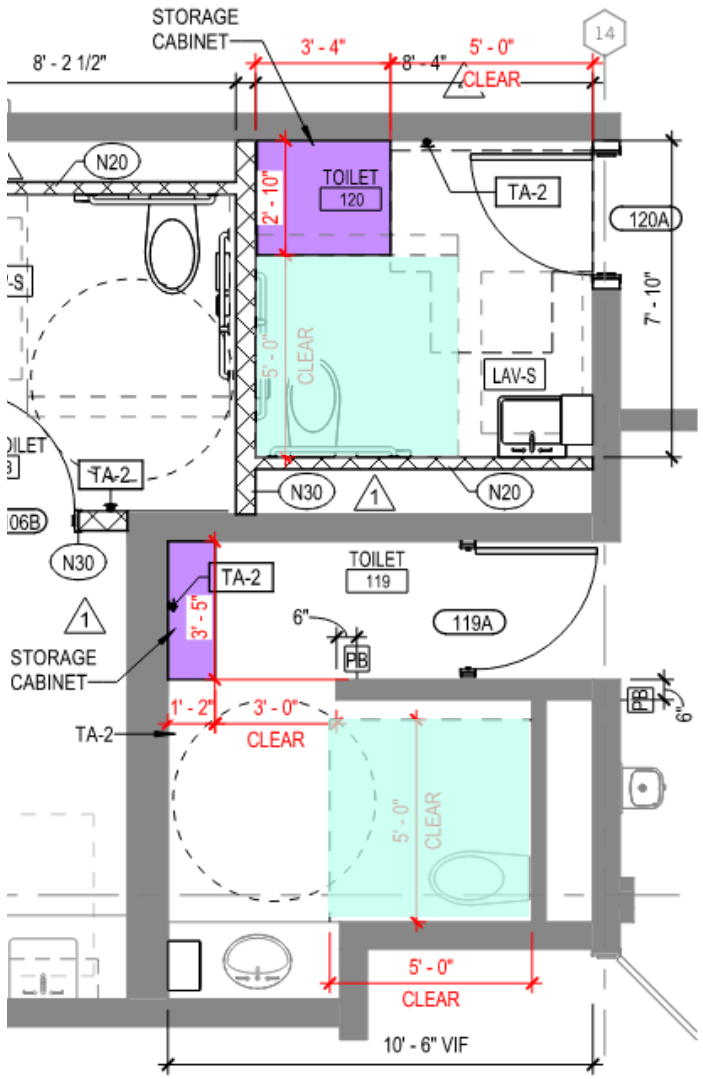


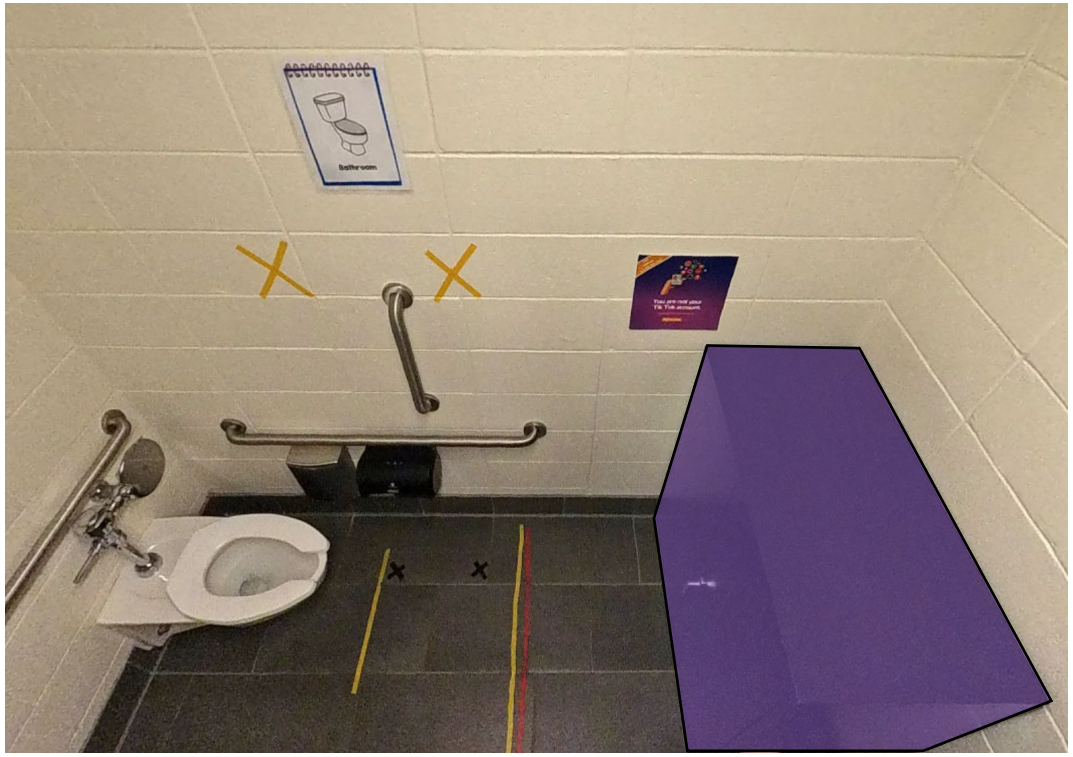
Case Study #4


N20
MS-39
1' - 4"
N30
TA-1
LAV-A
N20
1' - 6"
PNT1
TB1
T1
TA-2
TA-1
5' - 1"
WC-A
ALL-GENDER
FACULTY
RESTROOM
008
008A
MS-39
N31
2



Case Study #5


STORAGE CABINET
8' - 2 1/2"
3' - 4"
8' - 4"
5' - 0"
CLEAR
14
N20
TOILET 120
2' - 10"
TA-2
120A
7' - 10"
LAV-S
5' - 0"
CLEAR
N30
1
N20
TA-2
06B
N30
TOILET 119
TA-2
3' - 5"
6"
PB
119A
STORAGE CABINET
1' - 2"
3' - 0"
CLEAR
TA-2
5' - 0"
CLEAR
5' - 0"
CLEAR
10' - 6" VIF

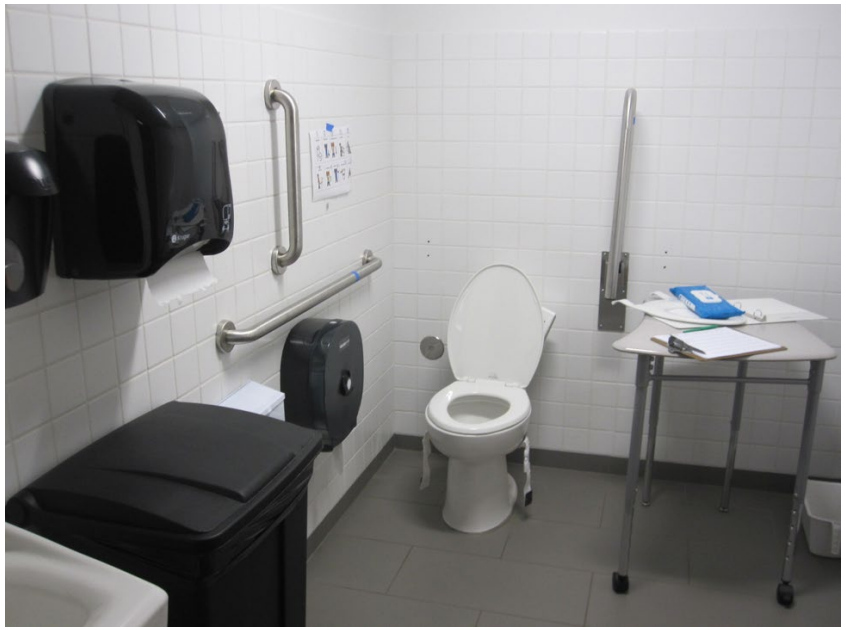


Fold-Down Side Grab Bars

Is a fold-down side grab bar allowed on the open side of the toilet?

On the open side of the toilet, this could be considered a departure from specs giving great or equal access (equivalent facilitation), **but recommend documenting the desire for it by the client.** Ensure that the fold-down side grab bar does not obstruct the water closet maneuvering clearance or use of the rear grab bar.*

The Standards do not require or address additional folding or swing-away grab bars on the open side of the water closet. However, **if provided, they must be mounted so that they do not interfere with use of the required grab bars or the clear floor space at water closets.** Also, it is important they are properly secured.*



* Great Lakes ADA Center and Access Board Guidance

Case Study #6

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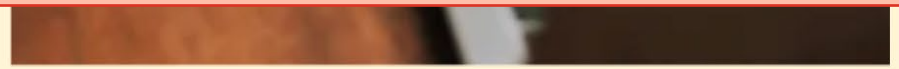


Case Study #7

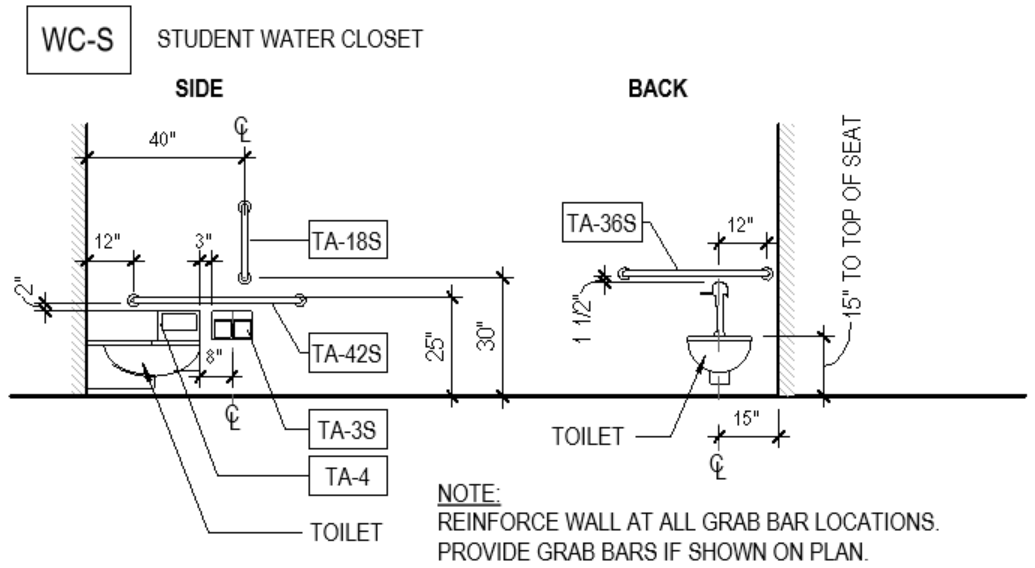
309.4 Operation. Operable parts shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate operable parts shall be 5 pounds (22.2 N) maximum.

606.4 Faucets. Controls for faucets shall comply with 309. Hand-operated metering faucets shall remain open for 10 seconds minimum.

Children Height Considerations

Advisory Specifications for Water Closets Serving Children Ages 3 through 12			
	Ages 3 and 4	**Ages 5 through 8**	**Ages 9 through 12**
Water Closet Centerline	12 inches (305 mm)	12 to 15 inches (305 to 380 mm)	15 to 18 inches (380 to 455 mm)
Toilet Seat Height	11 to 12 inches (280 to 305 mm)	12 to 15 inches (305 to 380 mm)	15 to 17 inches (380 to 430 mm)
Grab Bar Height	18 to 20 inches (455 to 510 mm)	20 to 25 inches (510 to 635 mm)	25 to 27 inches (635 to 685 mm)
Dispenser Height	14 inches (355 mm)	14 to 17 inches (355 to 430 mm)	17 to 19 inches (430 to 485 mm)

4. A knee clearance of 24 inches (610 mm) minimum above the finish floor or ground shall be permitted at lavatories and sinks used primarily by children 6 through 12 years where the rim or counter surface is 31 inches (785 mm) maximum above the finish floor or ground.
5. A parallel approach complying with 305 shall be permitted to lavatories and sinks used primarily by children 5 years and younger.



The lowest grab bar height for small children and the conflict with available toilets has been brought to our attention several times recently, and **we have advised to install the rear grab bar as low possible and still clear the toilet but making sure the side grab bar is at the specified height for the age group.**

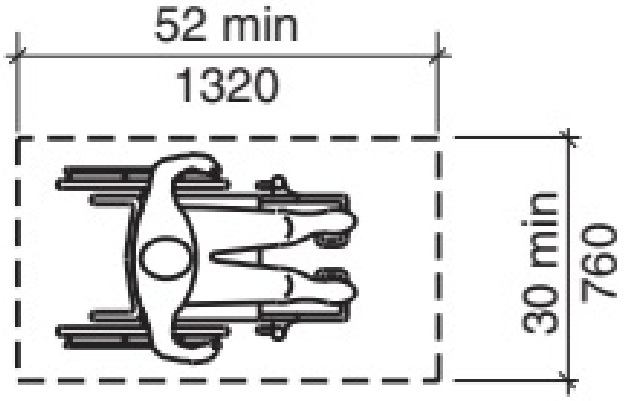
If a toilet cannot be found to meet the height requirements for the rear grab bar we would recommend installing the rear grab bar as low as possible (maintaining the required below grab bar clearance). As said before, the side grab bar shall be at the specified height for the age group being served.*

* Access Board Guidance on ADA Children's Height Advisory Specifications

Case Study #8

	Ages 3 and 4	Ages 5 through 8	Ages 9 through 12
Water Closet Centerline	12 inches (305 mm)	12 to 15 inches (305 to 380 mm)	15 to 18 inches (380 to 455 mm)
Toilet Seat Height	11 to 12 inches (280 to 305 mm)	12 to 15 inches (305 to 380 mm)	15 to 17 inches (380 to 430 mm)

2017 ICC A117.1 – Accessible and Usable Buildings and Facilities



The **2017 A117.1 is referenced in IBC versions 2021 and 2024**. (Previous IBC versions typically referred to 2009 A117.1.)

Many of the updates directly relate to **an updated accessible clear floor space, 30” x 52”.** (Previously 30” x 48”)

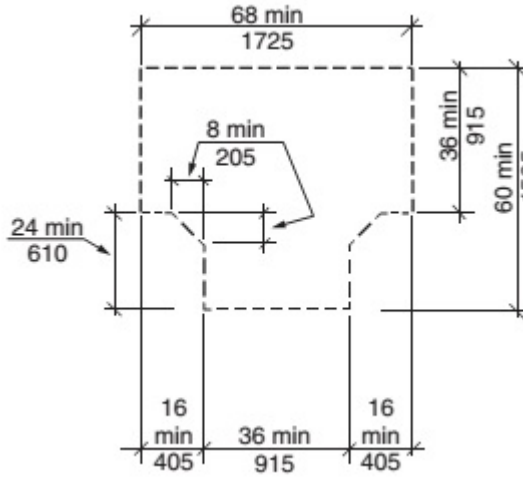
An updated required **turning radius of 67”**, combined with alternate turning options (T-Turns), is included. (Previously 60” turning radius)

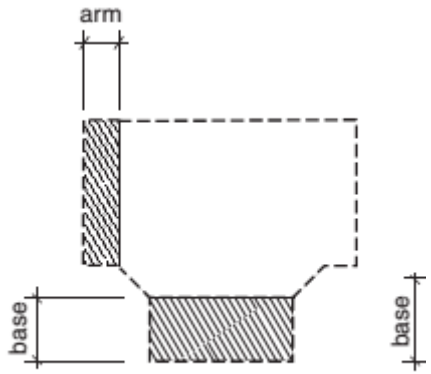
Turning Requirements – A117.1 Section 304

Circular

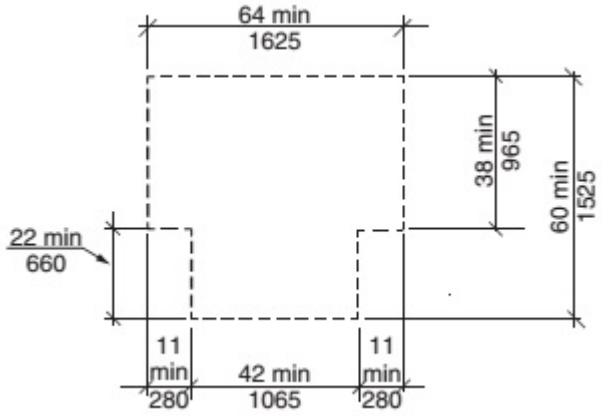
T-Turn

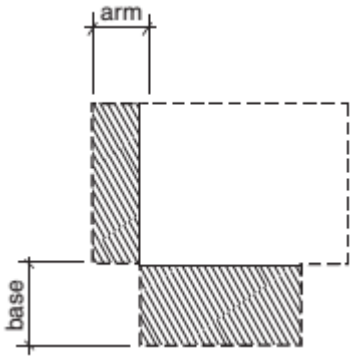
Option 1



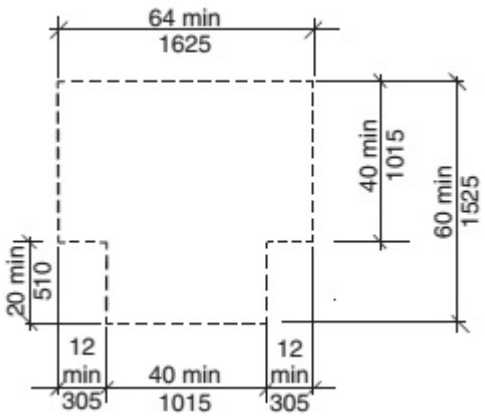


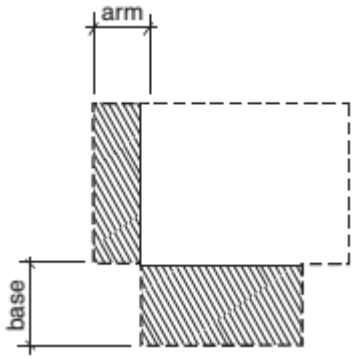
Option 2



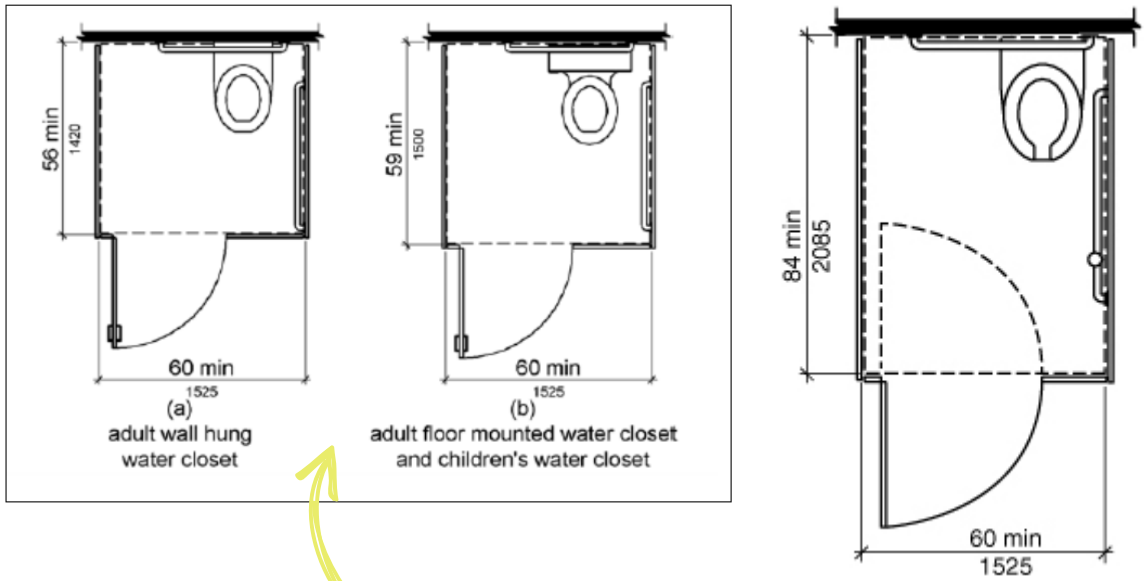


Option 3





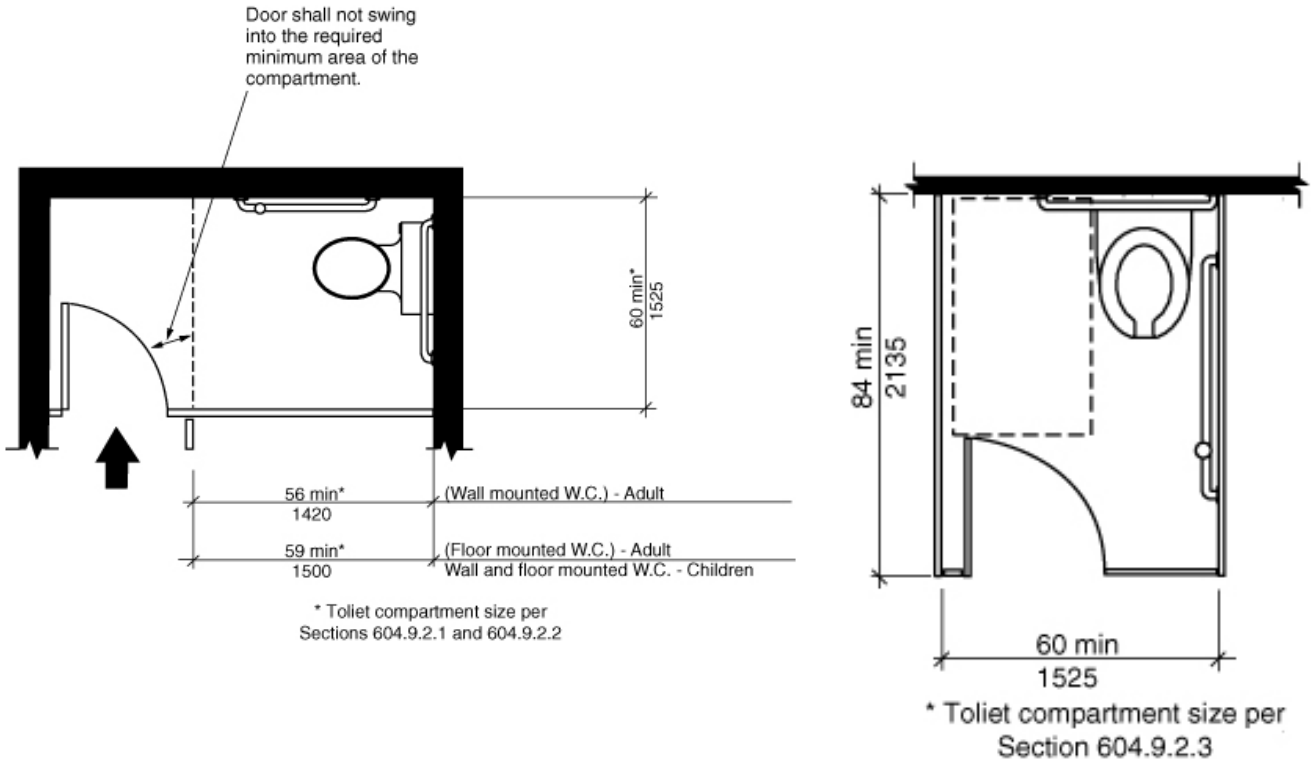
Alternate Wheelchair Compartment – A117.1 Section 604.9



typical 56” x 60” and
59” x 60” toilet stalls

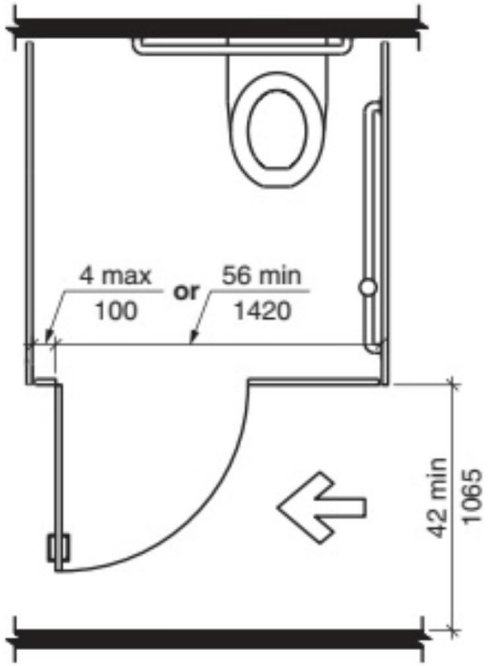
The Alternate Wheelchair Toilet Compartment is an alternate to the typical wheelchair wall-hung toilet stall 56” x 60” and the typical wheelchair floor-mounted toilet stall 59” x 60”.

Wheelchair Compartment Door Locations – A117.1 Section 604.9



Alternate door locations allow for the door to swing in to a stall, under certain conditions. These are door locations for the Wheelchair Toilet Compartment at the End of Stall Rows and for the Alternate Wheelchair Toilet Compartment.

Wheelchair Compartment Door Locations – A117.1 Section 604.9



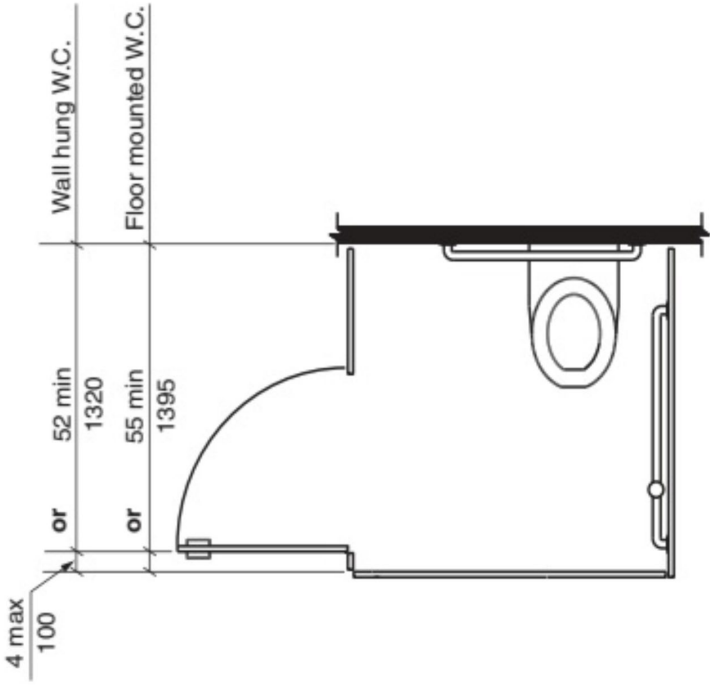
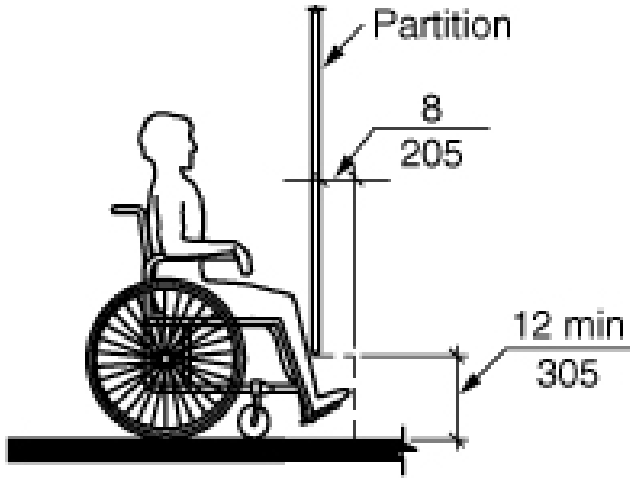
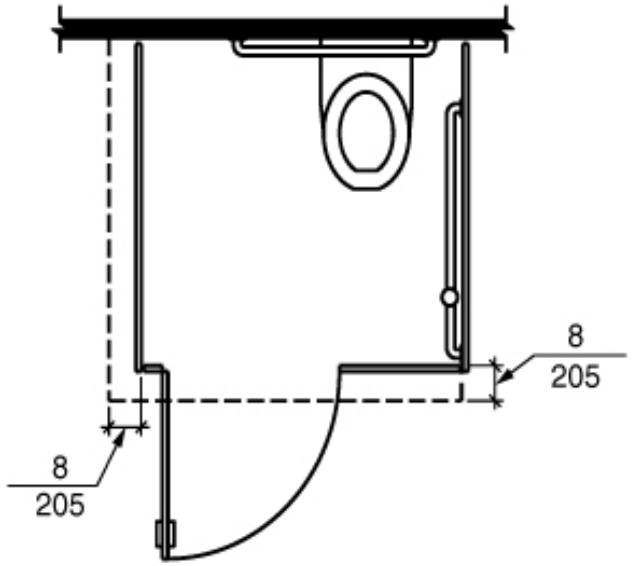


TABLE 604.9.3.1—DOOR OPENING LOCATION

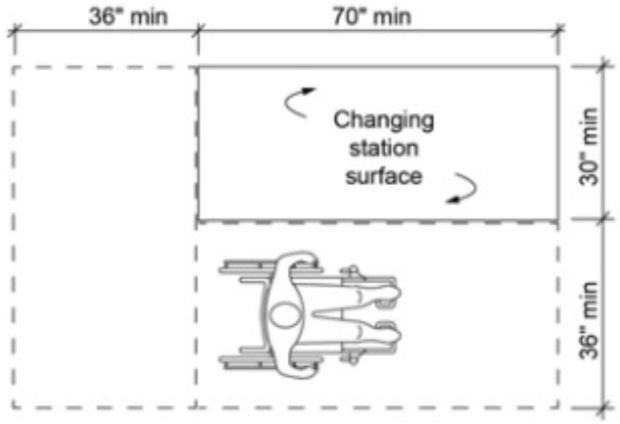
Door Opening Location	Measured From	Dimension
Front Wall or Partition	From the side wall or partition closest to the water closet	56 inches (1420 mm) minimum
	or	
	From the side wall or partition farthest from the water closet	4 inches (100 mm) maximum
Side Wall or Partition Wall-Hung Water Closet	From the rear wall	52 inches (1320 mm) minimum
	or	
	From the front wall or partition	4 inches (100 mm) maximum
Side Wall or Partition Floor-Mounted Water Closet	From the rear wall	55 inches (1395 mm) minimum
	or	
	From the front wall or partition	4 inches (100 mm) maximum

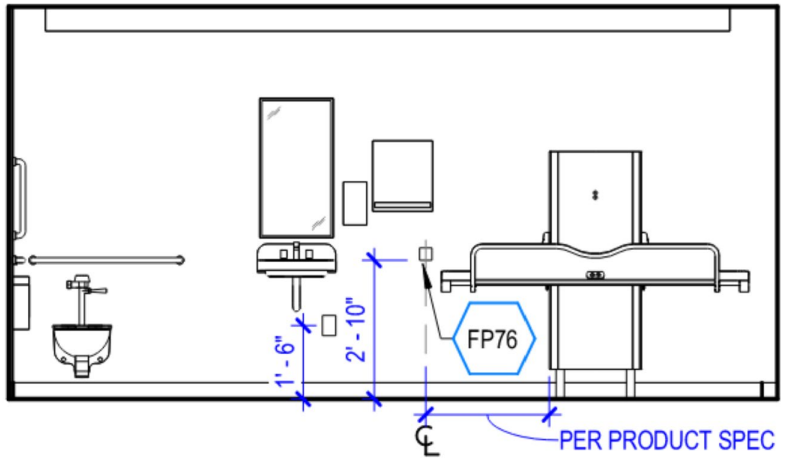
Toe Clearance – A117.1 Section 604.9





Adult Changing Stations – A117.1 Section 613.1

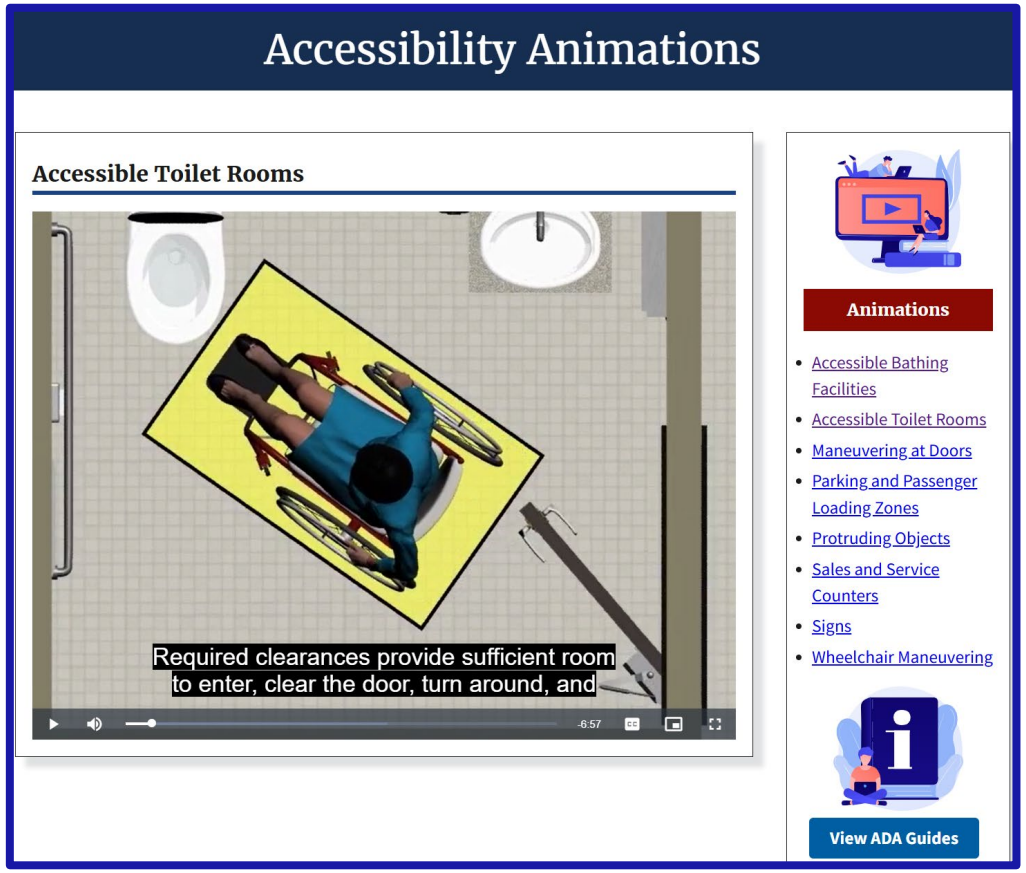




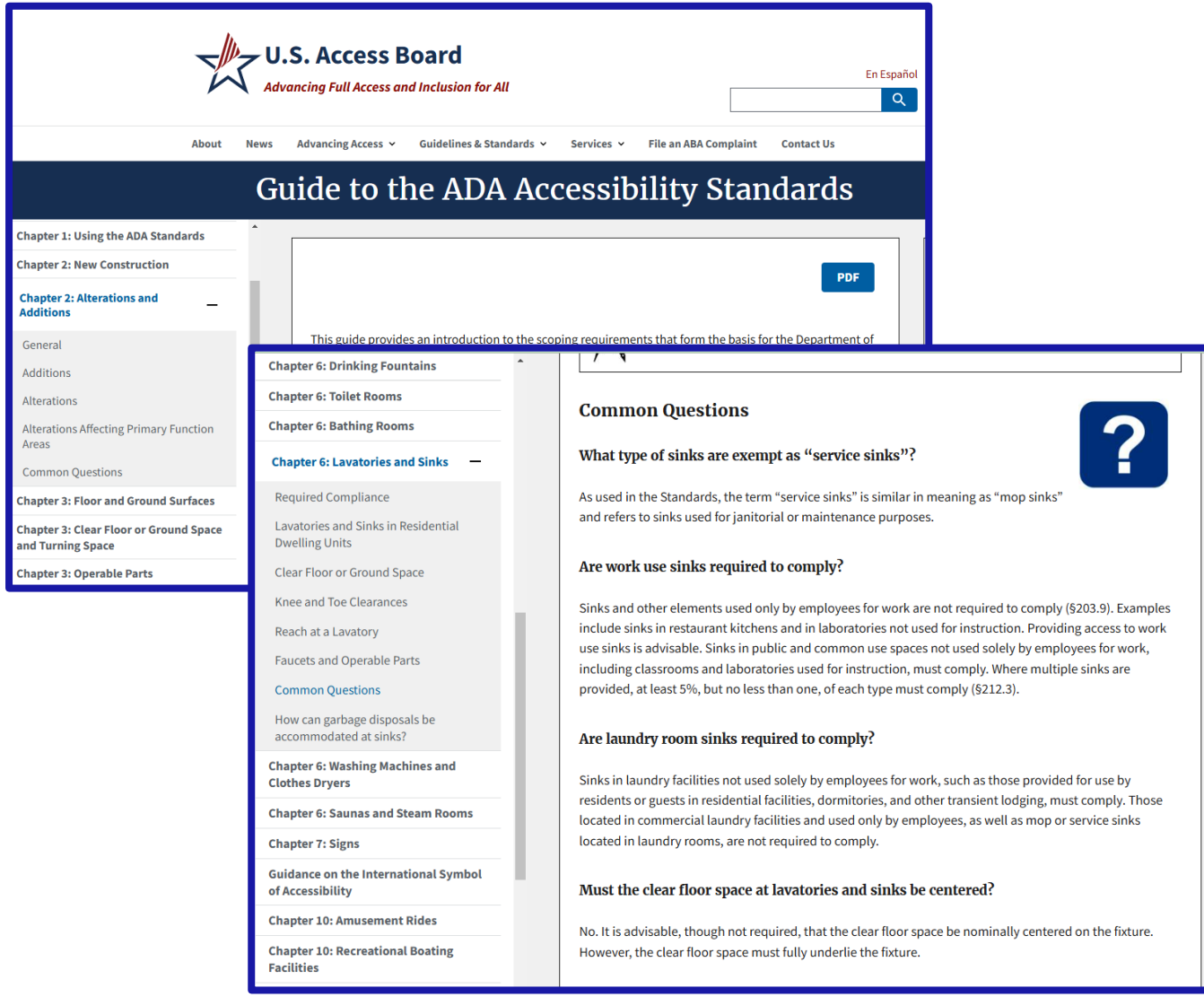
Requirements for Adult Changing Stations were incorporated into 2017 ICC A117.1 with supplement in May 2024. 2024 IBC details the required locations for the stations.

The end maneuvering clearance may be reduced from 36” required width under certain circumstances.

U.S. Access Board



www.access-board.gov/ada/guides/animations/

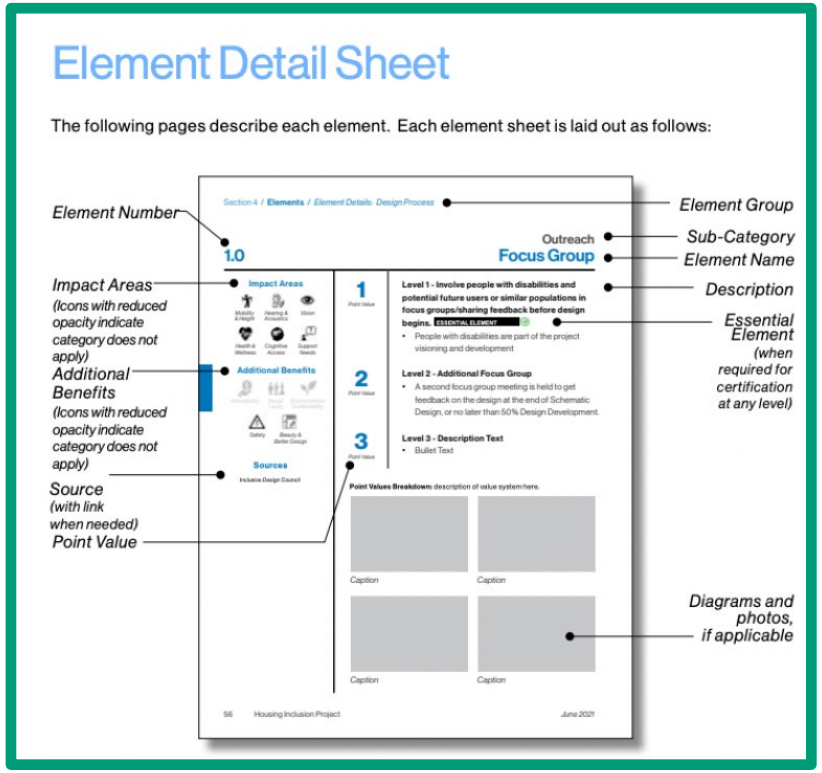


Inclusive Design Standards

26% of people have a disability, yet it's estimated that less than 6% of the national housing supply is designed to be accessible. As housing communities are created, they don't often meet the diverse accessibility and inclusion needs of people with disabilities. While code sets the baseline for what's required, no holistic guidelines define an implementable, progressive approach to creating truly accessible and inclusive housing. The Housing Design Standards for Accessibility and Inclusion aim to equip designers, builders, and developers with guidelines and frameworks for disability-forward housing creation.

equip users with a guideline for disability-forward design

300 elements within the standards, that could aid design and inclusion



multi-disciplinary team of architects, designers, developers, and industry professionals workshopped the standards

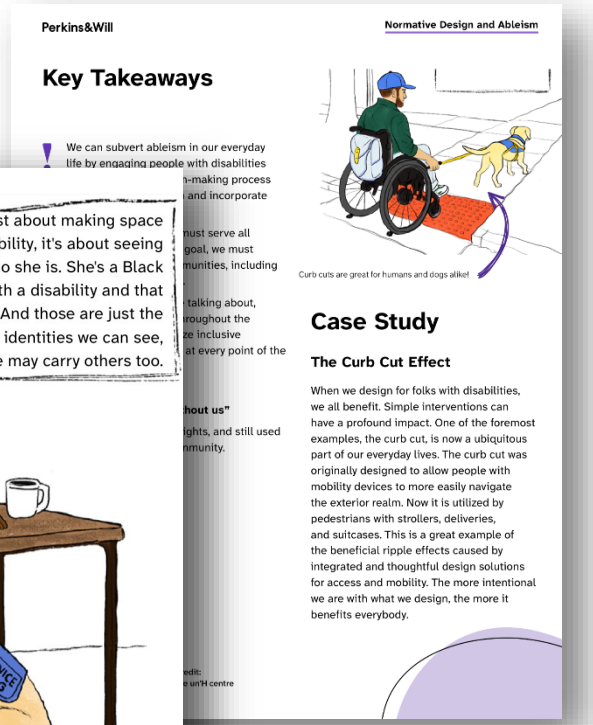
Team

The Kelsey created the Design Standards in partnership with Erick Mikiten of Mikiten Architecture. They were shaped with the support of our Inclusive Design Council as well as workshops with designers, developers, and architects.

The Kelsey, with Mikiten Architecture

PRECEDE Research at Perkins&Will

Disability Inclusion Initiative →

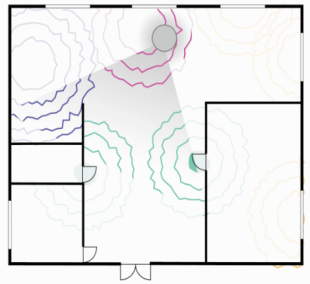


Neuro Inclusion Initiative →

← **Women's Health Initiative**

Why are Sensory Rooms Not Enough?

When we think of sensory rooms most likely an image comes to mind of a dark, enclosed room with soft lighting, fiber optic lights and soft chairs. This is a valid sensory room for one individual, however it meets the needs of only one certain individual. If we question how this space could accommodate someone who is visually impaired, prefers bright spaces or has mobility constraints we may consider alternative sensory designs. A holistic sensory experience has the opportunity to move beyond just one room.



As we move through space, our sensory input changes.

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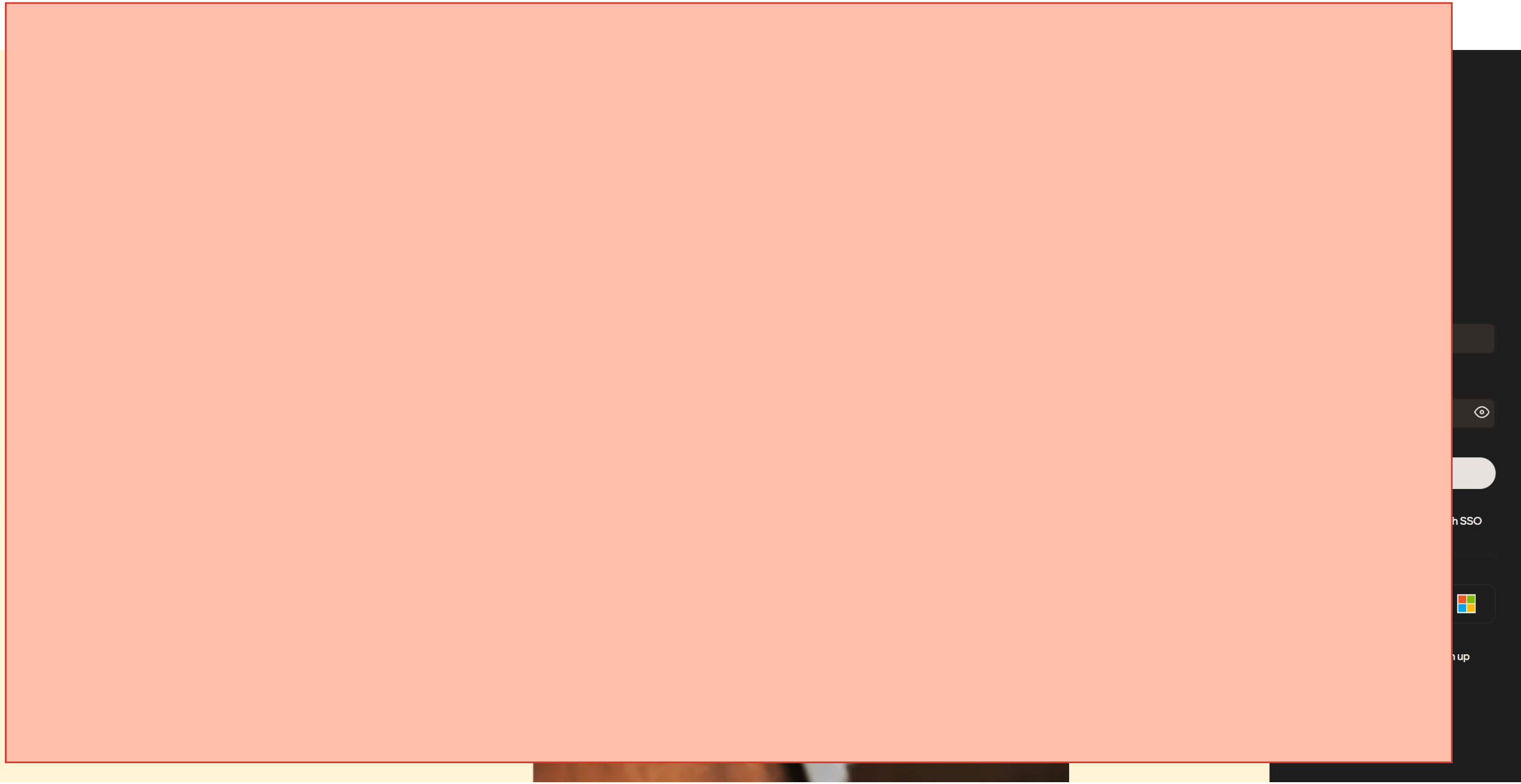

Thank You!
Q / A

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