



Visitability in the U.S.

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In this Presentation ...

- The Housing Problem
- Levels of Access
- Visitability Concept and Features
- Cost of Visitability
- Policy Issues
- Anthropometry Research
- Best Practices



Changing Demographics

- The number of people age 65+ will grow to almost 53.7 million by 2020, 70 million by 2030 and 85 million by 2050.
- Disability rates rise with age for both sexes.
- The U.S. Census estimates that about 19% of the U.S. population has some form of legally defined disability. 12.7% reported an activity-limiting disability
- 37% of those 65+ have some form of activity-limiting disability; the proportion rises to more than half for those 75 or older.



Housing Barriers

- Over 23% (25.5 million) of U.S. households contain one or more people age 65+ (U.S. Census Bureau, 2006).
- Over one-million households that have a resident with a disability have unmet housing needs (Kochera, 2002).
- 25% of houses built today will have a resident with a severe long-term mobility impairment. When visitors with disabilities are included, the probability increases to 97% (Smith, Rayer, and Smith, 2008).
- Typical life of a new home is 75-100 years
- 71% of Americans live in single-family homes

An aerial photograph of a suburban neighborhood. The image shows a grid of streets with single-family houses, mostly with grey roofs and green lawns. A large, open green field is visible in the upper right portion of the image. The overall scene is a typical residential development.

General Approach in U.S.

- Government Funding
 - 5% Rule – Fully Accessible Multi- and Single- Family Housing
 - Some localities extend to larger percentage
- Fair Housing Law
 - Ground floor units in Multi-family walk-ups
- Privately Funded
 - Fair Housing Law for Multi-family units – all units must meet type B requirements if elevator equipped, first floor if no elevator
 - No laws covering private single family except ...
 - Some localities have visitability (Type C) or other requirements.



High Cost of No Access

- Social isolation
- Premature institutionalization
- Compromised health and safety
- Stress

Inclusive Housing Levels of Access



Lifespan Housing

- Lifespan Housing features that support aging-in-place:
 - No steps on paths and at all entries
 - UD appliances, cabinetry and fixtures
 - Good lighting throughout the house including task lighting
 - Elevator
 - Lifeline system
 - Video intercom

Home Modifications

- Customized adaptations to meet specific individual needs and to reduce caregiver burden



Adaptable Housing

- Adaptable housing is housing at a lower level of access (such as visitability) that has the ability to easily reach a higher level of accessibility



Visitability

Visitability

- Fills the gap in access laws (1-3 family homes)
- Seven key features
 - Step-less entry (front, side, rear of home) with low thresholds throughout
 - Wider doorways (32 inches)
 - Wider hallway clearances (36 inches)
 - At least one accessible half bath on first floor
 - At least one food preparation area on the ground floor
 - Reinforcement in walls next to toilets for future installation of grab bars
 - Environmental controls at wheelchair reach height





Visitability

Total Number of Initiatives	Number of Mandatory Ordinances	Number of Voluntary Programs
57	33	24

Location	Number of Homes Built
Pima County, AZ	15,000
San Antonio, TX	7,000
Bolingbrook, IL	3,500

Total number of visitable homes due to mandatory initiatives: **30,000+**

(Maisel, Smith & Steinfeld, 2008)



Mandatory Policies

- Visitability policies
 - HR 1408, Inclusive Home Design Act (IHDA)
 - NYS– Visitability bill (S.8150/A.9409) passed by Senate.

- ICC ANSI A117 Type C Units
 - National consensus standard referenced by many building codes in the U.S.
 - Recently developed consensus-based technical standards for visitability features
 - The standard can be referenced by visitability laws and programs, thus promoting uniformity in applications and aiding in their interpretation



Voluntary Policies

- Incentive/certification visitability programs
 - Illinois Accessible Housing Demonstration Grant Program Act (1999)
 - \$5,000 to builders who construct at least 10% of homes in a development with visitability features
 - Irvine, CA (2000)
 - “Universal Design Features List of Options”
 - Montgomery County, MD (2006)
 - “Design for Life Montgomery” –visit-ability and live-ability
- LEED-ND
 - Developed by the U.S. Green Building Council
 - First national standard for certifying high-performance green buildings for neighborhood design and includes a credit for “universal accessibility”



Potential Barriers to Visitability

- Homebuilders' Perspective
 - Typically support voluntary initiatives
 - “Respond to market demands”/private matter
 - Increases construction costs, impacting affordability
 - Site constraints prevent blanket regulation for zero-step entry
- Advocates' Perspective
 - Consumers' lack of awareness to demand visitability
 - Builders both shape and respond to market.
 - Homes are not entirely a private matter (e.g. smoke detectors).
 - No impact on marketability, aesthetics, and limited costs.
 - Exemption provisions in all known existing and proposed laws.



Cost of Basic Access

	New Construction	Retrofitting
Zero-Step Entrance	\$150	\$1,000
Widen Interior Doors	\$50	\$700
Total Cost	\$200	\$1,700

Sources: Concrete Change and IDeA Center based on experience of three Habitat chapters, the City of Austin, and discussions with contractors



Cost of Basic Access

Cost and availability of doors:

Method - simulation of order for 120 doors from local millwork suppliers, 30 each in four different sizes

City	In Stock?	2-8 Cost (32")	2-10 Cost (34")	3-0 Cost (36")
Boston, MA	Yes	\$70.45	\$72.95	\$72.95
Chicago, IL	Yes	\$58.46	\$59.98	\$63.36
San Diego, CA	Yes	\$73.13	\$74.29	\$76.50
Portland, OR	Yes	\$68.83	\$69.93	\$72.53
Dallas, TX	Yes	\$56.63	\$56.89	\$59.35

Single pre-hung doors, six panels, no casing, hollow core, dull brass hinges
Source: IDeA Center



Cost of Basic Access - Research

Schroeder, Steinfeld, et al.(1979), The Cost of Accessibility, HUD

- Studied 9 inaccessible buildings including one MF and one SF house.
- Detailed itemized cost comparison with redesigned versions that complied with ANSI A117.1 (1980).
- Many more features than basic home access
- Cost of access was less than 1% of new construction in all types of buildings.



Cost of Basic Access - Research

Steven Winter Associates. (1993). The Cost of Accessible Housing, HUD

- Studied 8 developments around the country.
- Redesigned sites and units (25 different unit types) using ANSI A117.1 (1986) and Fair Housing Accessibility Guidelines.
- Many more features than basic home access.
- Cost data provided by the developers themselves.
- Access features were less than 1% of new construction costs.
- Total cost of access features was .07% - .87% with an average of .63% of new construction .
- Site costs were the major difference.

Design Strategies

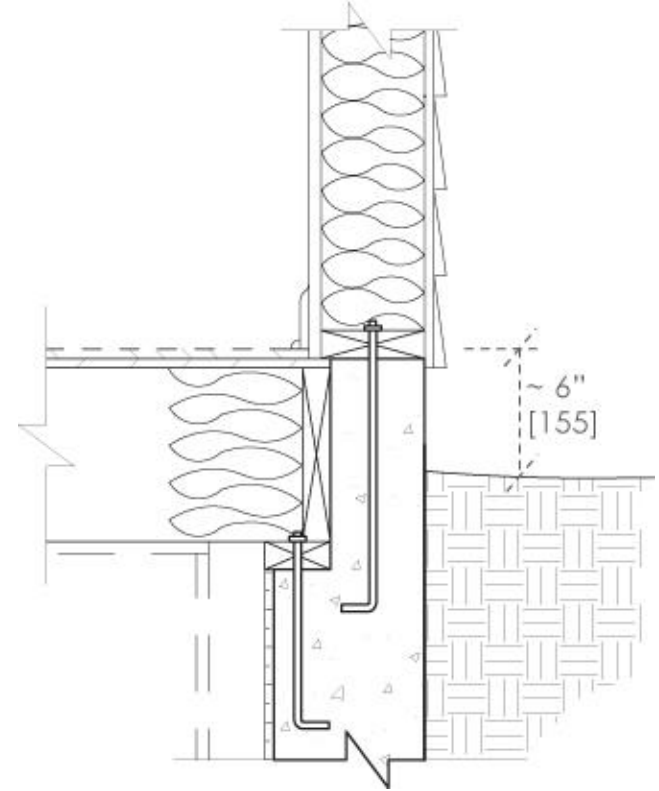
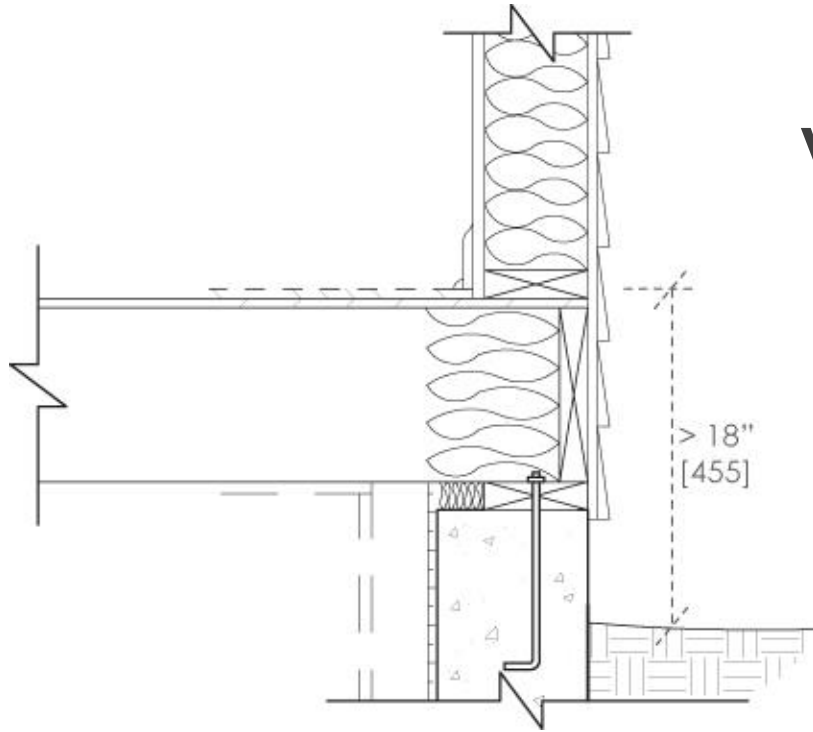


Entry

- Usually achievable with grading – no additional costs unless retaining wall is needed
- Ramps - work with topography to reduce ramp length
- Alternative construction methods to lower the first floor level—(e.g. Reverse brick ledge)

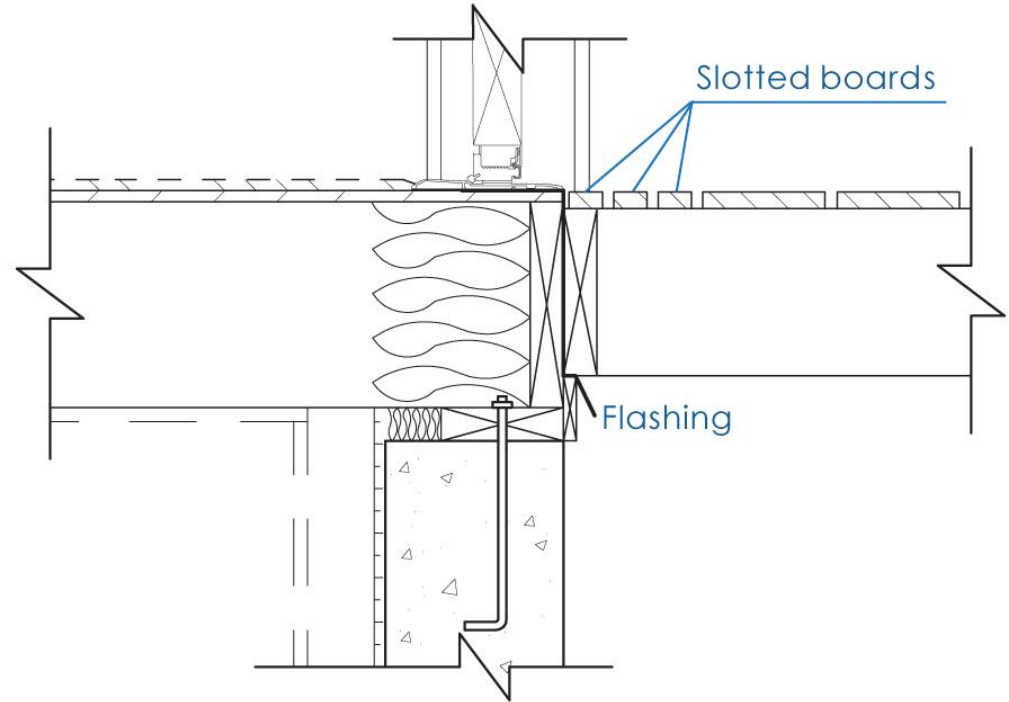
Entry

VS.





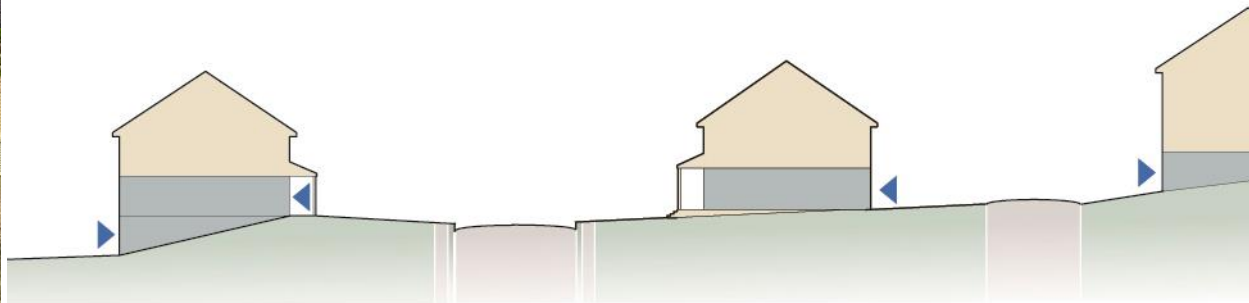
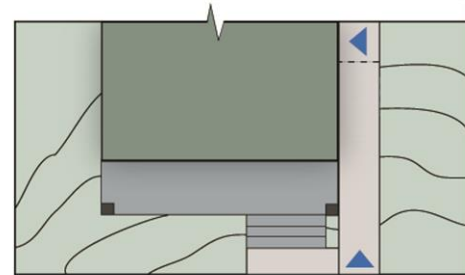
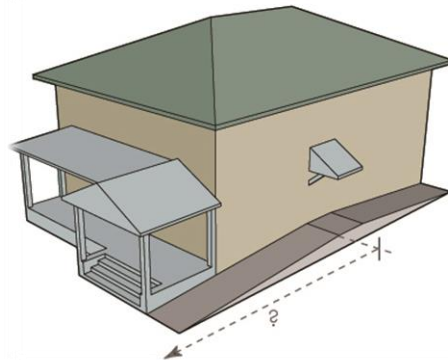
Entry



Low-threshold door to porch or deck



Grade



Best Practices



Memphis Hope VI project, Photo, Torti Gallas

Best Practices



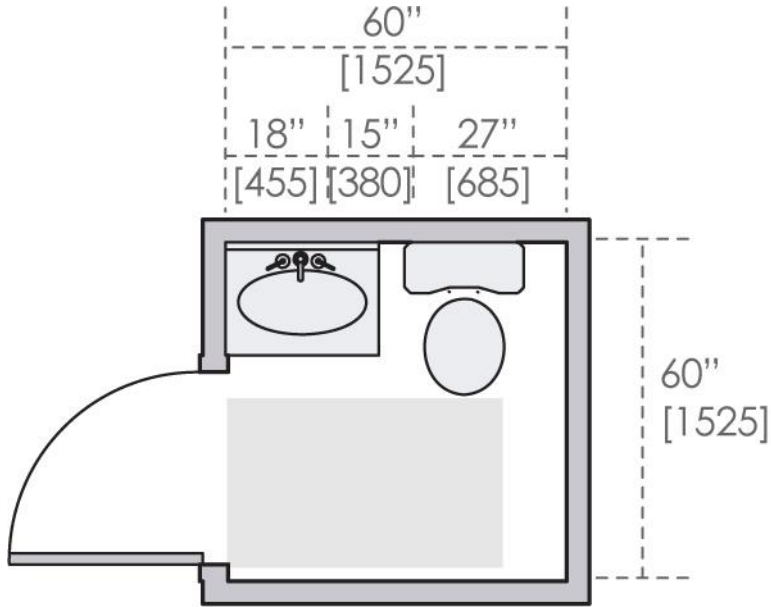
Habitat for Humanity- Atlanta, GA

Best Practices



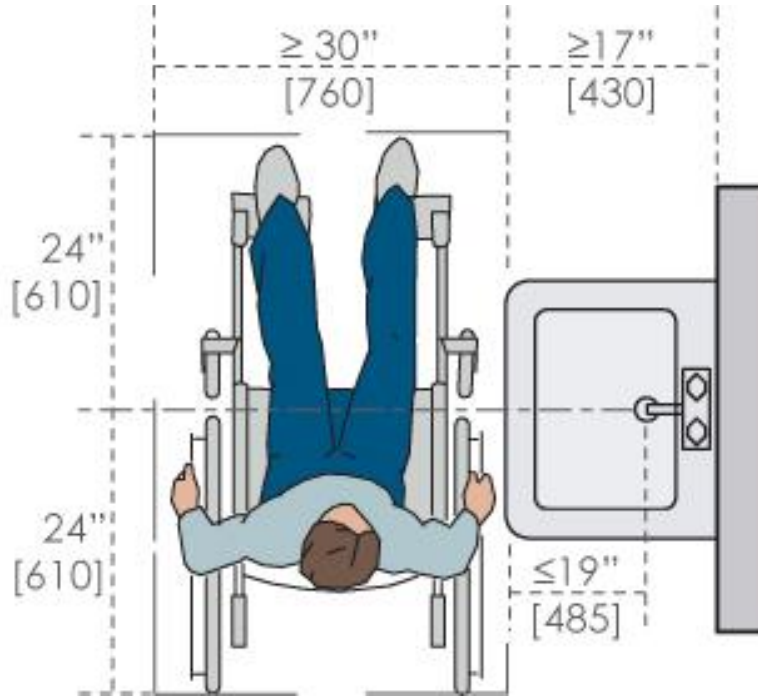
Infill housing in historic district—Atlanta, GA

Visitable Half-Bath



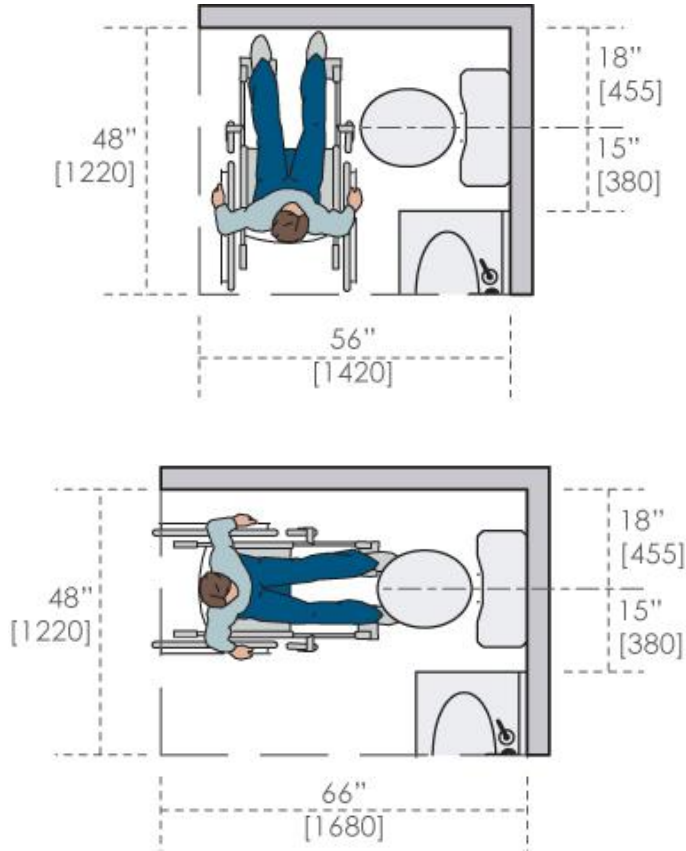
- Satisfies visitability requirements
- Minimal space necessary
- Toilet dimension is critical
- Door must open outward
- Special hardware may be needed to close door once inside

Visitable Lavatory



- Parallel approach
- Requires reaching sideways
- Difficult if only use of one hand
- Visitable and Fair Housing unit acceptable

Visitable Toilets

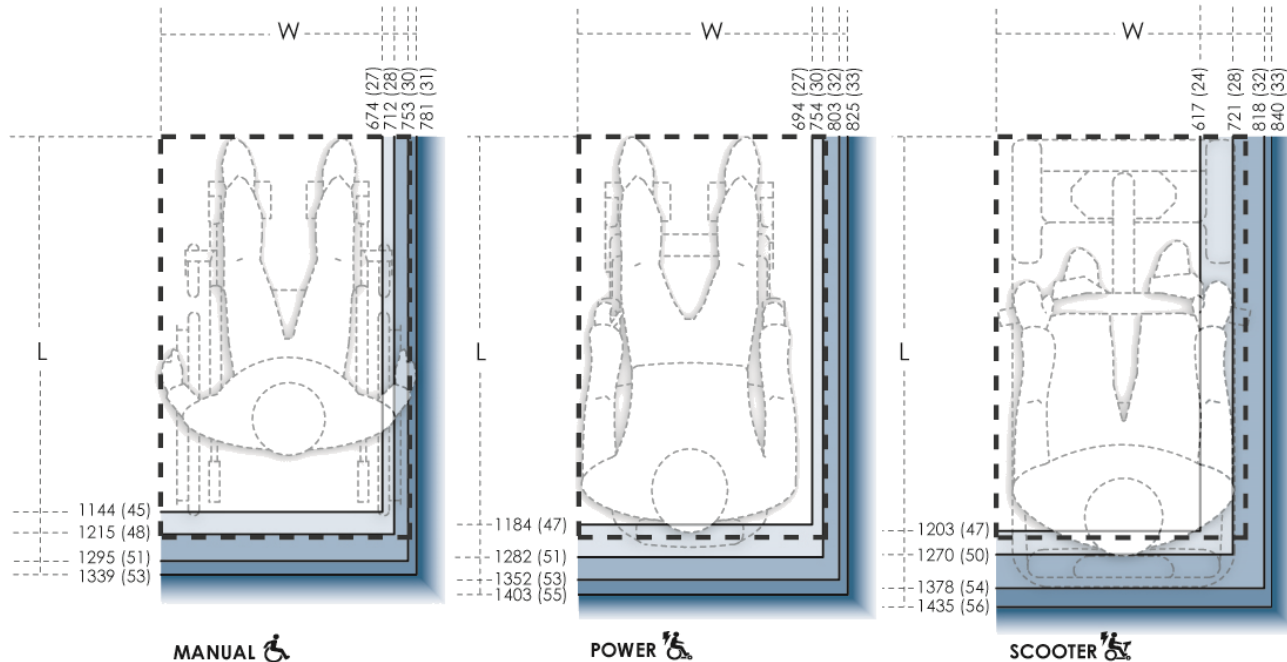


- Parallel Approach (top) occupies least amount of space but means greater transfer distance
- Forward Approach (bottom) requires standing and completing a 180-degree turn

Research

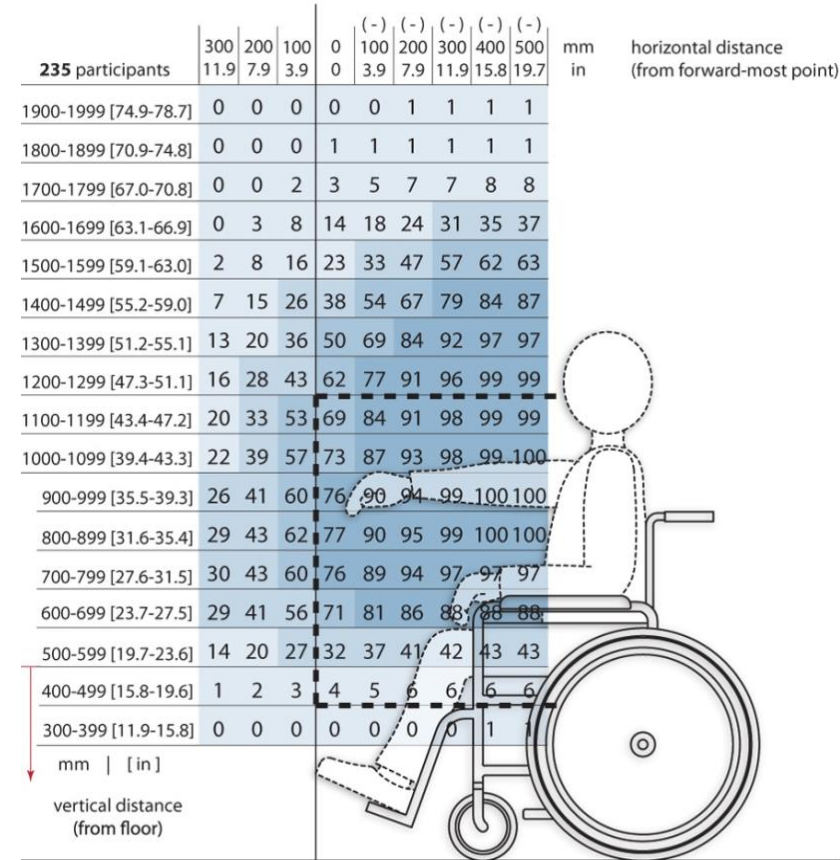
Design Resources

- Length & width of device & occupant while seated comfortably for long durations
- About 25% manual chair, almost 50% and scooter users exceed dimensions
 - Greater number of exclusions due to occupied length



Design Resources

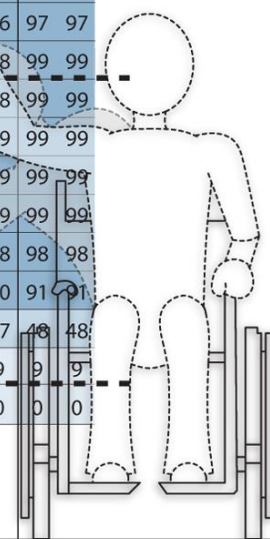
- Reach charts
 - Data for manual chair users
- Manual wheelchair users
 - 85% had some reach capability
 - 77% could reach beyond toes
 - Greater % at closer distances
 - Need to provide foot and knee clearance space
- Differences based on device type
 - Power chair users had more severe disability, reduced strength, and reduced range of motion
 - Scooter users had to reach beyond steering column



Design Resources

- Differences based on device type
 - Improved reach when sideways vs. forward
 - Reach capability drops beyond 16 inches (400 mm)
 - 24 inch (610 mm) maximum permissible reach distance is too restrictive.

235 participants	900 35.4	800 31.5	700 27.6	600 23.7	500 19.7	400 15.8	300 11.9	200 7.9	100 3.9	0 0	-100 -3.9	mm in	horizontal distance (from chair edge)
1900-1999 [74.9-78.7]	0	0	0	0	0	0	1	1	1	1	1		
1800-1899 [70.9-74.8]	0	0	0	0	0	1	1	1	1	1	1		
1700-1799 [67.0-70.8]	0	0	0	0	1	1	4	5	6	6	6		
1600-1699 [63.1-66.9]	0	0	0	1	3	12	22	29	36	38	38		
1500-1599 [59.1-63.0]	0	0	1	4	11	22	36	53	62	64	64		
1400-1499 [55.2-59.0]	0	0	2	9	20	32	59	80	86	87	87		
1300-1399 [51.2-55.1]	0	1	5	14	28	49	80	94	96	97	97		
1200-1299 [47.3-51.1]	0	3	8	18	36	65	92	97	98	99	99		
1100-1199 [43.4-47.2]	0	3	11	25	46	78	95	98	98	99	99		
1000-1099 [39.4-43.3]	1	3	11	28	53	85	96	98	99	99	99		
900-999 [35.5-39.3]	1	5	14	32	57	85	96	99	99	99	99		
800-899 [31.6-35.4]	1	5	14	36	58	84	95	99	99	99	99		
700-799 [27.6-31.5]	1	5	14	36	58	82	95	98	98	98	98		
600-699 [23.7-27.5]	1	6	14	31	50	73	87	90	90	91	91		
500-599 [19.7-23.6]	0	3	7	17	27	36	43	47	47	48	48		
400-499 [15.8-19.6]	0	0	0	1	3	4	7	9	9	9	9		
300-399 [11.9-15.7]	0	0	0	0	0	0	0	0	0	0	0		
mm [in]													
vertical distance (from floor)													






Design Resources

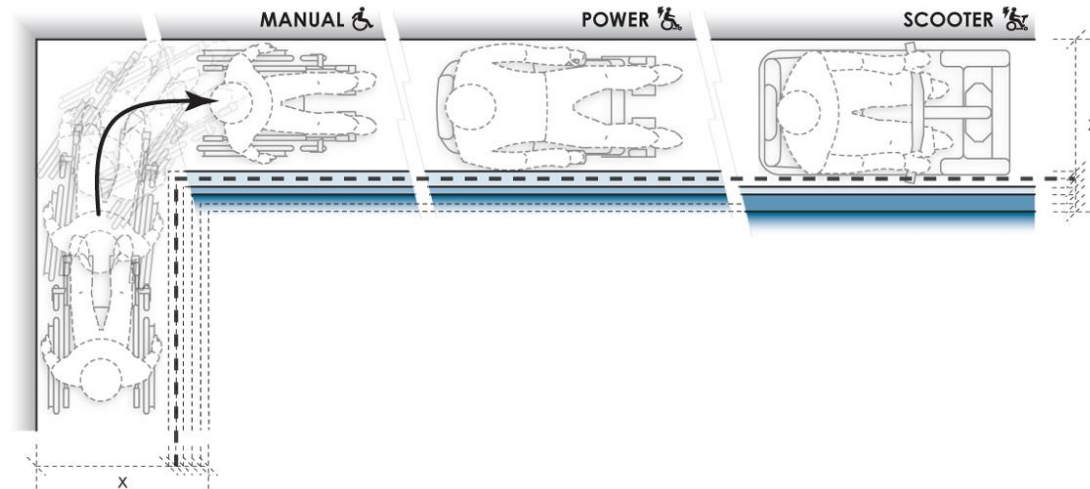
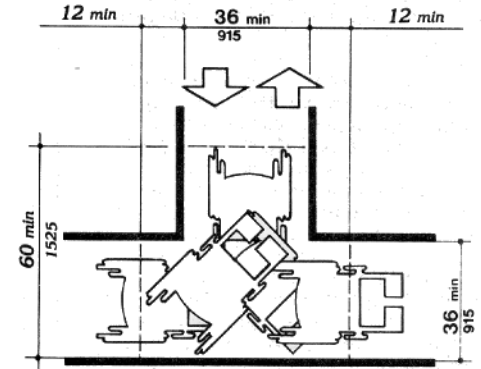
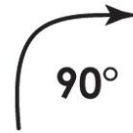
Accessible Pathway & Corridor

Design Guidelines for People Using Wheeled Mobility Devices

MINIMUM CLEAR WIDTH REQUIRED FOR 90-DEGREE TURN

percent accommodated (fixed wall)		x = floor space dimension, units: cm (in.)		
		MANUAL 	POWER 	SCOOTER 
< 50%		199 participants	150 participants	19 participants
< 50%	50%	85 (33)	85 (33)	95 (37)
≥ 50% & < 75%	75%	95 (37)	95 (37)	100 (39)
≥ 75% & < 90%	90%	100 (39)	100 (39)	100 (39)
≥ 90% & < 95%	95%	100 (39)	100 (39)	110 (43)*
≥ 95%				

* due to small sample size, x = maximum value observed
 - - - - = ADA-ABA § 304.3.2 specification of 91.5 cm (36 in.)



- 36" width accommodated fewer than:
 - 75% MWC users
 - 75% PWC users
 - 50% scooter users

Design Resources

Accessible Pathway & Corridor

Design Guidelines for People Using Wheeled Mobility Devices

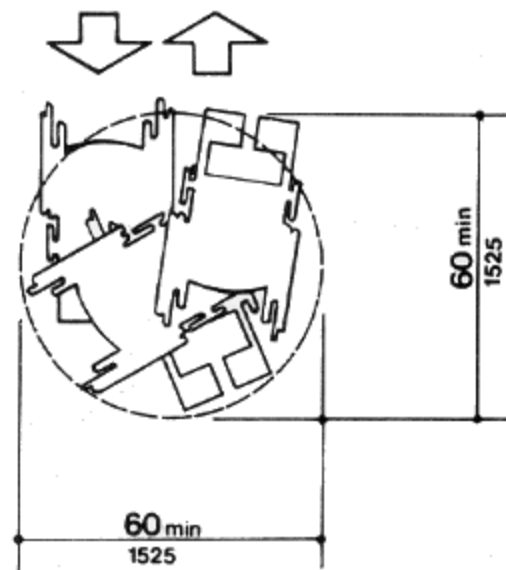
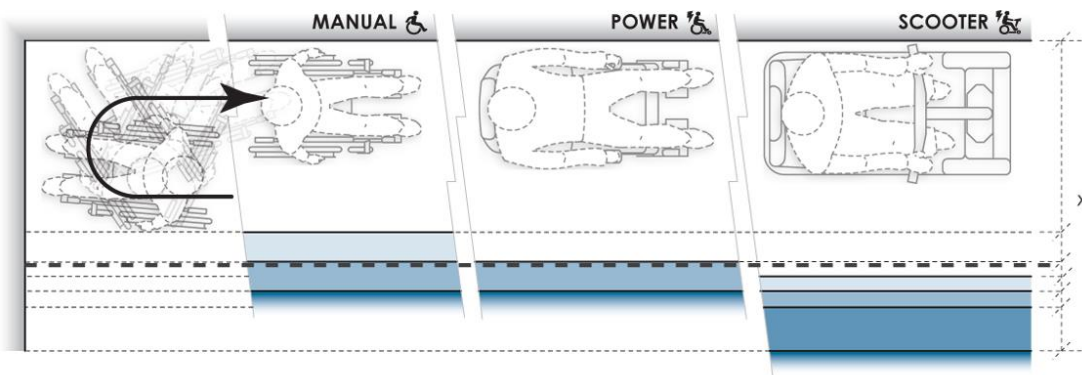
MINIMUM CLEAR WIDTH REQUIRED FOR 180-DEGREE TURN

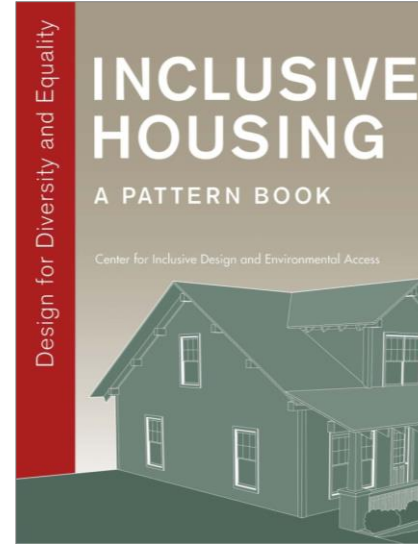
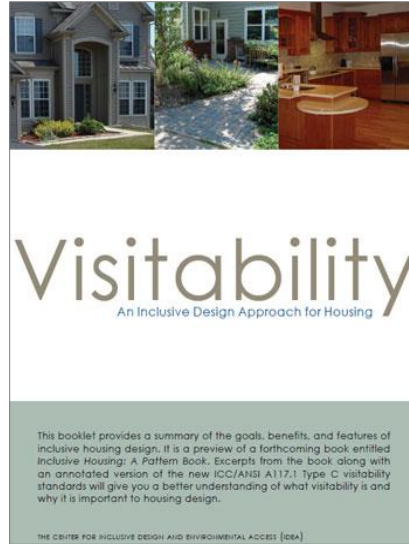
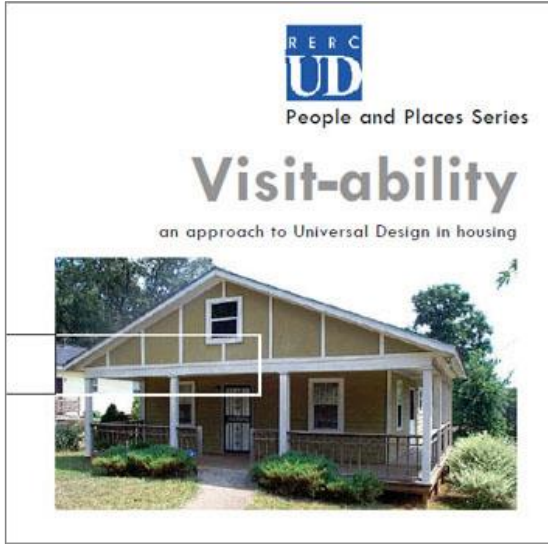


MANUAL, POWER, & SCOOTER

percent accommodated (fixed wall)		x = floor space dimension, units: cm (in.)		
		MANUAL	POWER	SCOOTER
< 50%		198 participants	140 participants	16 participants
< 50%	50%	130 (51)	150 (59)	160 (63)
≥ 50% & < 75%	75%	150 (59)	150 (59)	170 (67)
≥ 75% & < 90%	90%	170 (67)	170 (67)	182 (72)
≥ 90% & < 95%	95%	170 (67)	170 (67)	210 (83)*
≥ 95%				

* due to small sample size, x = maximum value observed
 - - - - - = ADA-ABA § 304.3.1 specification of 152.5 cm (60 in.)









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

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Unit 1 Video Lectures

1.) Barriers in Architecture ([click here for written transcript](#)) (00:33:29)



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