

US ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD

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Docket No. 92-2

# Name	Organization	Pages
1 Arnold	Don	2
2 Bowen	Willie	1
4 Weintraub	Barry	1
6 DeBell	George	2
19 Wallwork	Michael	16
9 Barnett	Malcolm	1
20 Jett	Harry	3
21 Vieni	Miriam	2
23 Schaflein	Charles	2
24 Baker	Nancy	2
28 Stark	Frederick	1
31 Karnes	Tom	3
80 Lozano	Eugene	75
52 Pfeffer	Walter	2
59 Dominick	Gerald	1
97 Quinto	Mary	4
103 Johnston	David	2
113 Nester	Robert	6
110 Fuller	Ernest	1
112 Lasoff	Sue	2
146 Jacobsen	Mark	1
148 Bonn	William	1
166 Grennan	Jim	1
187 Blatt	Carol	3
188 Munger	Harold	3
200 Dickson	William	2
205 Stokes	Melanie	2
215 Hackett	Pat	1
7 Noonan	Bill	3
179 McGaugh	James	ADAPT Consulting
10 Eichenauer	David	AIM (Access to Independence and Mobility)
54 Toji	Sharon	Access Communication
157 McDonald	Marie	Access Disability Advisors
56 Kiewel	Harold	Accessible Bldg Cons
81 Ostroff	Elaine	Adaptive Environments
116 Redd	Andrew	Alabama
12 Patrick	Donald	Alabama Dept Educ (Div of Rehab Serv)
90 Rasmussen	Elizabeth	Albany County MCS Support Group
132 Greene	John	American Correctional Assn (ACA)
149 Kramer	Albert	American Public Communications Council (APCC)
69 Bertera	William	American Public Works Assn (APWA)
72 Abeson	Alan	Arc
117 Beck	DeWayne	Arizona Dept of Corrections
223 Robinson	Gary	Arizona Dept of Transportation (Highway Div)
151 Mocry	Lisa	Arthritis Foundation
106 Cerny	Louis	Assn of American Railroads
218 Cerny	Louis	Association of American Railroads
62 Sanders	Frederick	BSI Consultants
86 Schoonover	Kenneth	Bldg Officials & Code Admin Intl (BOCA)
14 Fahrenkrug	Paul	Bradley Corp
47 Morley	Donald	Burlington Public Works
3 Humme	Douglas	CHP & Assoc
184 Lozano	Eugene	California Council of the Blind
53 Gomez	James	California Dept of Corrections
92 Premo	Brenda	California Dept of Rehab
65 Borden	James	California Dept of Trans
171 Mankin	Michael	California State (Dept of General Services)
159 Sweet	Roger	Capital Development Board (CDB)

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50	Nelson	Frank	City & Co of Denver (Comm People w/Dis)	8
78	Mitchell	Brian	City & County of Denver (Dept Public Works)	3
111	Karasick	Norman	City & County of San Francisco	7
211	Barker	Timothy	City Of Clovis	3
224	Collins	James	City Of Memphis	3
15	Torsney	Brian	City of Agoura Hills	1
108	Gasowski	Richard	City of Casper	3
79	Gorski	Lawrence	City of Chicago (Mayors Ofc for People Disabl	6
176	Sray	Tina	City of Chino	1
190	Swanson	Clifford	City of Chula Vista	6
232	Barker	Timothy	City of Clovis	3
227	Christoffels	Mark	City of Cypress	1
158	Sword	Dianna	City of Dallas	1
55	Ross	David	City of Fort Wayne	2
236	Salazar	Raymond	City of Fresno	1
233	Allen	George	City of Garden Grove, California	1
181	Simmons	Billy	City of Hattiesburg	5
29	Darrell	Hook	City of Hesperia (Public Works/Eng Dept)	2
89	Clapp	Robert	City of Hollywood (FL)	2
73	King	Mary Lou	City of Irvine	2
150	Wickstrom	Don	City of Kent	3
234	Montgomery	Ken	City of Laguna Niguel	1
220	Barrows	Dolores	City of Long Beach	2
95	Mack	Kirbie	City of Madison (Affirmative Action Dept)	1
101	Nelson	Larry	City of Madison Engineering Div	2
105	Soglin	Paul	City of Madison Office of the Mayor	3
104	Somerfeld	Warren	City of Madison Transp Dept	2
194	Nath	Keith	City of Mesa	1
27	Richardson	Dana	City of Murfreesboro	3
87	Dinkins	David	City of NY (Office of the Mayor)	50
66	Margen	Peter	City of Oakland	6
235	Johnson	Gary	City of Orange	8
43	Haney	Andy	City of Ottawa, Kansas	4
201	Genovese	Joseph	City of Oxnard	2
180	Case	Susan	City of Palo Alto	15
58	Herp	Donald	City of Phocnix (Street Trans Dept)	12
74	Gardner	Donald	City of Portland, Oregon	15
22	Dee	Deborah	City of Saint Louis (Dept Human Scrv)	2
210	Euhfeld	Thomas	City of Saint Paul	1
204	Hardgrave	Roger	City of San Bernardino	3
8	Koch	Jeff	City of San Diego	3
82	Parkinson	George	City of San Diego (Regional Standards Comm)	18
144	Ronson	Robert	City of San Marcos	1
226	Alvarez	George	City of Santa Ana	5
213	Price	John	City of Santa Fe Springs	1
185	Bell	Carolyn	City of Savannah, Georgia	2
216	Biery	James	City of South Gate	2
99	Meggers	Joel	City of Thornton	5
57	Thomas	John	City of Tucson (Budget & Rresearch Dept)	5
199	Grosse	David	City of Upland	2
177	Busby	Jim	City of Victorville	3
208	Perlstein	Sharon	City of West Hollywood	2
170	Chekal	Eric	City of Westminster	4
169	Gornito	Mary	City of Wilmington, NC	4
102	Carmon	Angela	City of Winston-Salem (City Attorney's Ofc)	3
228	Beasley	Michael	Colorado Asson & Home Builders (CAHB)	2
114	Rostad	Knut	Committee on Acoustics In Corrections	2
197	Kelly	Don	Commonwealth of KY (Transportation Cabinet)	1

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155	Fields	Sharon	Commonwealth of Kentucky (Ofc of the Governor)
98	DuBois	Larry	Commonwealth of Mass (Dept of Correction)
130	Elliott	David	Connecticut Dept of Corrections
152	Kuchnicki	Richard	Council of American Bldg Officials
26	Rodgers	Emory	County of Arlington, VA (Dept of Commu Plan)
225	Welton	Richard	County of Fresno
161	Moore	Margaret	DC Dept of Corrections
172	Golden	Marilyn	DREDF
219	Finc	Bruce	Dept of Transportation (Fedl Railroad Admin)
154	Fischer	EG	DuPage Ctr for Indep Living
51	Del Colle	John	Eastern Paralyzed Veterans Assoc (EPVA)
230	Benson	Peggy	Education Audiology Association
182	Rivera	Edgar	Estado Libre Asociado de Puerto Rico
85	Terry	James	Evan Terry Assoc
18	Fayko	John	Fayko Johanson & Fortier
135	Postle	Robert	Florida Dept of Corrections
209	Flowers	Robert	Flowers & Associates, Inc.
147	Johnstone	Linda	Ft. Worth Reach Resource Ctr on Indep Living
136	Geieser	Gail	Georgia Dept of Corrections
84	Conant	Joseph	Hawaii Dept of Budget & Finance
137	Mon	Victor	Hawaii Dept of Corrections
175	Hanser	Kenneth	Hellmuth, Obata & Kassabaum (HOK)
168	Uzuanis	Richard	Hitec Group
119	McNeese	Timothy	Idaho Dept of Corrections
67	Bower	Dwight	Idaho Transp Dept
33	Sheely	Steven	Illinois Dept of Corrections
5	Shivers	John	Indep Bankers Assn of America (IBAA)
115	Beinart	William	Indiana Dept of Corrections
212	Lauber	Martin	Institute of Transportation Engineers
93	Payne	Ramona	InterBold
138	Harford	Sally	Iowa Dept of Corrections
42	Gabehart	Martha	Kansas Dept of Human Resources (KDHR)
202	Sims	Robert	Land Design Consultants, Inc.
193	Leppert	John	Leppert Engineering
48	Coleman	Kenneth	Los Angeles County Metro Trans Authority
120	Stalder	Richard	Los Angeles Dept of Public Safety & Correct
64	Lynch	Robert	Lynch & Assoc Architect
41	Moyes	Peter	MHTN Architects
164	Greenberg	Fred	Maguire Group
121	Dikeman	Nancy	Maine Dept of Corrections
122	Pouliot	Bob	Massachusetts Dept of Corrections
174	Gill	Charles	McDonald, Hecht & Solberg
231	Elliott	Ed	McMillin
186	Brumfield	Susan	Metropolitan Govt of Nashville & Davidson Co.
139	Whitney	Jean	Minnesota Dept of Corrections
222	Korfhage	Glenn	Minnesota Dept of Transportation
191	Fordice	Kirk	Mississippi State (Office of the Governor)
143	Jackson	Jim	Missouri Highway & Transp Dept.
140	Gamble	James	Montana Dept of Corrections
214	Meyer	Richard	National Association of Home Buidlers
165	Harmon	Gregory	National Wheel-O-Vator Company
76	Mayes	Thompson	Natl Trust for Historic Preservation
123	Stanosheck	Elizabeth	Nebraska Dept of Corrections
124	Vinson	John	New Hampshire Dept of Corrections
17	Clemmer	Henry	New Hanover Township (NHT)
125	Forker	John	New Jersey Dept of Corrections
88	Calderone	Peter	New Jersey Dept of Labor
126	Garcia	Virgil	New Mexico Dept of Corrections

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13	Sheldon	Thomas	New York State Educ Dept	3
183	Bochler	Robert	New York State Ofc Advocate for the Disabled	1
96	Keville	Debbie	New York State Ofc Parks, Rec & Hist Preserv	1
237	Wagner	Michael	Nicollet County Minnesota	1
94	Freeman	Franklin	North Carolina Dept of Correction	2
128	Little	Elaine	North Dakota Dept of Corrections	1
11	Jacques	Donald	Ocean State Ctr Indep Living (OSCIL)	2
129	Jorbenzen	Cheryl	Ohio Dept of Corrections	1
68	Blodgett	David	Ohio Dept of Rehab & Correction	2
162	Knight	Vincent	Oklahoma Dept of Corrections	1
25	Egbert	Michael	Oppor For Access (OFA)	2
167	McKinzie	Rachel	Oregon Dept of Corrections	2
44	Johnston	Samuel	Oregon Dept of Transportation	2
192	Herman	Robert	PVA (Paralyzed Veterans of America)	16
196	Box	Paul	Paul C. Box & Associates	6
141	Bernard	Lee	Pennsylvania Dept of Corrections	1
60	Christianson	Sandra	Pennsylvania OGC	3
156	Claybrook	Joan	Public Citizen	4
133	Santiago	Rafael	Puerto Rico Oficina Del Alcalde	2
163	Vose	George	Rhode Island Dept of Corrections	1
16	Ruzyski	Frank	Roosevelt Warm Springs Inst Rehab	3
217	Battat	Brenda	SHHH (Self Help for Hard of Hearing People)	11
203	Lambert	Michael	Signal Communications Corp	7
207	Snipes	Roger	Snipesdy Asson	1
238	Chambers	Rcid	Sonosky, Chambers, Sachse & Endeson	4
142	Baison	Larry	South Carolina	2
91	DeLano	Lynne	South Dakota Dept of Corrections	2
63	Howard	Richard	South Dakota Dept of Transp	1
160	Miller	Walter	South Dakota Executive Office	1
49	Richardson	Carole	Spokane Dept of Construction Service	2
109	Dooley	Michael	St. Louis County, Missouri	7
107	Dull	Garth	State of Nevada (Dept of Transp)	3
75	Tringali	Joe	Stavros Ctr for Indep Living	1
127	Shield	Tom	TL Shield & Assn	3
77	Sonnenstrahl	Alfred	Telecommunications for the Deaf	13
131	Joyner	Leon	Tennessee Dept of Corrections	1
45	Scott	Wayne	Texas Dept of Criminal Justice (TDCJ)	6
30	Trull	Ron	Texas Rehab Commission	1
153	Chrisner	WD	Three Rivers Ctr for Indep Living	2
198	Folondzinier	Theodore	Transportation/Flood Control Dept	1
46	Smith	Dean	US CommLink	6
61	Cheney	Wallace	US Dept of Justice (Fed Bureau of Prisons)	3
229	Fine	Bruce	US Dept of Transportatin (Fedl Railroad Admin	2
71	Colwell	Kevin	Ultratec Inc	6
178	Blankmeyer	Bonnie	University of Texas (Health Science Ctr)	1
35	Platt	Paul	Utah Admin Ofc of Courts	9
36	Johnson	Einar	Utah Dept of Admin Serv	4
39	Wilson	Martin	Utah Dept of Community and Econ Dev't	2
38	McCotter	Lane	Utah Dept of Corrections	3
40	Zwick	Craig	Utah Dept of Transp	4
37	Naccarato	Larry	Utah Div of Fac's Const and Mngt.	2
34	Groesbeck	J.P.	Utah Gov't Ofc of Plan and Budget	5
134	Smith	Robert	Vermont Dept of Corrections	1
145	Stocking	Pam	Village of Arlington Heights, Illinois	3
32	Cochran	EC	Virginia Dept of Transp.	3
70	Riveland	Chase	Washington Dept of Corrections	1
206	Littooy	Hans	Washington State Dept of Transportation	6

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221	Winton	Guy	Winton Engineering	5
118	Anderson	Pat	Wyoming Dept of Corrections	1

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## ADAAG REVIEW ADVISORY COMMITTEE MEMBERS

### Organizations Representing People with Disabilities (7)

American Council of the Blind  
The Arc  
Disability Rights Education and Defense Fund, Inc.  
Eastern Paralyzed Veterans Association  
Maryland Association of the Deaf  
National Easter Seal Society  
World Institute on Disability

Patricia S. Beattie  
Timothy James Quinn  
Marilyn Golden  
Brian D. Black  
Willis Mann  
A. Laurence Field  
Hale Zukas

### Code Organizations (5)

Building Officials and Code Administrators Int. Inc.  
Council of American Building Officials  
International Conference of Building Officials  
National Fire Protection Association  
Southern Building Code Congress International, Inc.

Kenneth M. Schoonover, P.E.  
Emory R. Rodgers  
Rick Okawa, P.E.  
Ron Cote  
Richard A. Vognild, P.E.

### Professional Associations and Practitioners (3)

American Institute of Architects  
American Society of Interior Designers  
National Conference of States on Building Codes & Standards

John P. S. Salmen, AIA  
William L. Wilkoff, FASID  
William E. O'Neil, Jr.

### State and Local Governments (2)

Texas Department of Licensing and Regulation  
Virginia Building Code Officials Association

Rick J. Baudoin  
Shahriar Amiri

### Owner and Operator Groups (2)

Building Owners and Managers Association International  
International Facility Management Association

Lawrence G. Perry, AIA  
Christine Neldon, CFM

### Others (3)

Builders Hardware Manufacturers Association  
Regional Disability & Business Technical Assistance Centers  
National Institute of Building Sciences

Richard Hudnut, DAHC  
Randy Dipner  
David A. Harris, FAIA

## APPLICANTS FOR THE ADAAG REVIEW COMMITTEE

Accessible Building Consultants	Harold Dean Kiewel, AIA, CCS
American Council of the Blind	Paul W. Schroeder
Accessible Design Associates	Thomas G. Deniston
American Foundation for the Blind	Elga Joffe
American Health Care Association	Thomas W. Jaeger, P.E.
American Hotel & Motel Association	Peter J. Coxon
American Institute of Architects	John P. S. Salmen, AIA
American Public Transit Association	Edward J. Gill, Jr.
American Society of Interior Designers	William L. Wilkoff, FASID
†American Society of Landscape Architects	Thomas James, ASLA
American Society of Safety Engineers	Robert L. Kohr, P.E., C.S.P., C.P.P.
Arthritis Foundation	Saralynn H. Allaire, ScD, RN, CRC
Aqua Bath	George P. McAllister, Jr. P.E.
Bradley Corporation	Paul Fahrenkrug
Builders Hardware Manufacturers Association	Richard Hudnut, DAHC
Building Officials and Code Administrators Int. Inc.	Kenneth M. Schoonover, P.E.
Building Owners and Managers Association International	Lawrence G. Perry, AIA
Coalition of Citizens with Disabilities in Illinois	Kendal S. Kerns
Cochlear Implant Club International	Diane Rott & Gordon Nystedt
Cole & Russell Architects	Glen O. Haubrock, AIA
Commonwealth of Pennsylvania (Dept. of Labor & Industry)	James Varhola
Commonwealth of Pennsylvania (Office of the Governor)	Leslye H. Herrmann
Council of American Building Officials	Emory R. Rodgers
Department of Defense-Office of the Under Secretary of Defense	Mike Brown
Disability Rights Education and Defense Fund, Inc.	Marilyn Golden
Disabled Opportunities Center	Tim J. Cannole
Dupont Engineering	Dennis L. Waldorf
Earl Walls Associates	Antal Borsa, AIA, CSI
East Tennessee Disabilities Network	David G. Miller
Eastern Paralyzed Veterans Association	Brian D. Black
Foundation for Independent Living, Inc.	Rick Alan Martin
Galland Kharasch, Morse & Garfinkle, P.C.	Steven John Fellman
National Association of Theatre Owners	
Gensler & Associates Architects	R. K. Stewart, AIA
Heitzman Architects	Frank E. Heitzmen, AIA, ASID
Holtzmann, Wise & Shepard	Michael G. McClory
†Int'l Association of Amusement Parks & Attractions	†John Paul Scott, AIA
†Disney Imagineering	
International Conference of Building Officials	Rick Okawa, P.E.
International Facility Management Association	Christine Neldon, CFM
Kodak	Allen B. Radcliffe, P.E.
Louisiana Coalition of Citizens with Disabilities	Broderick DeJean, Esq.
Massachusetts Office on Disability	†Katherine McGuinness
Massachusetts Access Committee (Application Rec'd 7/22)	Deborah A. Ryan
Mayor's Office on Disabilities (Kansas City)	Michele Ohmes
National Assoc. of Governors Committees on People with Disabilities	Judy Myers
National Association of Home Builders-	Al Peloquin, AIA
National Commercial Builders Council	



National Conference of States on Building Codes & Standards	William E. O'Neil, Jr.
†National Council on Independent Living	William O. Olubodun
National Easter Seal Society	A. Laurence Field
National Electric Sign Association	Sharon Toji
National Fire Protection Association	Ron Cote
National Institute of Building Sciences	David A. Harris, FAIA
National Multi-Housing Council-	Ronald G. Nickson
National Apartment Association	
Navy Federal Credit Union	Felix J. Mosakewicz
New York Metropolitan Transit Authority	Linda Kleinbaum
New York State	Joseph E. Reich, Jr.
Office of Advocate for the Disabled	
†New Jersey State Department of Community Affairs	Emily W. Templeton
Division of Codes & Standards	
Oregon Disabilities Commission	†Robert W. Pike
†Paralyzed Veterans of America	†Kim A. Beasley, AIA
Plumbing Manufacturers Institute	Jack Lancaster
Regional Disability & Business Technical Assistance Centers	James Bostrom
Salt Lake County	Mary Ann Cowen
†Self Help for Hard of Hearing People	Brenda Battat
†San Francisco (City and County Department of Public Works)	†Richard Skaff
Southern Building Code Congress International, Inc.	Richard A. Vognild, P.E.
State of Georgia Office of Planning & Budget	Linda Priest
State of Louisiana	Jeffrey W. Jones, Chief Architect
Summit Independent Living Center, Inc.	Bernadine Gantert
Sally Swanson Associates	Sally Swanson, AIA
Texas Department of Licensing and Regulation	Rick J. Baudoin
(Arc. Barriers Program)	
The Arc	Timothy James Quinn
Professor Bonnie Tucker	Professor Bonnie Tucker
Underwriters Laboratories Inc.	Douglas Brunmeier, P.E.
United Cerebral Palsy Associations	Robert Dale Lynch, AIA
University of Buffalo	Edward Steinfeld, Arch D.
Virginia Building Code Officials Association	Shahriar Amiri
World Institute on Disability	Hale Zukas
52 Association for the Handicapped	Joseph D. Monticciolo, PAIA
AIA New York State	
Hofstra University	

† Indicates membership on the Board's Recreation Access Advisory Committee

# U.S. ACCESS BOARD

## F • A • X

Date:

2/3/95

To:

Alexander Vachon

Agency/Division:

Fax:

228-4569

Tel:

224-8959

From:

Larry Raffee

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Pages

### MESSAGE

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Washington, D.C. 20004-1111

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tty: 202 • 272 • 5449





UNITED STATES DEPARTMENT OF EDUCATION  
OFFICE OF THE ASSISTANT SECRETARY  
FOR SPECIAL EDUCATION AND REHABILITATIVE SERVICES

Contact Person

Name: David B. Weber

Telephone: 732-1014

OSEP-86-14

OSEP MEMORANDUM

TO : Chief State School Officers

FROM : Patricia J. Guard *Patricia J. Guard*  
Acting Director  
Office of Special Education Programs

SUBJECT: Removal of Architectural Barriers to the Handicapped  
Program: Modification of Uniform Federal Accessibility  
Standards (UFAS) To Suit Children's Dimensions

BACKGROUND

In a previous memorandum (SEP Memorandum 85-33, dated October 25, 1985), I described the Removal of Architectural Barriers to the Handicapped (RABH) program. The attachments to that memorandum included a grant application and a copy of the RABH program regulations. I am writing now to follow up on a section of the regulation dealing with architectural standards and children's dimensions, and to inform you of the process to be followed when seeking to tailor RABH projects to best serve children.

The relevant program regulation (34 CFR §304.50) states that:

The alteration of existing buildings and equipment under this part must be done consistently with standards adopted by the General Services Administration (GSA) under Public Law 90-480 the Architectural Barriers Act of 1968. However, the dimensions set out in those standards may be modified as appropriate considering the age groups of the individuals who will use the buildings or equipment.

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The "standards adopted by GSA" referred to in the regulation are the Uniform Federal Accessibility Standards (UFAS), which were attached to OSEP Memorandum 85-33. UFAS, however, was designed with adults in mind. Because we recognize that adult dimensions may not always be appropriate for RABH program projects, we have worked out the procedures by which applicants will be allowed to vary from UFAS.

As described at the National State Directors meeting on March 20, 1986, in Washington, D.C., modifications from UFAS cannot be made by State or local agencies unilaterally; they must be approved at the Federal level. The approval will be given by GSA. We have been working with GSA to ensure that the approval process works as quickly and as efficiently as possible.

The standards and procedures for approving modification of UFAS dimensions have been agreed upon and are as follows:

STANDARDS

GSA will review each project in which the State wishes to vary from UFAS in order to serve children. A child-oriented document has been prepared to help facilitate the process. We are attaching a copy of the document, dated March, 1986, entitled Recommendations for Accessibility to Serve Physically Handicapped Children in Elementary Schools. Any projects which conform to these recommendations will likely be reviewed favorably by GSA.

For any given project that is inconsistent with UFAS but consistent with the Recommendations, the State should submit the following information:

- (1) the name and the location of the project site where the alteration is to be funded by a RABH grant;
- (2) the section of UFAS from which the applicant wants a modification; and
- (3) the page and section number in the Recommendations document that is going to be met instead.

GSA will also review and consider for approval modifications from UFAS even if they don't follow the Recommendations. If an applicant wishes to follow neither UFAS nor the Recommendations, the following information should be submitted:



### Page 3 - Chief State School Officers

- (1) the name and the location of the project site where the alteration is to be funded by a RABH grant;
- (2) the section of UFAS from which the applicant wants a modification;
- (3) the page and section number in the Recommendations that is not going to be met;
- (4) a description of the difference between what the State proposes and what the Recommendations would have them do;
- (5) the reasons for the request to vary from the Recommendations and UFAS; and
- (6) a citation to, and a copy of, any other reference document (e.g. a State or local building code) used as a basis for the design modification at issue.

### PROCEDURES

Requests for modifications should come from the State educational agency (SEA) and should be identified as a request for modification of UFAS under the Removal of Architectural Barriers to the Handicapped program. An original and two copies of any modification request should be submitted to the Removal of Architectural Barriers Program Coordinator, Division of Assistance to States, Office of Special Education Programs, 400 Maryland Avenue, S.W., Washington, D.C. 20202-4714. OSEP will quickly review any requests that are received and, unless there is some obvious problem, will forward the request to GSA. GSA will respond to us, and we will inform the SEA of GSA's decision.

We would appreciate it if each State would submit all requests for modification at the same time; however, submitting all requests simultaneously is not an absolute requirement. Any subsequent request for modification should be described as an amendment to the original request.

As long as the State has assured that it will comply with UFAS, the overall grant to the State will not be held up pending the approval of any particular modification that is requested.

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The State cannot disburse funds to any particular subgrantee until that subgrantee agrees to follow UFAS, or a modification from UFAS is obtained from the Federal government. Any State that subgrants money to a local educational agency or other subgrantee that wants to modify UFAS prior to getting GSA approval for that modification would be violating its State assurance. This would place grant funds in jeopardy, and would risk legal action by the Federal Architectural and Transportation Barriers Compliance Board (ATBCB).

CONCLUSION

With the help of GSA and other agencies, we have established a procedure which we believe will result in the prompt processing of any request for UFAS modification. We recognize that this procedure (which is required because GSA's UFAS requirements use adult dimensions) creates a short-term burden on States that want to make buildings most accessible to children. However, we encourage States to use this process whenever varying from UFAS would result in providing the greatest accessibility for younger handicapped children.

Attachment

cc: State Directors of Special Education



RECOMMENDATIONS FOR ACCESSIBILITY TO SERVE  
PHYSICALLY HANDICAPPED CHILDREN IN ELEMENTARY SCHOOLS

MARCH 1986

These recommendations have been developed for use in achieving accessibility for physically handicapped children in elementary schools. The recommendations contain modifications and/or additions to those sections of the Uniform Federal Accessibility Standards (UFAS)\* which, as written, would not provide accessibility for children because UFAS is based on adult dimensions and anthropometrics. UFAS sections not referenced in this document are intended to apply without modification or addition. However, in designing elementary schools, designers may identify additional sections which should be modified, based on experience in serving the particular age groups.

The recommendations are based upon a review of literature that addressed the accessibility requirements of handicapped children in elementary schools, grades one through six. The issuance of the recommendations is not intended to validate the research upon which the literature was based, but merely to provide a synthesis of special dimensions derived from children's anthropometrics and wheelchair sizes that have been previously recommended or used.

*\*Published jointly by the General Services Administration, the United States Postal Service, and the Departments of Defense and Housing and Urban Development, at 49 Fed. Reg. 31528, August 7, 1984.*



#### Reference UFAS Section 2. General.

**Provisions For Children.** The recommendations are presented as additions to the UFAS and are to be used in conjunction with the referenced UFAS provisions.

#### Reference UFAS 3.5 Definitions.

All terms listed in UFAS 3.5 are applicable, with the following addition.

**Elementary School.** A school which serves grades one through six.

#### Reference UFAS 4.2 Space Allowance and Reach Ranges.

All provisions apply with the following addition.

4.2.5 Forward Reach and 4.2.6 Side Reach are supplemented by:  
**Elementary School Reach Ranges.** The maximum high forward or side reach range to an object is 36 in (915 mm) and the minimum low forward or side reach is 20 in (510 mm).

#### \*Reference UFAS 4.6 Parking and Passenger Loading Zones.

All provisions apply with the following addition.

4.6.5 is supplemented by:  
**Elementary School Loading Zones.** Loading zones shall be protected from the weather, if necessary. The zones should be 12 ft (4 m) wide by 50 ft (15 m) long to accommodate buses and vans.

*\*Note: UFAS does not specify the size of passenger loading zones, but rather of the required access aisle, since loading zones are designed for typical vehicles. Because handicapped children are brought to school by bus or auto which may be arriving simultaneously with other buses or vehicles, it is important to assure a loading zone size that will accommodate buses or vans discharging handicapped children without delaying the unloading of other school buses.*

**\*Reference UFAS 4.8 Ramps.**

All provisions apply with the following addition.

**4.8.5 Handrails is supplemented by:**

Top of handrail gripping surfaces for children shall be mounted between 26 in and 28 in (660 mm and 710 mm) above ramp surfaces.

**\*Reference UFAS 4.9 Stairs.**

All provisions apply with the following addition.

**4.9.4 Handrails is supplemented by:**

Top of handrail gripping surfaces for children shall be mounted between 26 in and 28 in (660 mm and 710 mm) above stair nosings.

*\*Note: Handrails in spaces used by both adults and children should be provided at the adult height, as specified in UFAS, with a second handrail at the appropriate height for children as recommended here. The handrails should be spaced to insure access to both upper and lower rails. The range of acceptable mounting heights (30-34 in for adults, 26-28 in for children) is sufficiently broad to allow such placement.*



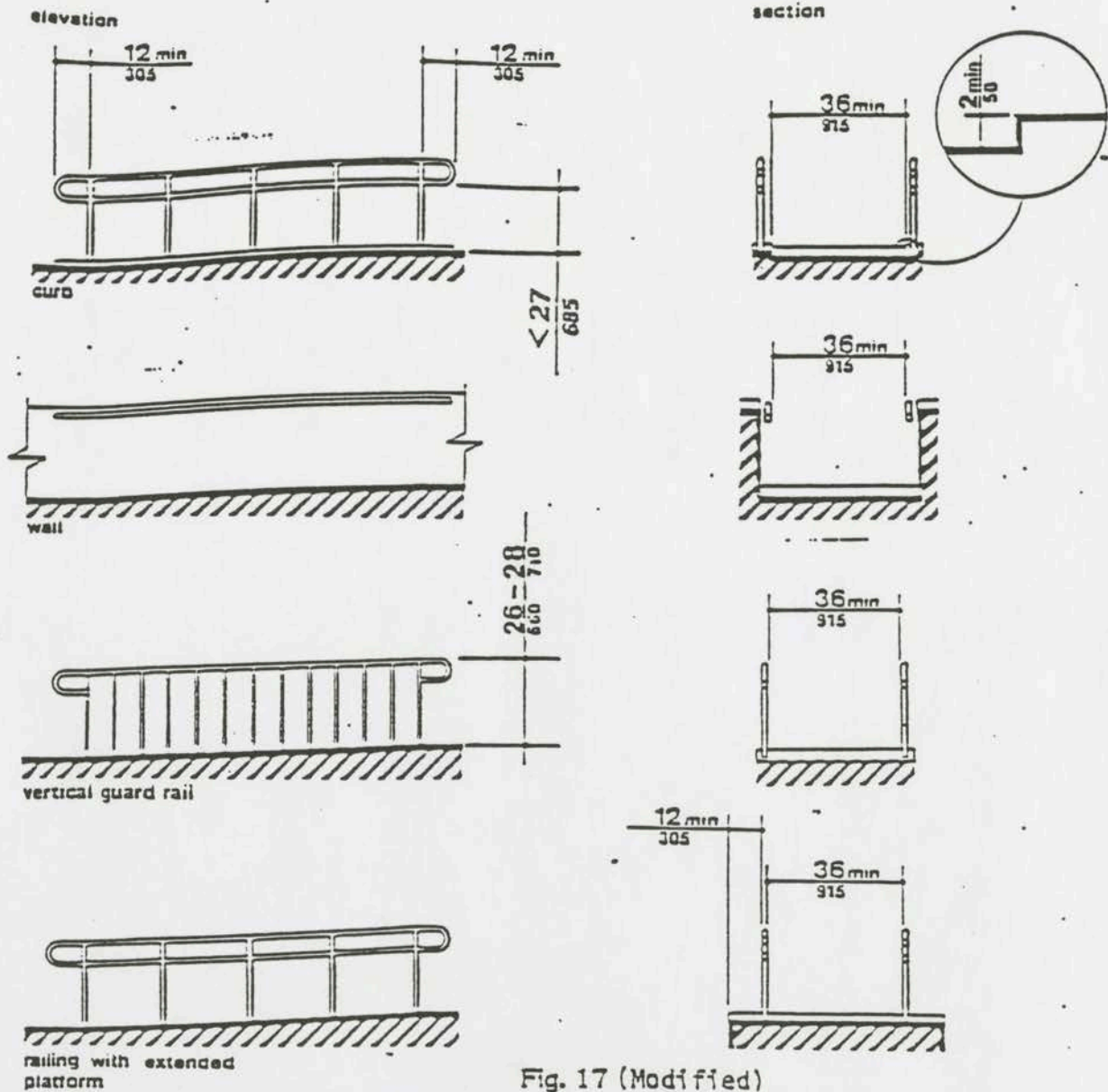


Fig. 17 (Modified)  
Examples of Edge Protection and Handrail Extensions

**\*Reference UFAS 4.10 Elevators.**

All provisions apply with the following additions.

**4.10.3 Hall Call Buttons** is supplemented by:

Call buttons in elevator lobbies and halls which are to be used by children shall be centered at 34 in (865 mm) above the floor. The button designating the up direction shall be on top (see modified Fig. 20).

**4.10.5 Raised Characters on Hoistway Entrances** is supplemented by:

The mounting height specified by UFAS for raised characters on hoistway entrances is not appropriate for tactile use by children. Designers may propose modifications to UFAS based on the particular population served by a given elevator, or they may propose mounting supplementary characters at a lower height.

**4.10.12\* Car Controls** is supplemented by:

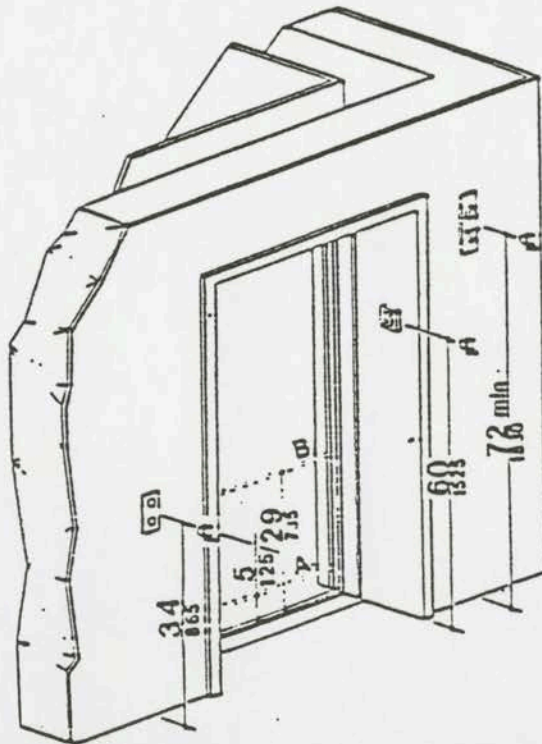
All floor buttons to be used by children shall be no higher than 36 in (915 mm) above the floor (see modified Fig. 23(b)).

**4.10.14\* Emergency Communications** is supplemented by:

The highest operable part of a two-way communication system to be used by children shall be a maximum of 36 in (915 mm) from the floor of the car. It shall be identified by a raised or recessed symbol and lettering complying with 4.30, as supplemented by these recommendations, and located adjacent to the device. If the system is located in a closed compartment, the compartment door hardware shall conform to 4.27, Controls and Operating Mechanisms, as supplemented by these recommendations.

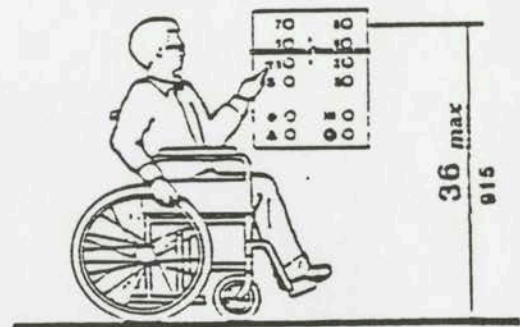
*\*Note: Elevators to be used exclusively by adults (e.g., freight elevators) would follow the specifications in UFAS 4.10. Elevators to be used by both children and adults may follow these recommended specifications (which, though lower, should be usable by adults including those in wheelchairs), or two sets of call buttons and controls can be provided, one set at the UFAS 4.10 height and one set at heights appropriate for children.*





NOTE: The automatic door reopening device is activated if an object passes through either line A or line B. Line A and line B represent the vertical locations of the door reopening device not requiring contact.

Fig. 20 (Modified)  
Hoistway and Elevator Entrances



(b)  
Control Height

Fig. 23 (Modified)  
Car Controls

Reference UFAS 4.13 Doors.

All provisions apply with the following addition.

4.13.9\* Door Hardware is supplemented by:  
Hardware required for accessible door passage to be used by children shall be mounted no higher than 36 in (915 mm) above the finished floor.

Reference UFAS 4.15 Drinking Fountains and Water Coolers.

All provisions apply with the following addition.

4.15.2\* Spout Height is supplemented by:  
Spouts on drinking fountains and water coolers used by children shall be no higher than 30 in (760 mm), measured from the floor or ground surfaces to the spout outlet (see modified Fig. 27(a)).



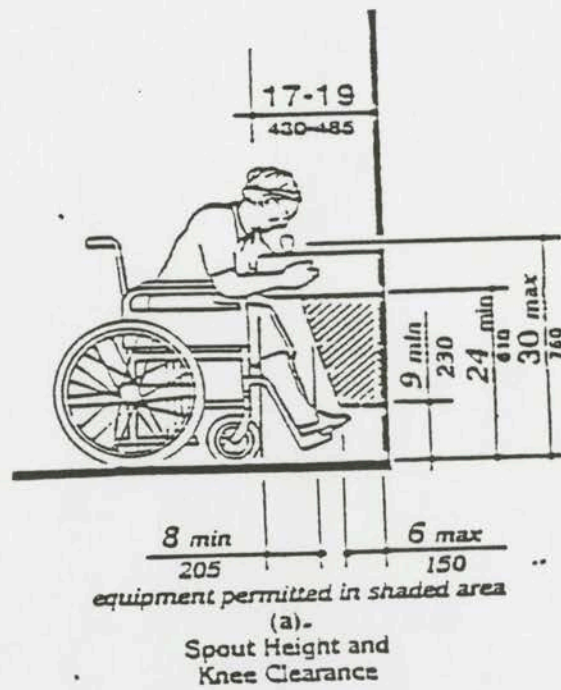


Fig. 27 (Modified)  
Drinking Fountains and Water Coolers

#### Reference UFAS 4.16 Water Closets.

All provisions apply with the following additions.

4.16.3\* Height is supplemented by:

The height of water closets used by children shall be 15 in to 17 in (380 mm to 430 mm), measured to the top of the toilet seat (see modified Fig. 29(b)).

4.16.4\* Grab Bars is supplemented by:

Grab bars for water closets used by children and not located in stalls shall comply with modified Fig 29 and 4.26.

4.16.5\* Flush Controls is supplemented by:

Controls for flush valves on water closets used by children shall be mounted on the wide side of toilet areas no more than 32 in (815 mm) above the floor.

4.16.6 Dispensers is supplemented by:

Toilet paper dispensers used by children shall be installed 19 in (485 mm) above the floor, 18 in to 24 in (460 mm to 610 mm) from the rear wall (see modified Fig 29).

C. bottom of  
full roll  
~17"

#### Reference UFAS 4.17 Toilet Stalls.

All provisions apply with the following addition.

4.17.6 Grab Bars is supplemented by:

Grab bars in toilet stalls to be used by children shall be mounted 25 to 27 in above the floor (635 to 685 mm).

not allowed  
by 4.2.5



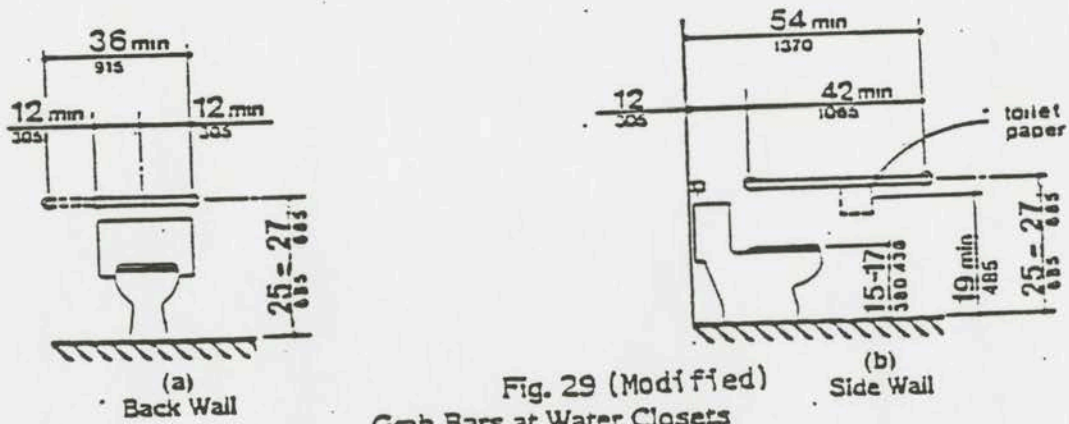


Fig. 29 (Modified)  
Grab Bars at Water Closets

Reference UFAS 4.18 Urinals.

All provisions apply with the following addition.

4.18.4 Flush Controls is supplemented by:  
Flush controls on urinals used by children shall be mounted no more than 32 in (815 mm) above the floor.

Reference UFAS 4.19 Lavatories and Mirrors.

All provisions apply with the following additions.

4.19.2 Height and Clearances is supplemented by:  
Lavatories used by children shall be mounted with the rim or counter surface no higher than 30 in (760 mm) above the finished floor. Provide a clearance of at least 24 in (610 mm) from the floor to the bottom of the apron. Knee and toe clearance shall comply with modified Fig. 31.

4.19.6\* Mirrors is supplemented by:  
Mirrors used by children shall be mounted with the bottom edge of the reflecting surface no higher than 30 in (760 mm) from the floor or as low as possible if there are conflicts with the faucet handle or backsplash. (see modified Fig. 31).



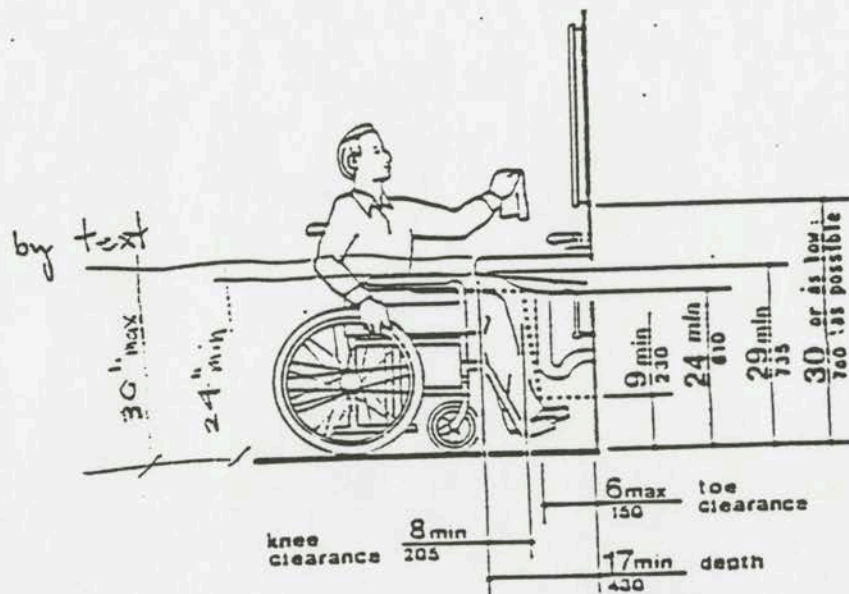


Fig. 31 (Modified)  
Lavatory Clearances

**Reference UFAS 4.21 Shower Stalls.**

All provisions apply with the following addition.

**4.21.3 Seat is supplemented by:**

The seat provided in shower stalls used by children shall be mounted 15 in to 17 in (380 mm to 430 mm) from the bathroom floor and shall extend the full depth of the stall.

**4.21.5 Controls is supplemented by:**

Faucets and other controls in shower stalls used by children complying with 4.27.4 shall be located as shown in modified Fig. 37.



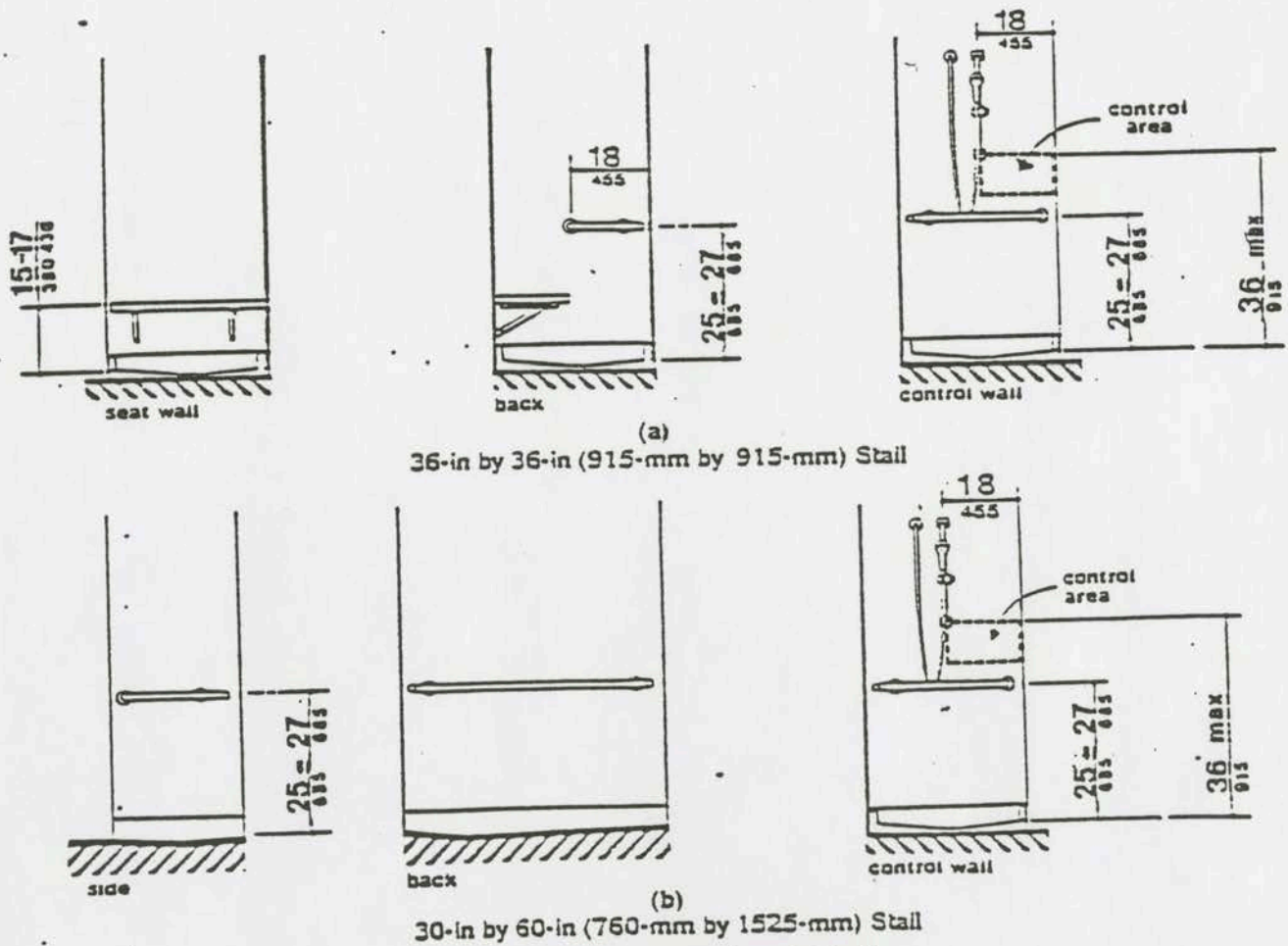


Fig. 37 (Modified)  
Grab Bars at Shower Stalls

**Reference UFAS 4.22 Toilet Rooms.**

All provisions apply with the following addition.

**4.22.1 Minimum Number** is supplemented by:  
In toilet rooms to be used by children, the supplementary recommendations in this document for 4.13, 4.16, 4.17, 4.18, 4.19, and 4.27 shall be applied where those sections are referenced in 4.22.

**Reference UFAS 4.23 Bathrooms, Bathing Facilities, and Shower Rooms.**

All provisions apply with the following addition.

**4.23.1 Minimum Number** is supplemented by:  
In bathrooms, bathing facilities, and shower rooms to be used by children, the supplementary recommendations in this document for 4.13, 4.16, 4.17, 4.18, 4.19, 4.21, and 4.27 shall be applied where those sections are referenced in 4.23.

**Reference UFAS 4.24 Sinks.**

All provisions apply with the following additions.

**4.24.2 Height** is supplemented by:  
Sinks used by children shall be mounted with the counter or rim no higher than 30 in (760 mm) from the floor.

**4.24.3 Knee Clearance** is supplemented by:  
Knee clearance that is a minimum of 24 in (610 mm) high, 28 in (710 mm) wide, and 17 in (430 mm) deep shall be provided underneath sinks used by children.

**Reference UFAS 4.25 Storage.**

All provisions apply with the following addition.

**4.25.3 Height** is supplemented by:  
Accessible shelves and hooks in storage spaces used by children shall be a maximum of 36 in (915 mm) above the floor. (see modified Fig. 38).



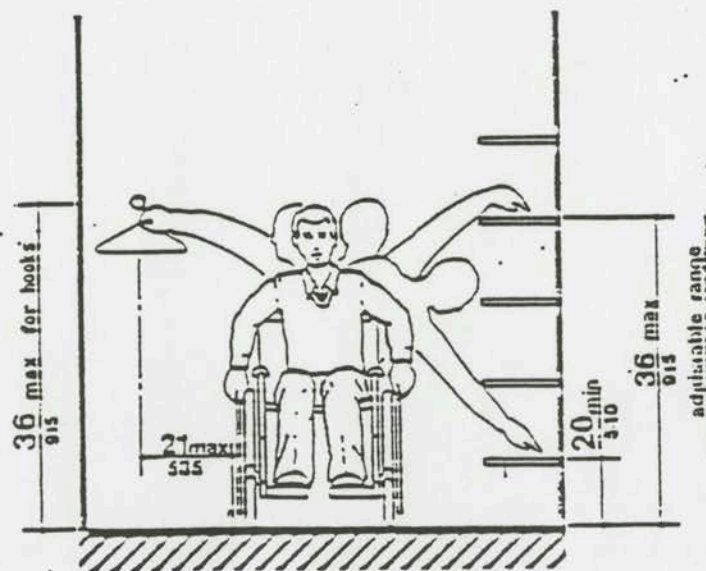


Fig. 38 (Modified)  
Storage Shelves and Closers

Reference UFAS 4.27 Controls and Operating Mechanisms.

All provisions apply with the following addition.

4.27.3\* Height is supplemented by:  
The highest operable part of all controls, dispensers, receptacles, and other operable equipment used by children shall be placed no higher than 36 in (915 mm) and no lower than 20 in (510 mm) above the finished floor.

Reference UFAS 4.30 Signage.

All provisions apply with the following addition.

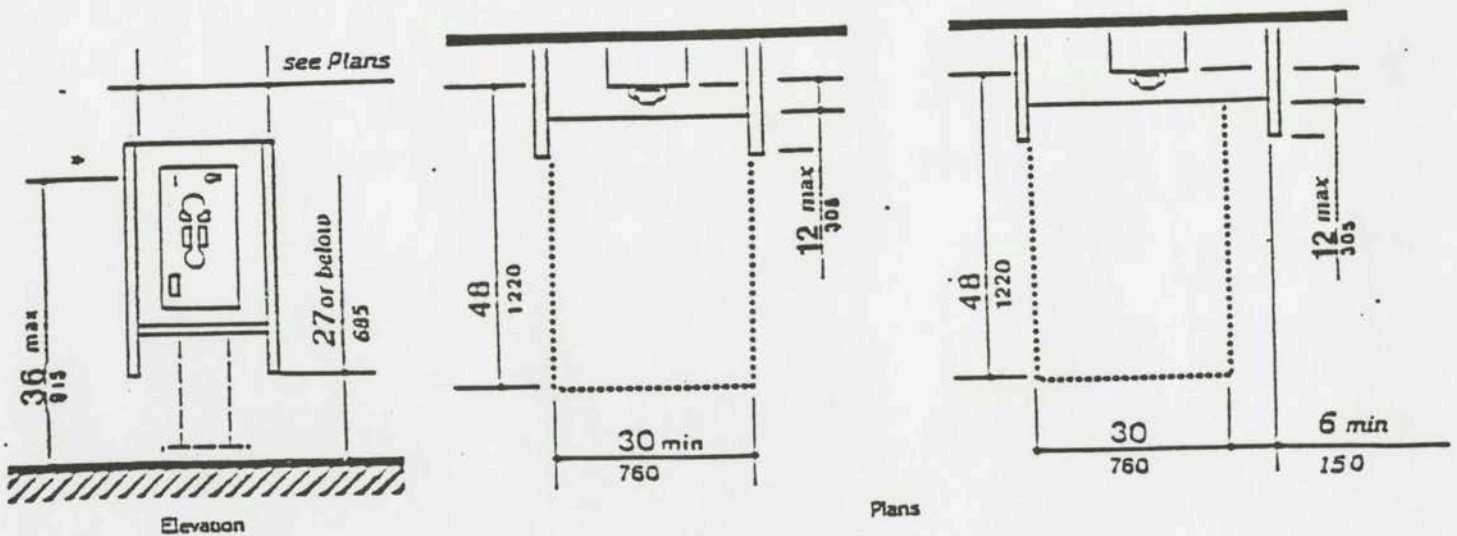
4.30.6 Mounting Height is supplemented by:  
Signs for use by children shall be mounted at a height no higher than 40 in (1015mm) above the floor.

Reference UFAS 4.31 Telephones.

All provisions apply with the following addition.

4.31.3\* Mounting Height is supplemented by:  
If intended for use by children, the highest operable part of the telephone shall be 36 in (915 mm) above the finished floor. Telephones used by children shall be installed in accordance with modified Fig. 44.





\*Height to highest operable parts which are essential to basic operation of telephone.

Fig. 44 (Modified)  
Mounting Heights and Clearances for Telephones

## Reference UFAS 4.32 Seating, Tables, and Work Surfaces.

All provisions apply with the following additions.

4.32.2 Seating is supplemented by:

Chairs for children should be 15 in to 17 in (380 mm to 430 mm) high with backs and arms.

inappropriate to  
school w/ furniture  
here

4.32.3 Knee Clearances is supplemented by:

If seating for children in wheelchairs is provided at tables, counters, and work surfaces, knee spaces at least 24 in (610 mm) high, 30 in (760 mm) wide, and 19 in (485 mm) deep shall be provided.

4.32.4\* Height of Work Surfaces is supplemented by:

The tops of tables and work surfaces used by children shall be a maximum of 30 in (760 mm) from the floor or ground.

## Reference UFAS 5. Restaurants and Cafeterias.

All provisions apply with the following additions.

5.1 General is supplemented by:

*5% quantified amount*  
In addition to the requirements of UFAS 4.1 to 4.33, the design of at least 5 percent of all fixed seating or tables in a cafeteria used by children shall comply with 4.32 as supplemented by these recommendations and the recommendations listed below. Access aisles between tables shall comply with 4.3. Where practical, accessible tables should be distributed throughout the space or facility. Accessible toilet rooms should be provided near the cafeteria and shall comply with UFAS 4.22 or 4.23 and the recommendations for water closets, urinals, lavatories and mirrors, shower stalls and sinks listed in this document.

5.2 Food Service Lines is supplemented by:

Tray slides used by children shall be mounted no higher than 30 in (760 mm) above the floor. The maximum forward/side reach by children for food service is 12 in (305 mm). If self-service shelves are provided, a reasonable portion must be within the ranges shown in modified Fig. 53.

5.3 Tableware Areas is supplemented by:

Install tableware, dishware, condiment, food and beverage display shelves, and dispensing devices used by children in compliance with 4.2, as supplemented by these recommendations. (see modified Fig. 54).

5.4 Vending Machines is supplemented by:

Install vending machines used by children in compliance with 4.2, as supplemented by these recommendations.

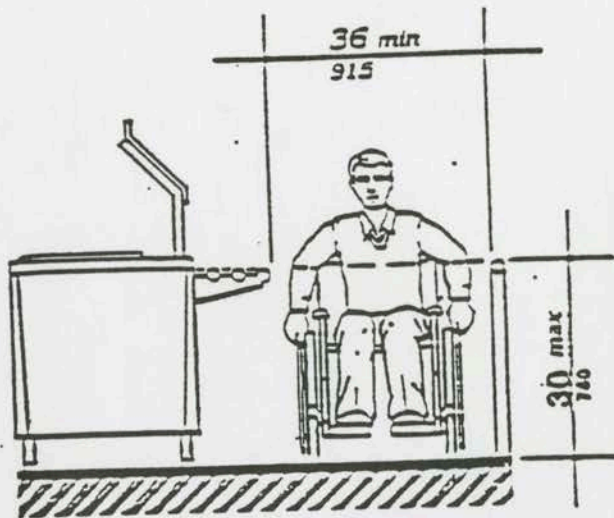


Fig. 53 (Modified)  
Food Service Lines

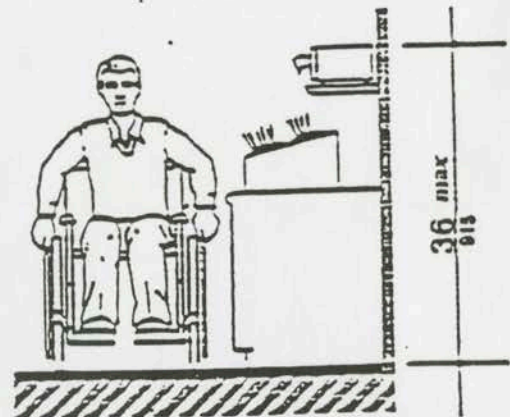


Fig. 54 (Modified)  
Tableware Areas



**Reference UFAS 8. Libraries.**

All provisions apply with the following addition.

8.4 Card Catalogs is supplemented by:  
Minimum clear aisle space at card catalogs, magazine displays,  
dictionary stands, or reference stacks to be used by children  
shall comply with modified Fig. 55. Maximum reach height shall  
be 36 in (915 mm).

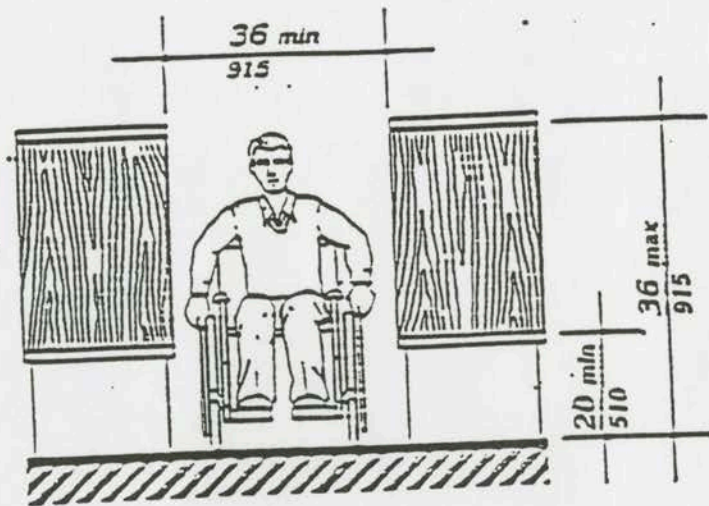


Fig. 55 (Modified)  
Card Catalog

## SUPPLEMENTARY RECOMMENDATIONS:

### Locker Rooms and Gymnasium Lockers

Provide an accessible route from locker to toilets, gymnasiums and athletic fields. In addition to the requirements in UFAS 4.1 to 4.33, as supplemented by these recommendations, locker rooms and gymnasium lockers used by children should have the following:

**Height and Clearances.** Locker shelves and hooks should be a maximum of 36 in (915 mm) above the floor. Provide larger lockers with minimum opening of 28 in (710 mm) if lockers are over 12 in (305 mm) deep.

### Classrooms

Accessible classrooms shall meet the requirements of UFAS 4.1 to 4.33, as supplemented by these recommendations, with the following addition.

**Wall-Mounted Objects.** Objects such as pencil sharpeners, light switches, blackboards, etc. shall have the centerline mounted no higher than 36 in (915 mm) maximum. The bottom edge of blackboards shall be no higher than 24 in (610 mm) above the floor.



## APPENDICES

Appendix A.	Source Documents
Appendix B.	Literature Reviewed
Appendix C.	Wheelchair Sizes for Children

#### A. SOURCE DOCUMENTS

ACCESSIBLE ELEMENTARY SCHOOLS, A Renovation, Planning and Design Manual by Peoples Center for Housing Change, Edward Steinfeld, Project Director, March, 1981.

BARRIER-FREE SCHOOL FACILITIES FOR HANDICAPPED STUDENTS, ERS Information Aid, Educational Research Service, Arlington, Virginia, 1977.

COMPLETE GUIDE FOR PLANNING NEW SCHOOLS, Working Heights - Elementary Schools, by Nicholas L. Engelhardt, (non-disabled students).

DEPENDENT SCHOOLS, Working Heights in CM for Children, Architectural Review Branch of US Army Engineering Division, Europe, APO 09757, undated (non-disabled students).

THE DESIGN OF A PRE-SCHOOL "LEARNING LABORATORY" IN A REHABILITATION CENTER, Institute of Rehabilitation Medicine, New York University Medical Center, 1969.

DESIGN TOOLS FOR ADAPTING ENVIRONMENTS by Adaptive Environments Center, undated.

ENVIRONMENTS FOR ALL CHILDREN by Adaptive Environments Center, National Center for a Barrier Free Environment, November, 1980.

A GUIDE TO THE ANSI STANDARDS FOR PUBLIC SCHOOLS, Distributed by Barrier Removal Information Center, East Central University, Ada, Ok.

PLACES AND SPACES, Facilities Planning for Handicapped Children, The Council for Exceptional Children, 1976.

## 8. LITERATURE REVIEWED

ACCESSIBLE ELEMENTARY SCHOOLS, A Renovation, Planning and Design Manual by Peoples Center for Housing Change, Edward Steinfeld, Project Director, March, 1981.

ADVANCES IN CHILD DEVELOPMENT AND BEHAVIOR, Department of Psychology, West Virginia University, 1975.

AMPLIFICATION IN EDUCATION by Fred H. Bess, Barry A. Freeman, J. Stephen Sinclair, Alexander Graham Bell Association for the Deaf, 1981.

ARCHITECTURE FOR THE HANDICAPPED, Denmark, Sweden and Holland, University of Michigan, 1974.

This report contains the results of an investigative trip through Northern Europe by Michael J. Bednar. Through photographs and text, it documents housing facilities for mentally handicapped people in Denmark, Sweden and Holland and evaluates them in terms of user satisfaction and behavioral criteria. Part 3 deals with physically handicapped in Holland; however, it does not give any specific dimensions.

ARCHITECTURE FOR KIDS, Research News, University of Wisconsin, 1979.

ARTS UNLIMITING, Handicapping Characteristics and How You Can Help, Indiana Department of Public Instruction.

BARRIER-FREE SCHOOL FACILITIES FOR HANDICAPPED STUDENTS, ERS Information Aid, Educational Research Service, Arlington, Virginia, 1977.

CHILDREN'S EXPERIMENTAL WORKSHOP, National Park Service, Department of the Interior, 1979.

COMPLETE GUIDE FOR PLANNING NEW SCHOOLS, Working Heights - Elementary School by Nicholas L. Engelhardt (non-disabled students).

DEPENDENT SCHOOLS, Working Heights in CM for Children, Architectural Review Branch of US Army Engineering Division, APO 09757, undated (non-disabled students).

THE DESIGN OF A PRE-SCHOOL "LEARNING LABORATORY" IN A REHABILITATION CENTER, Institute of Rehabilitation Medicine, New York University Medical Center, 1969.

This document reviews the medical setting of the school, population serviced and basic design.

DESIGN TOOLS FOR ADAPTING ENVIRONMENTS, Adaptive Environments Center, undated.

DO TOUCH. The Story of Boston's Children Museum, undated.

This brochure explains the themes of the Boston Children's Museum; no specific dimensions are noted.



EDUCATION FOR ALL HANDICAPPED CHILDREN ACT OF 1975, Public Law 94-142, 1976.

EDUCATION OF HANDICAPPED CHILDREN, The Department of Health, Education, and Welfare, Office of Education, Implementation of Part B of the Handicapped Act, August 23, 1977.

ENVIRONMENTAL DESIGN FOR HANDICAPPED CHILDREN, Jin Singh Sandhu, Horst Hendriks-Jansen, Polytechnic of Central London, 1976.

ENVIRONMENTS FOR ALL CHILDREN by Adaptive Environments Center, National Center for a Barrier Free Environment, November, 1980.

FEDERAL DIRECTION NEEDED FOR EDUCATING HANDICAPPED CHILDREN IN STATE SCHOOL by the Comptroller General, March 1978.

FULL EDUCATIONAL OPPORTUNITIES FOR THE HANDICAPPED, Summary of Awareness Paper, undated.

THE GRASP OF CONSCIOUSNESS, ACTION AND CONCEPT IN THE YOUNG CHILD by Jean Piaget, 1976.

A GUIDE TO THE ANSI STANDARDS FOR PUBLIC SCHOOLS, Distributed by Barrier Removal Information Center, East Central University, Ada, Ok.

The document takes the ANSI 1980 standard and incorporates AN ILLUSTRATED HANDBOOK OF THE HANDICAPPED SECTION OF THE NORTH CAROLINA STATE BUILDING CODE. The document address a limited number of elementary school-age children's dimensions.

A GUIDE TO CONTROLS, SELECTION, MOUNTING, APPLICATION, Rehabilitation Engineering Center, Children's Hospital at Stanford, December, 1982.

THE HANDICAPPED CHILD IN THE EVERYDAY CLASSROOM, Larry Molloy, 1975.

A HANDICAPPED CHILD IN YOUR HOME, DHEW Publication No. 73-29.

HEAD START SERVICES TO HANDICAPPED CHILDREN, Second Annual Report, 1974.

HUMANIZING ENVIRONMENTS: A PRIMER, The Most Facilitating Environments for Children, Their Teachers and Families, Elaine Ostroff for the Massachusetts Department of Mental Health, 1978.

INDOOR AND OUTDOOR SPACE FOR MENTALLY AND PHYSICALLY HANDICAPPED CHILDREN, Robert Bartholomew, Department of Design and Environmental Analysis, Cornell University, December, 1973.

LEARNING CENTERED CLASSROOM by Mary O'Shaughnessy, Adaptive Environments Center, undated.

LEARNING TO COMMUNICATE: IMPLICATIONS FOR THE HEARING IMPAIRED, The Volta Review, September, 1983.

MAINSTREAMING THE PRESCHOOLER, Jenny W. Klein, July, 1975.



## DESIGN DIRECTIONS

The environment that is designed for children with special needs, whether a hospital, playground, classroom, or movie theatre, is a place that works well for everybody. When designing environments, a focus on children's actual abilities and disabilities is more useful than a focus on specific medical classifications like cerebral palsy or mental retardation.

Children, regardless of their disabilities, must be considered when designing this environment. Some guidelines for good design in creating space for children include:

- A child-scale environment relates to a child's physical size and assures that a child can carry out activities with maximum competence.
- Well-defined and logically-arranged activity areas facilitate children's participation in all activities.
- A flexible environment can easily accommodate the changing needs of individual children.
- Transition areas, when well-designed, allow children to move comfortably from one activity to the next.
- A setting with multi-sensory elements provides invaluable cues for orientation and movement, particularly for children with special needs.

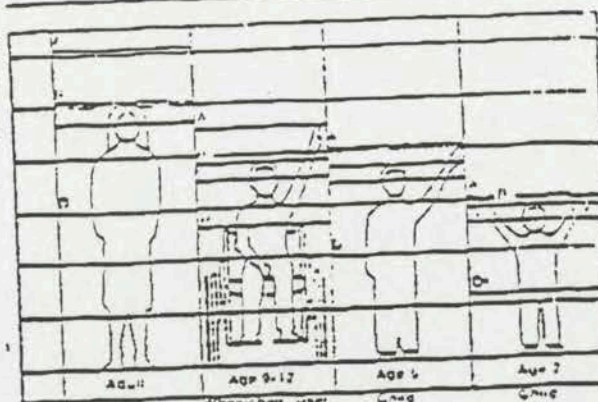


Chart showing human scale from age 2 to adult (composite of men and women).

- Opportunities to personalize a space enable a child to feel identity, belonging, or membership in a group and in a place.
- By providing a variety of spatial settings—private, semi-private, and public—the stage is set for a spectrum of personal and social experiences that together can contribute to full development.
- Achieving a balance between safety and challenge results in a place where children can learn through accomplishment and failure without unreasonable danger.
- Responsive elements allow a child to learn properties of the physical environment and develop skills in manipulating it.

The concepts on this page are taken from the National Center's Access Information Bulletin *Environments for All Children* by the Adaptive Environments Center. Single copies are available from the National Center for a Barrier Free Environment.

### Comparison of basic barrier free standards for children (Jones, 1978) and for adults (ANSI Standards, 1980).

If facilities are intended for use specifically for students which may include disabled users under 12 years of age, the following criteria shall be used:

		Criteria for adults from ANSI Standard A117.1 (1980)
a. Toilet grab bar size	1 1/4" with 1 1/2" space between grab bar and wall	1 1/4"-1 1/2" space between grab bar and wall
b. Toilet grab bar height	mounted 10" above the seat	2'-9" to 3'-0" from floor surface
c. Toilet grab bar length alongside the water closet	3'-0" with 1'-6" length extending beyond the front edge of the water closet	3'-6" minimum length
d. Grab bar must be capable of supporting a 150 lbf. load applied anywhere along the length. Connections must also be capable of supporting a 150 lbf. load.		Support 250 lbf. load
e. Toilet height	1'-3" to top of seat from floor surface	1'-5" to 1'-7" to top of seat from floor surface
f. Lavatory height	2'-5" below apron to floor surface	2'-5" minimum below apron to floor surface
g. Maximum height of controls, receptacles and dispensers	3'-4" from center of operable part to the floor	4'-0" from center of operable part to floor
h. Height of handrails	2'-0" to the center of the bar from the floor surface	2'-6" to 2'-10" to the center of the bar from the floor surface
i. Height of water fountain spigot	2'-6" from the floor surface	3'-0" minimum from the floor surface
j. Height of telephone to highest operable mechanism	3'-8" from the floor surface	4'-0" from the floor surface