



Specifying Code-Compliant Toilet Partitions

Version 2.4

BOBRICK

BUILDING VALUE SINCE 1906

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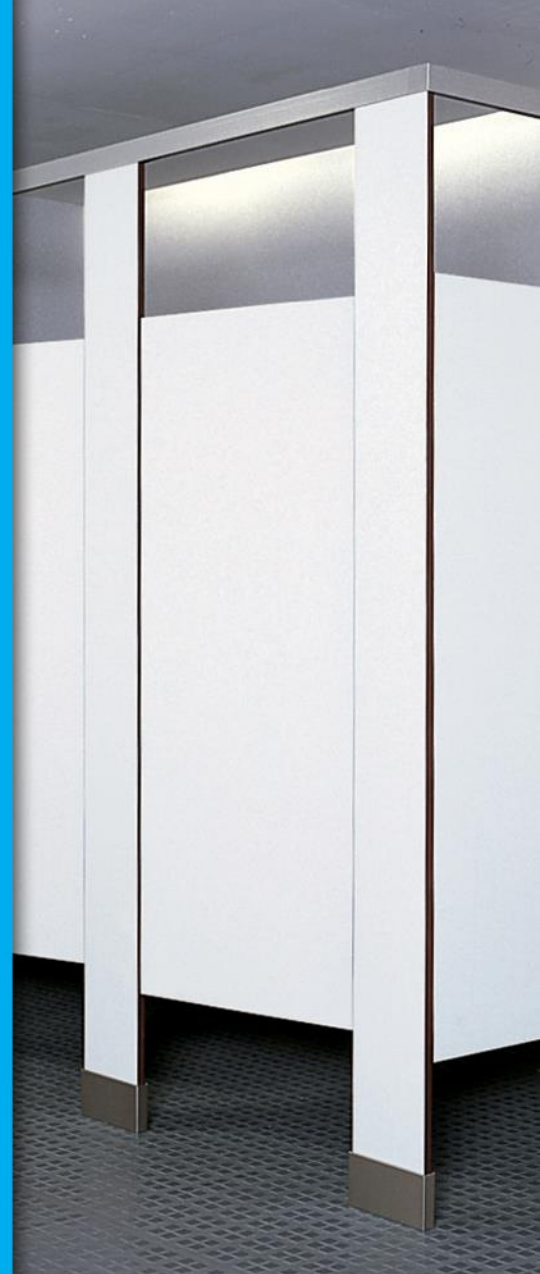
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Learning Objectives

1. Understand current toilet partition material fire code compliance.
2. Learn how to select the most appropriate toilet partition material, hardware, mounting configuration and privacy options based on building type.
3. Describe three ADA accessible toilet compartment layouts.
4. Identify guidelines for writing toilet compartment specifications.

Learning Objective 1

**Understand current
toilet partition fire
code compliance.**



Introduction to Model Fire Codes & Standards

- Model codes and standards related to fire safety and building construction have been developed by:
 - ICC
 - NFPA
- Codes and standards mandatory when adopted by a jurisdiction.
 - All 50 states have adopted various ICC (IBC, IFBC) and NFPA codes from 2009 or later
- Many major corporations require compliance.



Introduction to Model Fire Codes & Standards

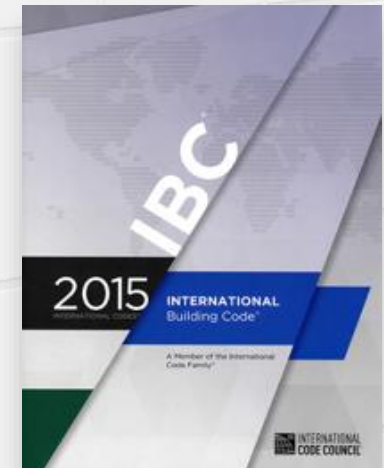
Toilet room privacy partition codes:

- International Building Code (IBC)
- International Fire Code (IFC)
- NFPA Life Safety Code® (NFPA 101®)
- NFPA Fire Code (NFPA 1)



ICC and NFPA codes have been revised:

- Toilet room privacy partitions are now regulated as **interior finish**, and as such, shall comply with interior finishes compliance standards.



Code-Compliant Specifications

- **For Solid Plastic Toilet Compartments:**
 - “Solid plastic, HDPE toilet compartments shall be tested and comply with the NFPA 286 Room-Corner Test.”
- **For Non-Plastic Toilet Compartments:**
 - “Compact laminate, high pressure laminate or stainless-steel toilet compartments shall be tested and comply with ASTM E84, UL 723 or alternatively, NFPA 286.”

Request Test Documentation Confirming Compliance

Interior finish testing requirements vary by material.

Toilet Partition Material	Required Compliance Tests
High Pressure Laminate (HPL), Compact Laminate (CL), Color-Through-Phenolic, Solid Color Reinforced Composite (SCRC), Stainless Steel, Painted Metal	ASTM E 84 or UL 723 Tunnel Test per Section 803.1.1 Interior Wall and Ceiling Finish Materials, 2015 International Building Code
Polypropylene (PP), High-Density Polyethylene (HDPE)	NFPA 286 Room-Corner Test per Section 803.9 High-Density Polyethylene (HDPE) and Polypropylene (PP), 2015 International Building Code

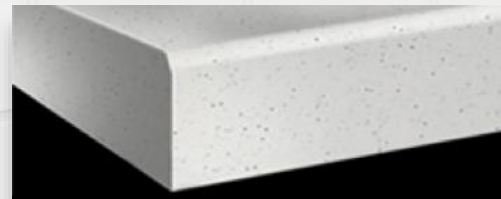
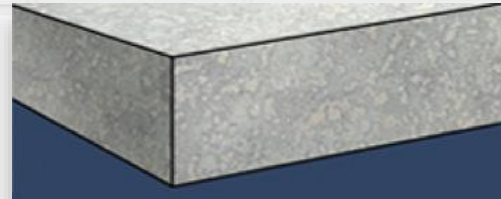
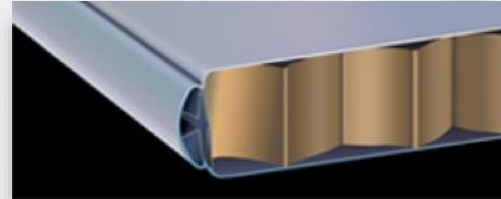
Learning Objective 2

**Specifying toilet
compartments
based on
building type.**



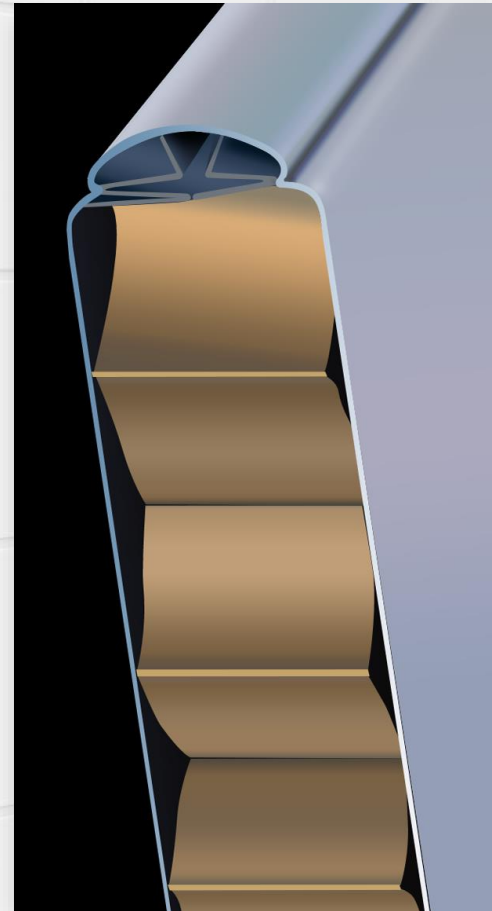
Materials and Construction Methods

- Honeycomb Construction
 - Painted metal
 - Stainless steel
- Bonded Construction
 - High pressure laminate
- Layered Construction
 - Compact laminate
- Homogeneous Construction
 - HDPE
 - SCRC



Honeycomb Construction – Painted Metal

Pros	Cons
Availability	Rusts
Inexpensive	Dents
Can be painted	Scratches
Class “A” Interior Wall Finish Classification	Graffiti
	Odors
	Limited warranty



Honeycomb Construction – Stainless Steel

Pros	Cons
Corrosion resistant	Dents
Cleanliness	Scratches
High design appeal	Odors
Class “A” Interior Wall Finish Classification	Expensive
	Limited warranty



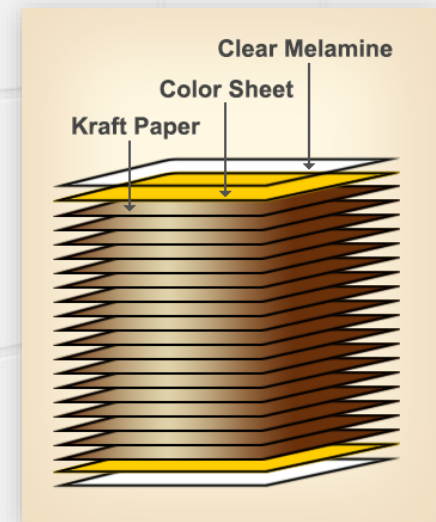
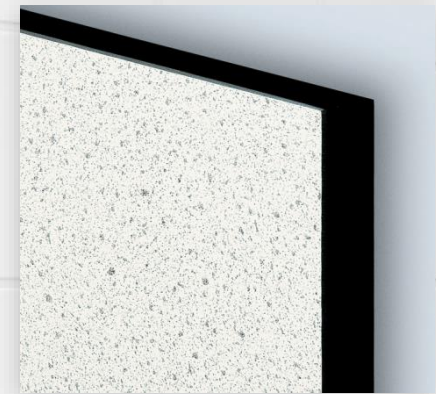
Bonded Construction - High Pressure Laminate

Pros	Cons
Wide color selection	Visible brown or black edges
Graffiti resistant	Deep scratches may expose dark Kraft paper
Scratch resistant	Core material may swell when exposed to excessive moisture
Inexpensive	Odors
Class “B” Interior Wall Finish Classification	Special laminates may increase cost and lead time
	Limited warranty



Bonded Construction - Compact Laminate

Pros	Cons
Water resistant, can “hose” down for cleaning	Layered construction – black core can be exposed by deep scratches
Hard material	Black or brown edges
Dent resistant	
Scratch resistant	
Graffiti resistant	
Wide color selection	
Class “A” or “B” Interior Wall Finish Classification	
25-year warranty	



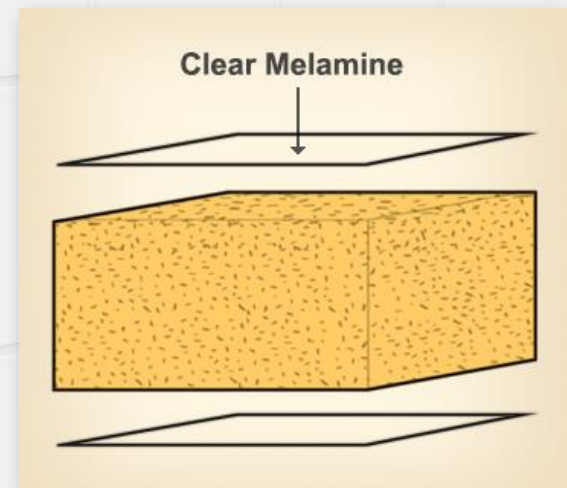
Homogeneous Construction - HDPE

Pros	Cons
Homogeneous solid color throughout	Graffiti containing xylene solvents “ghosts” into material
Repairable, can sand out gouges/scratches	Moderate color selection
Water resistant, can “hose down” for cleaning	Softest material surface; easily scratches
High recycled content	Untreated HDPE does not meet requirements for NFPA 286 Room-Corner Test
Extended warranty	



Homogeneous Construction - SCRC

Pros	Cons
Homogeneous solid color throughout	Limited colors
Repairable, can sand out gouges/scratches	Price is similar to stainless steel partitions
Graffiti resistant surface (no ghosting)	
Hard material	
High resistance to scratches/dents	
Water resistant, can "hose down" for cleaning	
Class "B" Interior Wall Finish Classification	
25-year warranty	



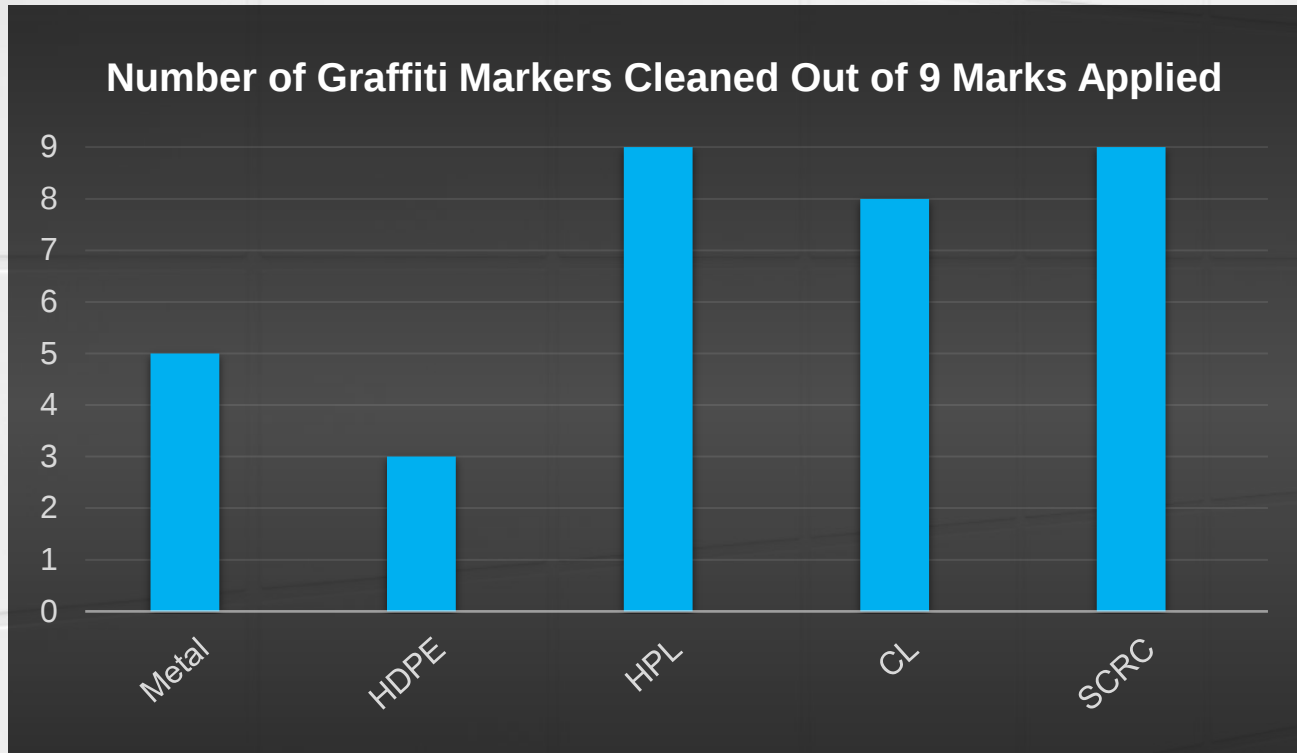
Graffiti-Resistance Test: Protocol ASTM D 6578

Graffiti-Resistance Test:

- Material samples prepared with marks from 9 different staining agents.
- Marks cleaned after 24 hours using different cleaning methods.
- Removability or non-removability of marking agents recorded



Graffiti-Resistance Test: Protocol ASTM D 6578



- Higher readings perform better
- High Pressure Laminate (HPL), Compact Laminate (CL) and SCRC are the most graffiti resistant and easiest to clean

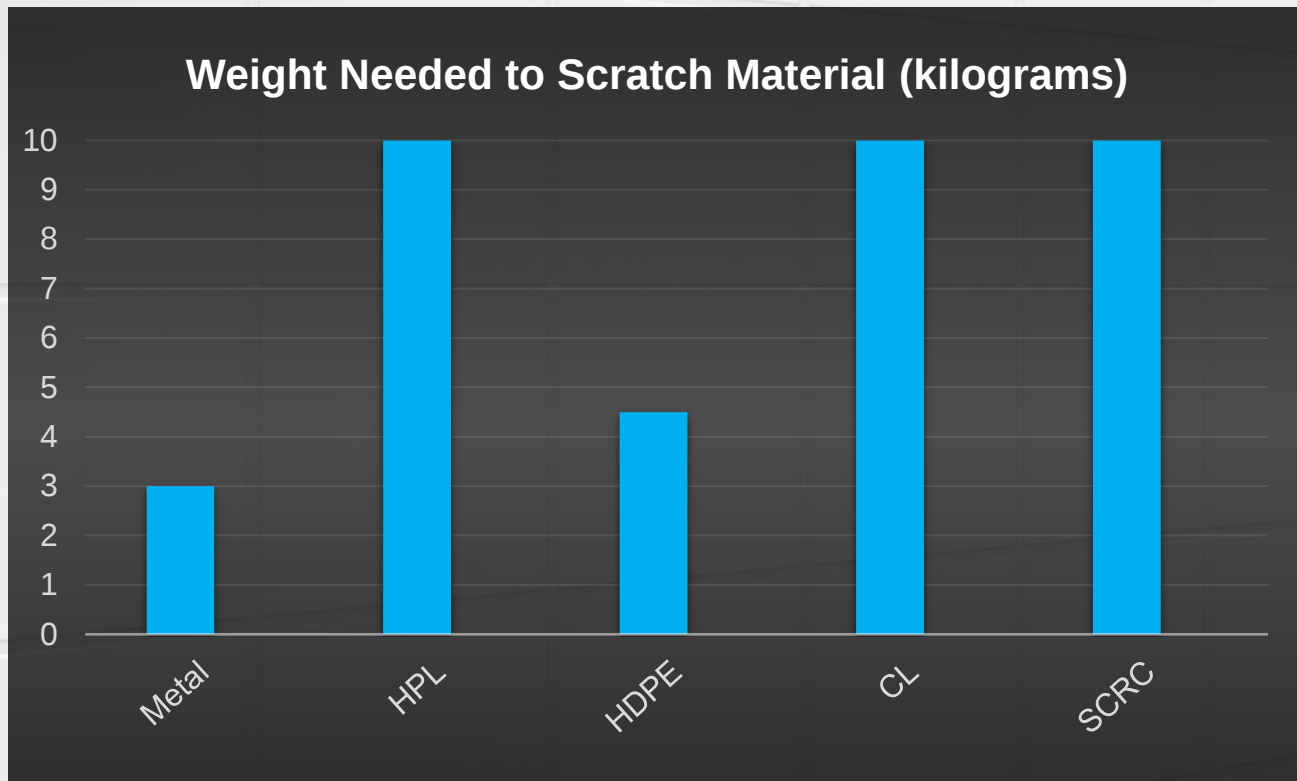
Scratch-Resistance Test: Protocol ASTM D 2197

Scratch-Resistance Test:

- Tests scrape resistance of coatings such as paints.
- Weight added to a scraper and material sample is dragged underneath.
- When scratch occurs weight is recorded



Scratch-Resistance Test: Protocol ASTM D 2197



- Higher readings perform better
- High Pressure Laminate (HPL), Compact Laminate (CL) and SCRC are the most scratch resistant

Surface Burning Characteristics: Protocol ASTM E 84

Material	Flame Spread Index	Smoke Developed Index	Interior Wall & Ceiling Finish Classification
Painted Metal	5	0	Class A
High Pressure Laminate	60	195-300	Class B
Compact Laminate	15/30	20/55	Class A/B
SCRC	45	95-120	Class B

- ASTM E 84 provides comparative classifications used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire-hazard or fire-risk assessment of the materials, products, or assemblies under actual fire conditions.
- HDPE must be tested and comply with the NFPA 286 Room-Corner test, not the ASTM E 84 Tunnel Test.
- Stainless steel was not tested

Client Needs

Toilet Partition Material Price Comparisons

	Painted Metal	High Pressure Laminate	HDPE (Untreated)	Compact Laminate	SCRC	Stainless Steel
Price Index	1	1.1	1.9	2.4	2.7	2.7

Note: Painted metal prices have increased, closing the price difference with high pressure laminate, which offers more design freedom.

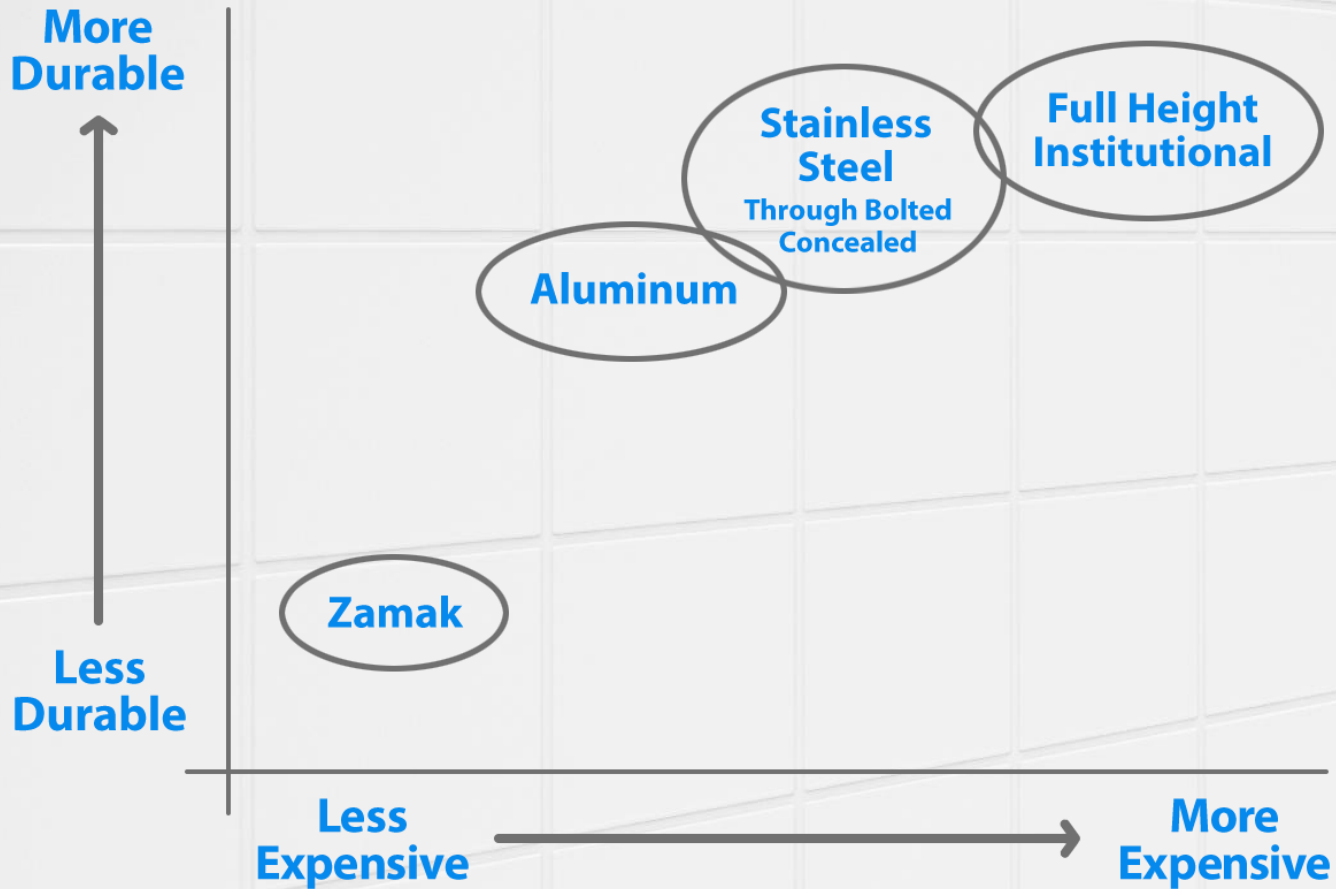
Stainless steel is the most expensive, at about 2.7 times the price of painted metal or high pressure laminate.

Hardware Selection



Specifying Toilet Compartments Based on Building Type

Hardware Selection



Mounting Configurations



Overhead-Braced



Floor-to-Ceiling



Floor-Anchored



Ceiling-Hung

Specifying Toilet Compartments Based on Building Type

Building Type

- Building type forms a baseline for the design.
- Three building types:
 - Prestige - Corporate headquarters
 - Focus on architectural design excellence and quality materials and equipment
 - Standard Use -Healthcare centers
 - Moderate to heavy traffic and incidence of vandalism
 - Heavy Traffic - K-12 schools, Retail malls
 - Equipment durability and extra-large capacities are important



Building Type Summary

Matching Partition Materials to Building Needs

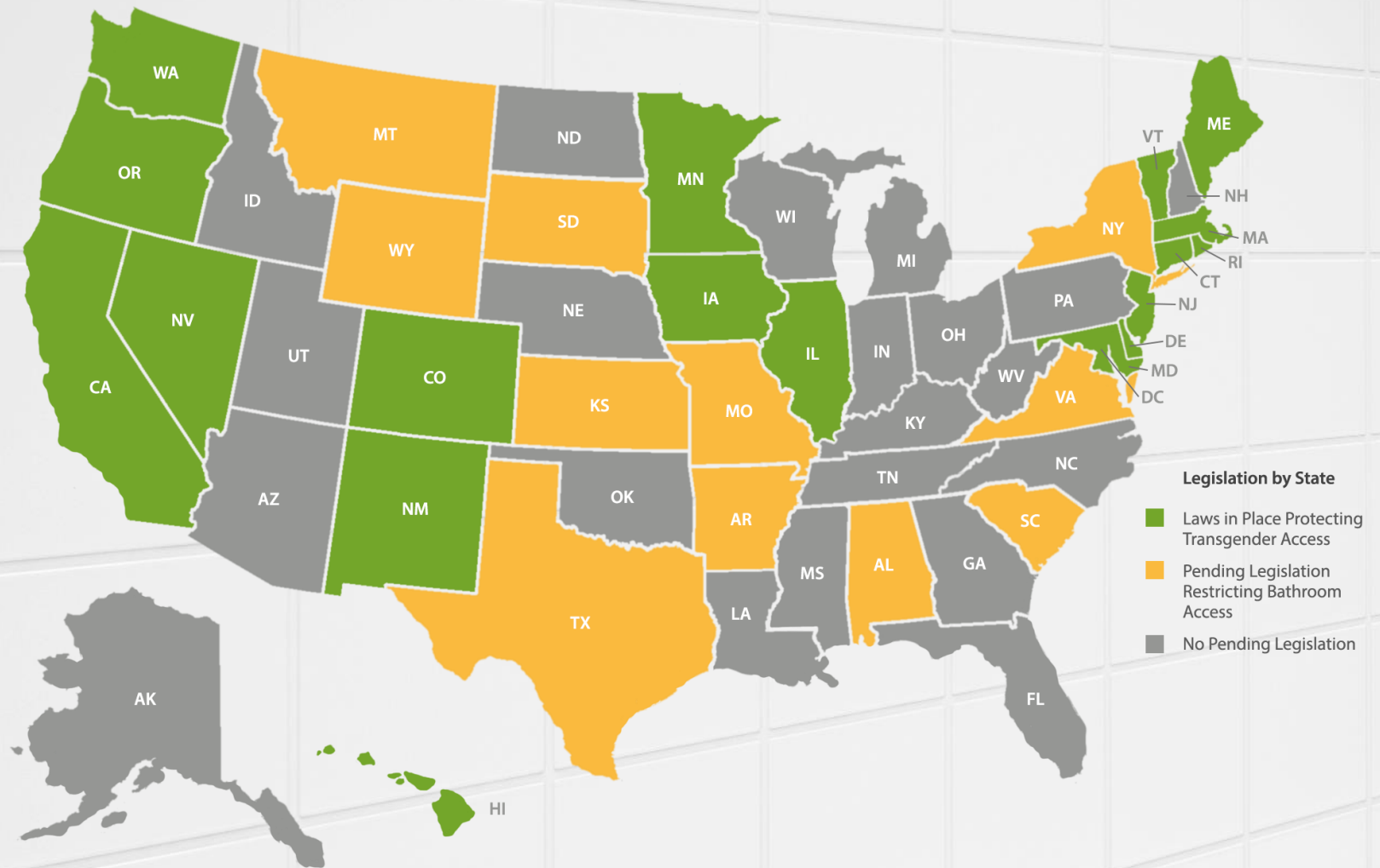
Building Type	Painted Metal	Stainless Steel	HPL	HDPE	Compact Laminate	SCRC
Heavy Traffic						
Standard Use						
Prestige						

 Best Choice

 Good

 Poor

Gender-Inclusive Bathroom Legislation



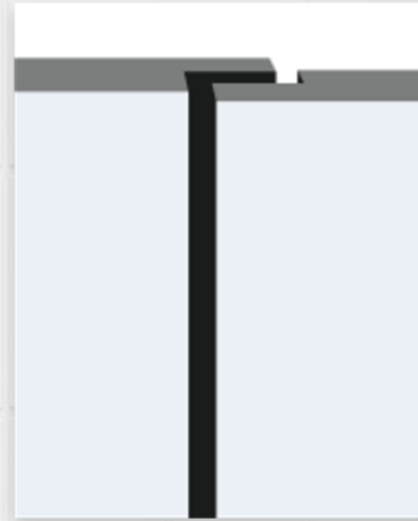
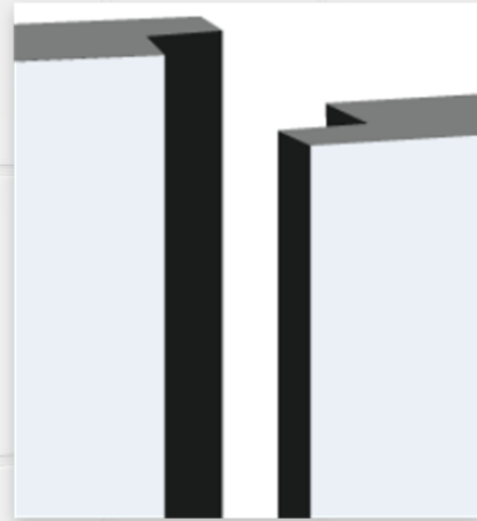
Specifying Toilet Compartments Based on Building Type

Privacy Options



Extended height privacy compartments

(72" doors and panels, compared to standard heights of 55" or 58".)



Integrated no-sightline privacy doors and stiles

Privacy Partition Installations



University of California, Berkeley
Moffitt Library



Houston Center Showers

Floor-to-Ceiling Maximum Privacy Wheelchair Accessible Toilet Compartment

Maximum Privacy Compartment Dimensions

- Greater than 66" deep & 66" wide
- Toe clearance under panels & doors not required
- Doors to 108" high
- Panels from 78" to 108" High
- Compact Laminate or Phenolic Material for maximum durability



Full Room/Single-User Restroom Considerations

- Toilet inside a room built with fully finished, stud walls, with an entry door
- High financial and spatial costs relative to privacy toilet partitions with integrated privacy options
- Considerable construction needs and indirect costs



Relative Costs of Privacy Partitions vs. Alternatives

	Standard Toilet Partitions	Increased Privacy Toilet Partitions	Extended Fully Enclosed Toilet Partitions	Fully Enclosed with Drywall
Solutions	58" doors and panels with 85" stiles	72" doors and panels with 85" stiles	Doors, stiles and panels made to fit room height	Drywall to fit room height
Cost of Materials/ Installation*	\$3,750 - \$7,500 (\$650 - \$1,500/stall) 5 stalls	\$7,500 - \$11,000 (\$1,500 - \$2,200/stall) 5 stalls	\$11,000 - \$18,000 (\$2,200 - \$3,600/stall) 5 stalls	\$13,500 - \$20,000+ (\$2,700 - \$4,000/stall) 5 stalls
Infrastructure Implications & Cost	None**	None**	\$900+/stall (For separate ventilation, fire sprinkler, alarms & lighting)	\$900+/stall (For separate ventilation, fire sprinkler, alarms & lighting)
Minimum Number of Trades to Coordinate	2 (P,T)	2 (P,T)	4 (P, T, E, M)	6 (P, F&D, Pa, T, E, M)

* Only the cost of materials and installation for partitions or full walls are shown here

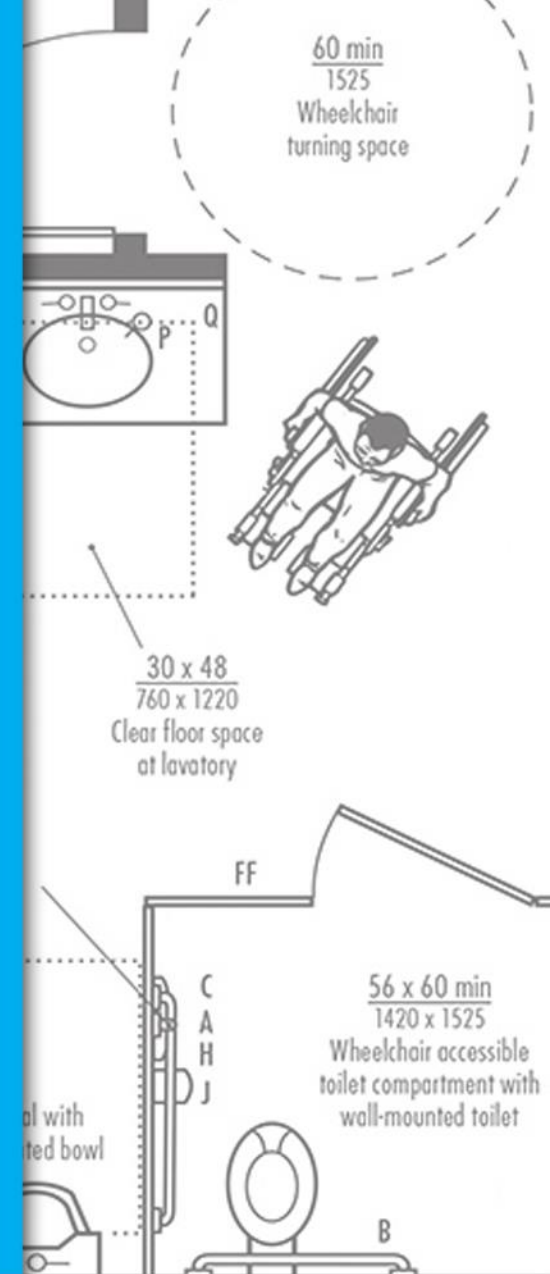
** Assumes 22" or greater distance from top of headrail to ceiling

P = Plumbing, F&D = Framing & Drywall, T = Tile, E = Electrical, M = Mechanical, Pa = Paint

Specifying Toilet Compartments Based on Building Type

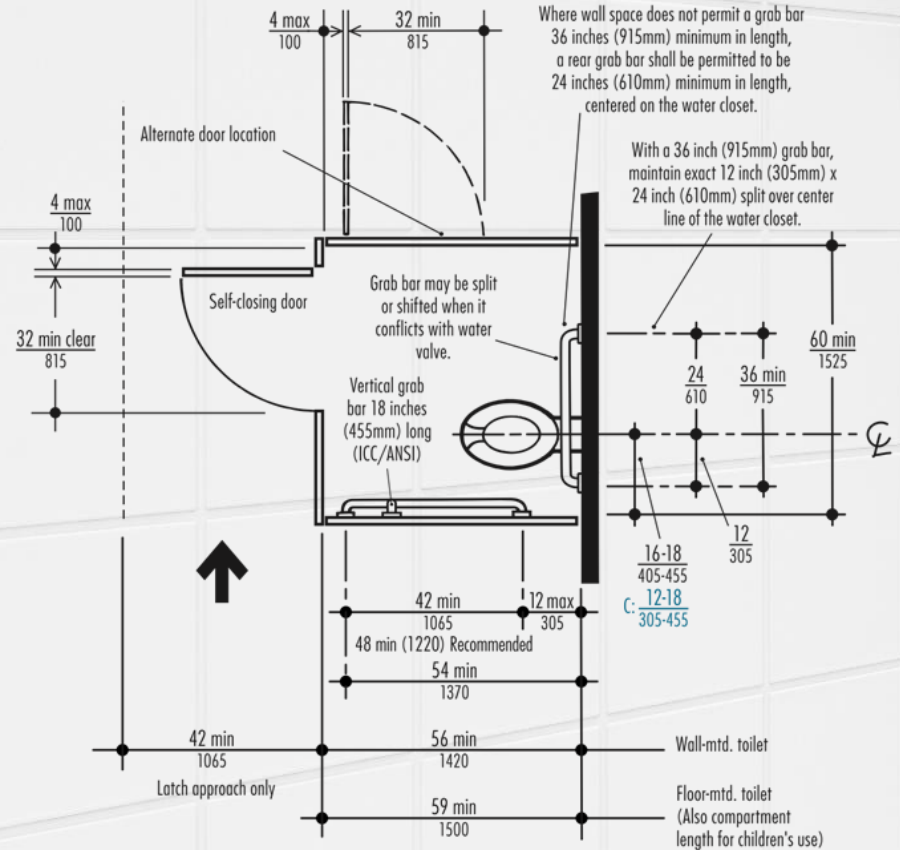
Learning Objective 3

Describe three ADA
accessible toilet
compartment layouts.



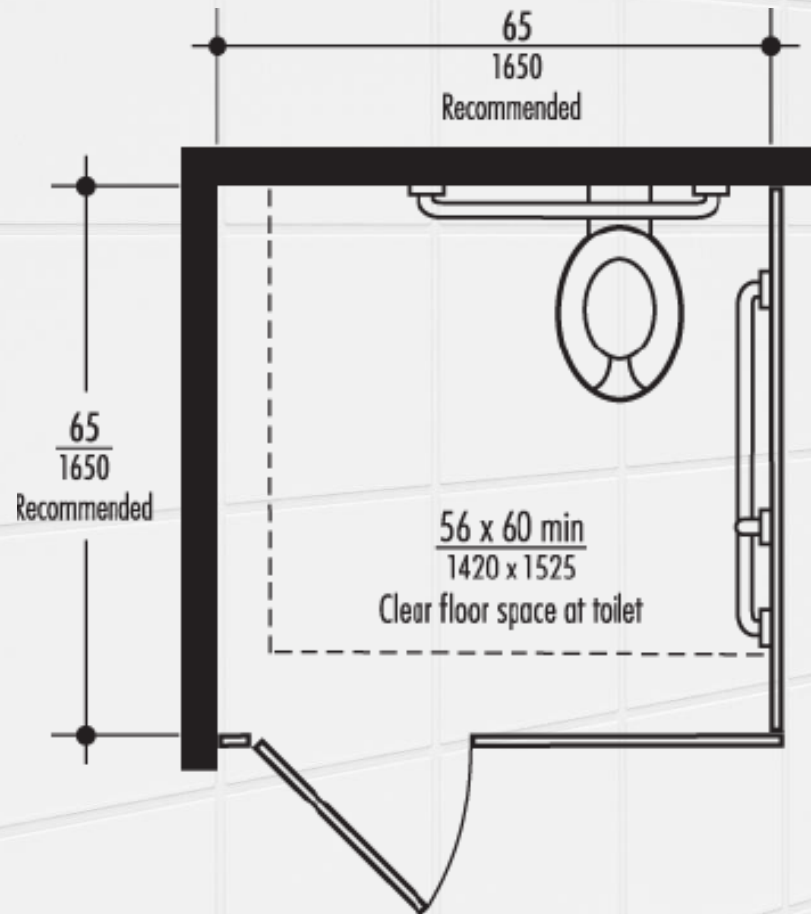
Wheelchair Accessible Toilet Compartment

- Depth 56" min. for wall-hung toilets and 59" min. for floor-mounted toilets.
- Width is 60" min.
- Toilet offset on back wall with toilet centerline 16" min. to 18" max. from side wall or partition.
- Grab bars mounted on rear wall and on closest side wall or partition to toilet.



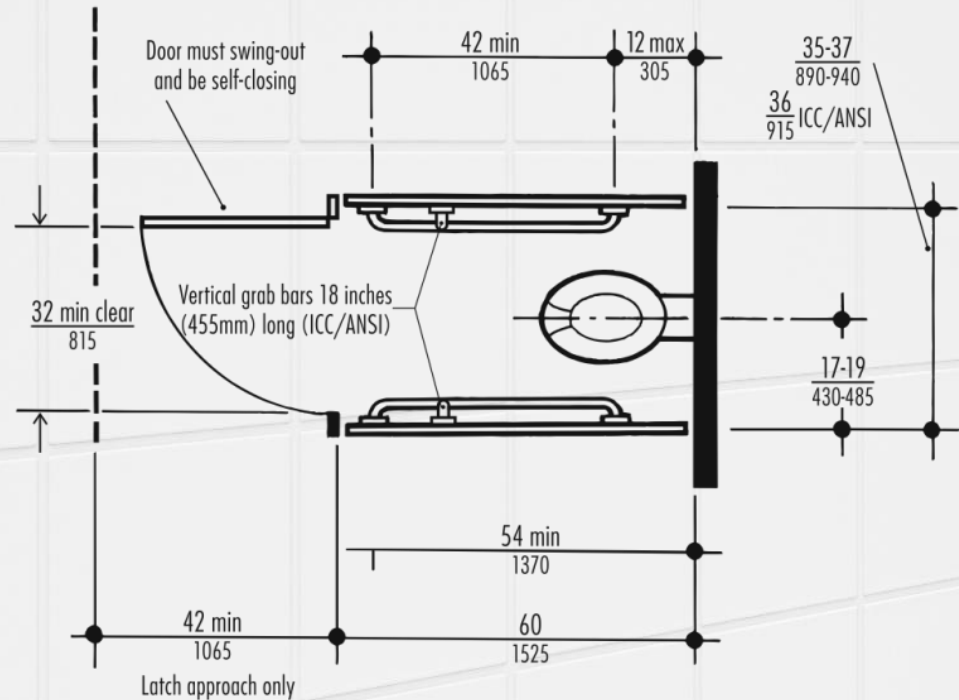
Large Wheelchair Accessible Toilet Compartment

- 66" x 65" toilet compartment interior
- 56" x 60" clear floor space at toilet
- New ICC A.117.1 (2017) Alternate Wheelchair Accessible Toilet Compartment is 60" x 84"

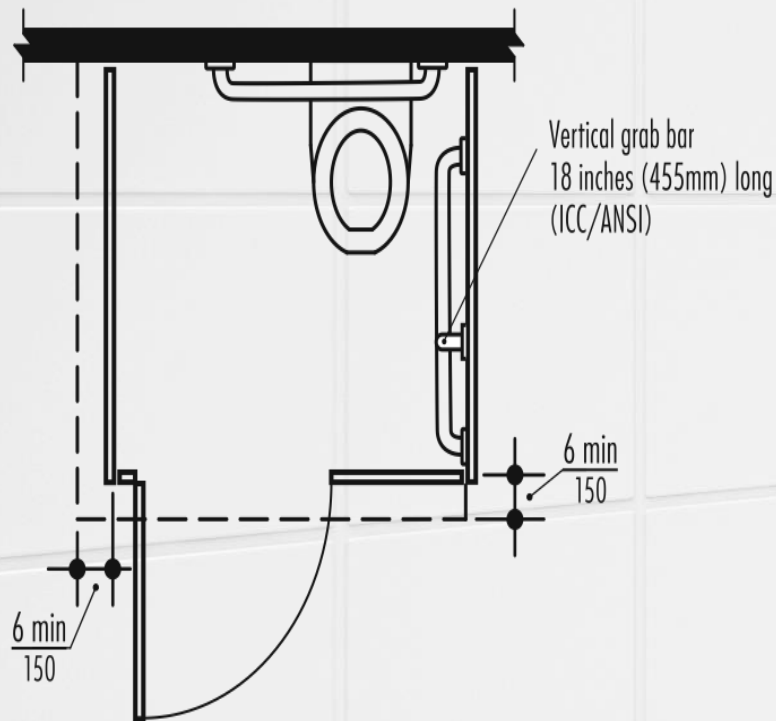


Ambulatory Accessible Toilet Compartment

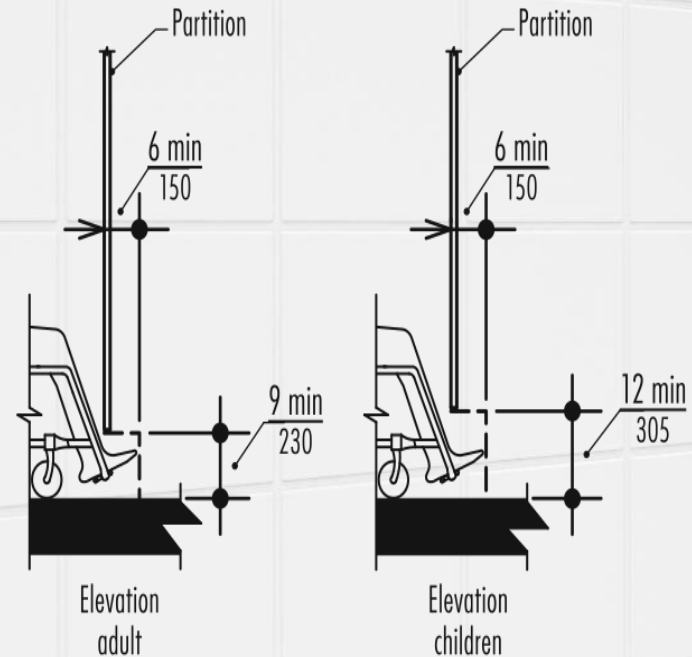
- Used where 6 or more fixtures are provided.
- Depth is 60" min. with 2009 ICC/ANSI Standards retaining the 36" absolute width dimension.



Toe Clearance: 2010 ADA & 2009 ICC A117.1



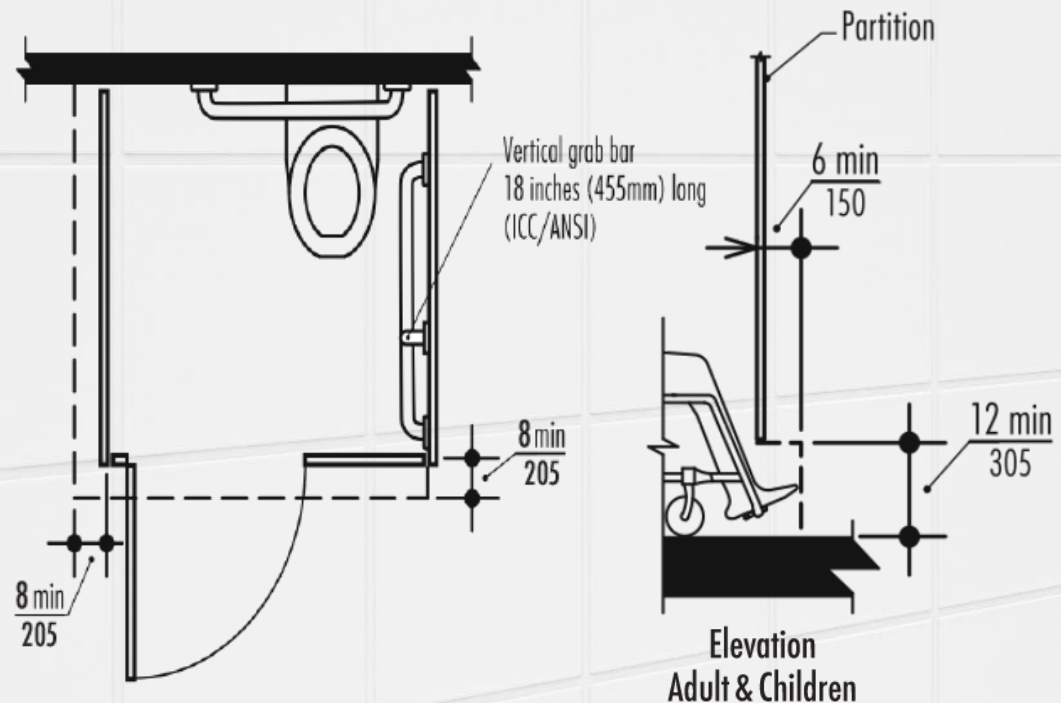
Horizontal Toe Clearance



Vertical Toe Clearance

Toe Clearance Update in ICC A117.1 – 2017 Edition

- Toe clearance must extend 8" minimum (compared to previous requirement of 6") beyond compartment front and side (not including partition stiles)
- Not required on compartments greater than 67" deep and 68" wide (compared to previous limit of 65" deep and 66" wide)



Learning Objective 4

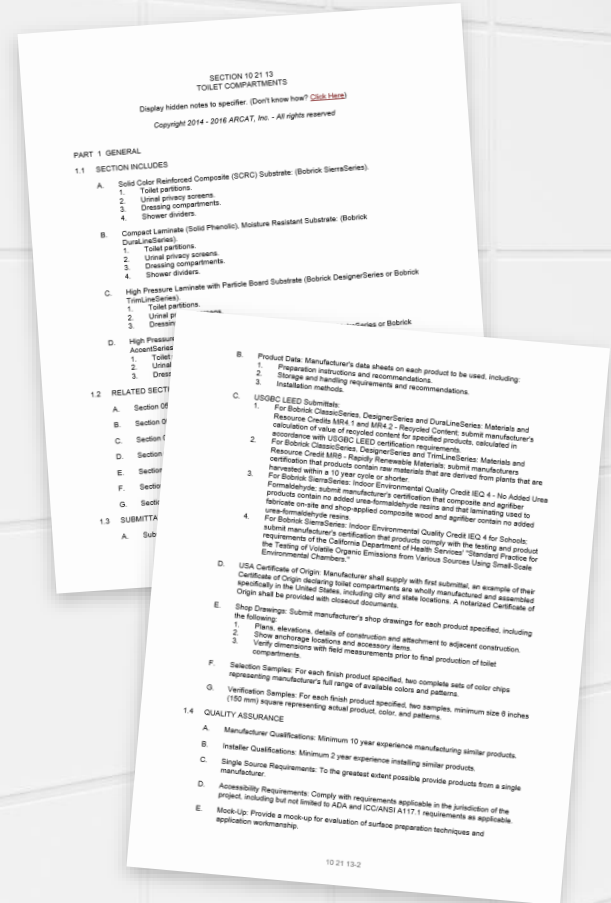
**Identify guidelines
for writing toilet
compartment
specifications.**



Writing an Enforceable Toilet Compartment Specification

Writing a Truly Complete Specification

- Ask the following:
 - What is the material?
 - How is it mounted?
 - Which privacy options will be employed?
 - What are the hardware features?
 - Which codes and standards do I intend to comply with?
- Language should specify what you want—and what you **don't** want



Example Toilet Compartment Specification

Hardware Features

- Materials: 18-8, Type 304 stainless steel with satin finish. Chrome-plated “Zamak”, aluminum, plastic hardware not acceptable.
- Fastening: Stainless steel machine screws into factory-installed inserts. Fastening directly into material not acceptable.
- Mounting: Door hardware and mounting brackets concealed inside compartment. Exposed hardware and fasteners on exterior of compartment not acceptable except on accessible compartment.
- Latching: Slide latch into keeper, track prevents door from swinging beyond stile. Twist-style door latch not acceptable.

Example Toilet Compartment Specification

Hardware Features (continued)

- Hinges and Mounting Brackets: One-piece, extend full height of door and panel. Hinge shall be self-closing.
- Compliance: Operable with one hand, without tight grasping, pinching or twisting of the wrist; force to operate does not exceed five pounds.
- Emergency Access: Hinges, latch allow door to be lifted over keeper from outside of compartment

Summary

You should now understand:

- Importance of specifying appropriate material, hardware, mounting configuration and privacy options for toilet partitions.
- Building type and budget are important considerations in specifying the most appropriate toilet partitions for the needs of a project.
- Toilet Partition compliance with accessibility standards and fire codes is mandatory.

Thank You

**Thank you for your interest in specifying
code-compliant toilet partitions.**

Please contact Bobrick with any questions.



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