UNIVERSAL DESIGN

Accessibility and the Americans with Disabilities Act

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Complimentary Issue

Ergonomics in a Can

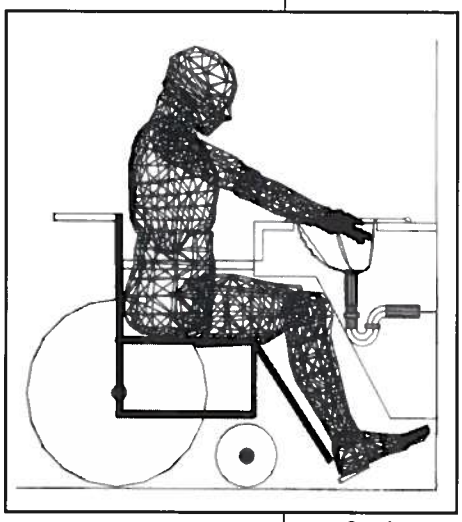
Software Improves Product Design

by Robert Giese

Imagine sitting in a bath of shallow water with a very sharp rim, no back or neck support, with your knees bent up to your chin! Now imagine that you are taking a whirlpool bath. You are reclined as if in a hammock with your lower back comfortably supported by a well placed back support. Whirlpool jets are lightly massaging the muscles of your lower lumbar, and your knees and arms are relaxed and somewhat floating. Your neck is resting on a soft, contoured pillow, and the wonderfully warm water is up to your chin. Ahhhh!

The difference between these two scenes is about 30 years of design knowledge.

In that period of time, designers have come to realize that they must address safety, comfort and ease of use, as well as aesthetics and production concerns, even when creating products that address such basic needs as bathing. Without concern for these issues, it is likely that a product will have difficulty competing in a market where consumers increasingly look for quality. To better understand how products can be safer, easier to use and more comfortable, designers have turned to the study of the dimensions and capabilities of the human body known as ergonomics.



Bob Giese

This computer generated drawing demonstrates the power now available to product designers.

In the past, new products were designed, modeled, measured, and tested against scaled anatomical templates, in-house trials and documented research, such as "Humanscale 1-9" by Dreyfuss Associates. This analysis was extremely tedious and time consum-

See Ergonomics in a Can, **page 8**

Opening Up The Great Outdoors

by David C. Park

This is the fifth in a series of articles for Universal Design Newsletter on the new recreation recommendations now under review by the US Architectural and Transportation Barriers Compliance Board (Access Board).

After several years of work, progress is being made in opening up recreation facilities to people with disabilities. The Recreation Access Advisory Committee to the US Architectural and Transportation Barriers Compliance Board (Access Board) has released a report which includes recommendations from the Developed Outdoor Facilities Subcommittee for design standards for outdoor recreational facilities.

See Opening Up The Great Outdoors, **page 10**

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"Equivalent Facilitation"

The Americans with Disabilities Act Accessibility Guidelines (ADAAG) defines the term equivalent facilitation as follows:

"Departures from particular technical and scoping requirements of this guideline by the use of other designs and technologies are permitted where the alternative designs and technologies used will provide substantially equivalent or greater access to and usability of the facility."

With this straight forward approach to allowing variations from the technical requirements of the ADA, it is a wonder that more designers and building owners haven't availed themselves of this seemingly simple "loophole" opportunity. The ADAAG contains examples of equivalent facilitation, including providing an accessible concierge desk or shelf instead of an accessible hotel registration counter and the installation of special wiring and outlets for the use of portable visual alarms and notification devices instead of hard wired equipment.

Unfortunately, a grave problem with equivalent facilitation is that very few people are willing to attempt variations for fear that they may become buried in a legal nightmare. With the onus on the building owner or designer to prove, if challenged, that the facilitation is indeed "equivalent," and with no information in the ADAAG describing the necessary performance aspects of particular requirements, it is virtually impossible to be absolutely certain that a different solution is "equivalent". In addition, because the US Department of Justice doesn't approve equivalent facilitations, except in the course of formal complaint investigations, owners and designers follow the "sure thing" of ADAAG minimums outlined in the standards.

This is a truly unfortunate situation, since equivalent facilitation could and should provide great opportunities for design innovation, advancement of the state of the art, and reductions in the cost of achieving accessibility.

I am interested in our reader's ideas on ways to break out of this conundrum.

John Salmen

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Dear Editor,

I've noticed that some of the design tips aren't always thoroughly designed. In specific, the design for the double swinging door in the Design Tips column of the April, 1995 issue (*Universal Design Newsletter*, Vol. 2, No. 2) needs some further clarification.

1) I suggest that you add a disclaimer such as "local building codes may impose additional requirements."

2) Levers show me that this door has a latch which requires 12 inches of maneuvering space on the push side. This sketch doesn't show that.

3) If this door requires a UL rating, double acting hinges and special frame may cost more than an automatic operator.

4) I suggest showing a vision panel in doors like this.

Otherwise this is an enjoyable section of your newsletter.

Mark J. Mazz
Architect
Riverdale, MD

Dear Editor,

I take strong exception to your summary of research for the US Architectural and Transportation Barriers Compliance Board (Access Board) on detectable warnings on curb ramps (*Universal Design Newsletter*, Vol. 2, No. 1, January, 1995, "Trouble for Truncated Domes")....

You report that a major finding was that "skillful travelers check one or two confirming cues." This is trivial, not a major finding....

I do not believe that blind people have to have curbs, but I do believe that they are entitled to a reliable, consistent clue to the presence of a street and to the location of its edge. That is the rationale for placing detectable warnings at curb ramps....

Contrary to your summary of the research for the Access Board, the project did address the question of the effect of detectable warnings at hazardous vehicular areas. No difficulties were found which could be attributed to the presence of detectable warnings....

Policy makers ... apparently have minimal regard for the lives or safety of blind people who can benefit from the installation of a single reliable clue, a detectable warning, on curb ramps.

Dona Sauerburger, M.A., COMS
Orientation and Mobility Specialist
Gambrills, MD

UNIVERSAL DESIGN

Accessibility and the Americans with Disabilities Act

Dear Friend,

Here is a special invitation for those listed in the Cooperative Service Directories compiled by Trace Center to subscribe to **Universal Design Newsletter,** a 12 page quarterly publication which provides up-to-date and dependable information about accessible design, compliance with the Americans with Disabilities Act and the emerging field of Universal Design. The concept of Universal Design is rapidly changing the way the world thinks about design, architecture and consumer products. Where else can you learn about new recommendations for automatic door closers that could affect nearly every commercial building in America; the new video tape on accessibility to historic buildings available from the National Park Service; or the latest advances in Universal Design Education at the collegiate campuses around the country? The answer is: only in the **Universal Design Newsletter.**

Each issue of **Universal Design Newsletter** contains the latest technical information from the nations most knowledgeable experts in the field of accessible facility and product design. Regular columns include: FedWatch, Accessibility Tips, New Products, New Media, and Calendar of Events. Articles provide valuable information on timely topics such as detectable warnings, entry doors, public restrooms, historic preservation, recreation, housing, ATM's, and employee accessibility.

Readers are praising the quality of the information found in **Universal Design Newsletter.** If you are involved in advocacy, design or accessibility issues, the **Universal Design Newsletter** is a publication that you need to read and retain for reference. Through an inexpensive subscription to **Universal Design Newsletter,** you can be informed about new developments and find cost effective solutions to accessibility problems. If you need up-to-date information on these timely topics, we look forward to hearing from you.

John Salmen

John P.S. Salmen, AIA
Publisher

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FEDWATCH

Revision of the National Accessibility Standards

The simultaneous review of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the CABO/ANSI A117.1 Standard by their respective governing organizations could be a dream come true. Since both review bodies include many of the same members, there is a real possibility that the two resulting documents will look remarkably similar -- if not identical.

Review of ADAAG by a Federal Advisory Committee, established by the US Architectural & Transportation Barriers Compliance Board (Access Board), is scheduled to continue through 1995 and be completed in April, 1996. The CABO/ANSI A117.1 Standard is being revised by the ANSI A117 committee. The committee has been working on the review for several years. A proposed standard is expected to be ready for public review by the end of this year.

The ANSI A117 committee has scheduled meetings this summer to review the work of four task groups that have been meeting regularly over the last three years to develop recommendations on the topics of signage, automatic teller machines, plumbing fixtures and housing. In addition, the committee will consider other changes proposed by the public over the last nine months. Technical issues to be considered range from sizes for transfer showers to detectable warnings and the range of reach for people of short stature. Nearly 250 proposals were received in addition to the detailed recommendations of each of the task groups.

The ADAAG Review Committee has a larger job in that it is not only trying to update the technical criteria, but also revising the present format of ADAAG so that it is written in enforceable "code language." This entails separating scoping from technical criteria, translating all figures into written text and re-organizing the entire document so that it is understandable. The group is simultaneously comparing the ADAAG criteria to the CABO/ANSI A117.1 (1992) and its scoping companion developed by the Board for Coordination of Model Codes (BCMC). It is this effort that may bring about the greatest uniformity between ANSI and ADAAG.

One issue that is being discussed by both groups is the change from imperial (feet & inches) to metric dimensions. While this would align the criteria with federal and international policies, it could create some problems. "The use of hard metrics would change the measurements for such things as door widths and clearances. Certain industries, such as the elevator industry, would object strongly to this change because it would mean changing all specifications slightly and could reduce clearances and space available for use," said Richard Hudnut, chairman of the ANSI A117 Committee. For more information on the ANSI A117 process contact the Council of American Building Officials at 703.931.4533. For more information on the ADAAG review process contact Marsha Mazz at the Access Board 202.272.5434.

Accessibility and the Information Superhighway

An effort has been launched to make sure that accessibility is included in the design of emerging information systems. Project Info-Curbcuts is expected to bring together the disability community, information technology industries and researchers in a strategic alliance to confront obstacles that may prevent people with disabilities from accessing the information superhighway.

The project is being spearheaded by the Trace Research and Development Center at the University of Wisconsin-Madison. It is part of a larger effort being carried out in conjunction with the World Institute on Disability (WID) and the Corporation for Public Broadcasting/WGBH National Center for Accessible Media (NCAM).

The effort will focus on developing interface strategies and design guidelines for next-generation information and transactions systems. Its aim will be to build in accessibility features from the birth of new information technologies.

Project Info-Curbcuts has received grant support from the National Institute on Disability and Rehabilitation Research (NIDRR) of the US Department of Education and from the Information Technology Foundation. The project is seeking input from people concerned with this topic. Individuals can call, write or e-mail: Trace Center, S-151 Waisman Center, 1500 Highland Ave., Madison, WI 53705; phone 608.262.6966; tty 608.263.5408; fax 608.262.8848; E-mail to CURBCUT@TRACE.WISC.EDU.

"The use of hard metrics would change the measurements for such things as door widths and clearances."

Richard Hudnut,
Chairman
ANSI A117 Committee

Are You an ADA Instructor or Speaker?

Do you provide ADA related Seminars or speak regularly about accessibility issues? If so we we'id like to ask for your help in promoting *Universal Design Newsletter*. Just iet us know when and where you'll be speaking and we can provide either complimenatry copies of *Universal Design Newsletter* or promotional fliers. In exchange, we'll be glad to announce your seminar in the Calendar of Events for *Universal Design Newsletter*.

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Listen for Signs That Talk in Transit Stations

by Billie Louise Bentzen, Ph.D.

A new audible sign system is being tested to assist people who are print impaired in finding their way independently through transit facilities. The system, which features remote infrared audible signage, allows users access to information that is typically provided by print signs.

One participant remarked that in Powell Station he was "truly equal" to sighted travelers.

The system, known as Talking Signs® was installed in Powell Station, San Francisco last summer under the sponsorship of Project ACTION and has been evaluated by 36 persons who are blind. Ninety-three small infrared transmitters were installed at key locations throughout this tri-level station serving Bay Area Rapid Transit (BART) and San Francisco Municipal Railway (Muni).

The audible sign system is comprised of small infrared transmitters which are typically installed above head height and above or adjacent to landmarks such as entrances, public telephones, or places of information or assistance. Transmitters may stand alone and contain their own microphones for recording. Alternatively, 10 transmitter cards may be in a central system, with light arrays incorporated into other fixtures. (See *Universal Design Newsletter,* Vol. 1 No. 8, 1994, "Signage Criteria Controversy," for a description and illustration of the incorporation of Talking Signs® transmitters into a signage system.)

Gretchen Hildner

A blind transit user locates the exit to Market Street using a Talking Sign®.

Messages such as "Powell Station," "Exit to Market Street," "Automated teller machine," or "Stairs and escalators to all trains," are heard by users from speakers in small hand-held receivers, when the receivers are oriented in the general direction of transmitters. Because infrared transmission is inherently directional, users find labeled landmarks by simply proceeding in the direction from which they pick up a clear, loud signal.

Evaluating the System

Last summer, in a project directed by William Crandall, Ph.D of the Smith Kettlewell Eye Research Institute, the system evaluators independently traveled routes of increasing complexity. Of 196 routes traveled by the 36 evaluators, 169 (86.2 percent) were completed without need for any additional wayfinding assistance.

On one difficult route, participants were positioned on the Muni platform. They were told by the researchers, "You've just arrived on a Muni train headed downtown. Using the stairs or escalator, exit Muni. Then enter BART and go to the main boarding area for a BART train to Richmond." In order to complete this route, the evaluators first needed to locate the stairs or escalator which would take them out of the Muni system. They could scan to find a sign which said, "Stairs and escalator up to concourse level." At the top of the stairs or escalator they needed to find a way to exit the Muni system. One of several signs in this vicinity said "Muni faregates." They then needed to locate a faregate through which they could enter the BART system. One sign in the vicinity, but some distance away, said "BART faregate." After negotiating this faregate, they needed to find out how to get to the BART platform. By scanning, they were able to find a sign saying "Stairs and escalator down to all BART trains." At the bottom of the stairs or escalator, they could scan to find a sign saying, "Main boarding area for Concord, Fremont and Richmond further down this platform." Continuing down this side of the platform, they eventually came to a sign saying "Main boarding area for Concord, Fremont and Richmond."

The system was invented and developed at the Rehabilitation Engineering Research Center of The Smith-Kettlewell Eye Research Institute in San Francisco. It is now marketed by Talking Signs Inc. of Baton Rouge, LA.

Participants using the system to travel routes in Powell Station were enthusiastic about the benefits of increased independence and confidence, and decreased stress they experienced in using this transit facility. Several participants particularly remarked about their pleasure in being able to glance around with their receivers and discover alternative routes and features of the transit station such as telephones, an automated teller machine, and a number of shops which were located along the concourse. They particularly liked being able to independently discover which side of a platform to wait on and where the main boarding area on each side of each platform was located. One participant remarked that in Powell Station he was "truly equal" to sighted travelers.

Talking Signs® systems are currently being installed in San Francisco's new Main Public Library and the Yerba Buena Gardens. Plans are underway to install them in San Francisco's International Airport and City Hall. They are installed throughout the Lighthouse for the Blind in New York City.

Redefining Accessible Signage

ANSI Task Force Proposes Sweeping Changes

by Ken Ethridge

The shortcomings of signs designed to be accessible to people who are blind and those who are visually impaired could be a problem of the past if recommendations of an American National Standards Institute committee are approved.

The Signage Task Force of the ANSI A117 Committee has been meeting for nearly two years to resolve questions about the useability and correct technical specifications of accessible signage. The committee concluded that the present regulation, intended to serve both people who are blind and those that are visually impaired, does not serve either population very well. The work of this committee is especially important because for the first time it incorporates input from signage manufacturers as well as people who are blind and visually impaired. Furthermore, its recommendations are being reviewed for possible inclusion in the Americans with Disabilities Act Accessibility Guidelines (ADAAG) review process (see FedWatch, page 3).

Three Kinds of Accessible Signs

The most sweeping change being proposed is to expand the present definition of accessible signage into three types based on the intended viewing population. To strenghten the current regulations, the committee has proposed the specification designate Tactile Only, Visual Only, and Combined Tactile and Visual Signage.

Tactile Only

Signs which are intended to be read only by touch would have the following characteristics:

- Raised characters: 1/32-inch minimum.
- Non-required raised, decorative elements separated by a minimum of 3/8 inch.
- Uppercase characters.
- Sanserif characters (proven to be most easily read tactually).
- Mounting heights between 40 and 60 inches from the floor to the baseline of the characters.
- Mounting location: At single doors, the signage would be located to the latch side. At double doors, it would be located to the right of the right hand door. Where there is no wall space available, signs would be located on the nearest adjacent wall. In general, signs should be located so that a person who is reading the sign can stand in a clear floor space of 18 inches by 18 inches minimum beyond the arc of the door swing. An important exception would allow signs to be mounted on the push side face of doors, that have closers but no hold-open devices when all similar signs in a facility are treated in the same manner (for example: hotel guest room doors or public rest rooms).
- Braille should conform to Library of Congress Specification #800 (There is controversy on this regulation since this specification refers to the machinery that produces Braille books.).
- Braille should be located below the corresponding text; separated 3/16 inch from any other tactile characters; separated 3/8 inch from borders or any other non-required feature and with the baseline of Braille located 40 to 60 inches above the finished floor.
- The character spacing, height and stroke width to character width criteria require very thin letters that are widely spaced, allowing a finger to easily detect different lines and characters.

Visual Only

Signs made to be read by visual means only would have the following characteristics:

- Non-glare finish with characters that contrast with the background.
- Uppercase and/or lowercase characters.
- Conventional characters (not script, highly decorative or of other unusual forms).
- Mounting height of 40 inches minimum from the floor.
- The spacing, character height and stroke width to character width were specified to facilitate reading for a person with some vision.

Combined Tactile and Visual

Signs intended to be read by both visual and tactile means would be required to comply with both tactile and visual regulations, whichever has the more restrictive criteria.

Under the new regulations, tactile lettering would not be required to appear in a contrasting color from its background if the information is repeated visually in a compliant and accessible manner.

The result of this splitting of tactile and visual functions is expected to give greater freedom to designers and manufacturers while better meeting the needs of people who are blind or visually impaired.

Ken Ethridge, AIA was co-author of the Society for Environmental Graphic Design's "ADA White Paper" and represents that organization on the ANSI A117 Committee. He is vice president for the ASI Sign Systems Network and of his family owned Diamon-E Ranches in Arizona, though he never learned how to rope very well.

Signage at the Lighthouse Inc., New York City separates the tactile from the visual

Canadian ATMs Flunk Access Test

Study highlights problems with the increasingly popular machines

by Betty Dion

Today, more than 70 percent of routine banking transactions in Canada are done using automatic teller machines (ATMs). Yet, while there are more ATMs per capita in Canada than in either the United States or Great Britain, people with disabilities are seldom able to take advantage of these omnipresent machines.

The Canadian Human Rights Commission, whose jurisdiction extends to those banks, has released a revealing report that provides a national snapshot of ATM accessibility in Canada.

The Study

Banking machines were audited using a survey designed to measure accessibility for persons who have mobility, hearing or visual impairments, developmental delays, learning disabilities, or are older.

Among the issues addressed in the survey were:

- Availability of audio format for information and instructions.
- Existence of line-up guides (ropes/rails/walls) that have cane detectable horizontal elements at a height of 680 mm or less.
- The time delay between transactions (before a card is ejected).
- The availability of notched bank cards.

Audits of the randomly selected sites were conducted by an investigative staff composed of people with a wide range of disabilities. Using the resulting data, accessibility ratings were calculated for each banking machine/site.

Key Issues

A variety of key issues were brought to light during the survey. The most important accessibility issues for people with mobility impairments were height and reach ranges, appropriate kneespace (the Canadian standard specifies front as well as side access), the design of dispensers (to allow someone with limited mobility to retrieve envelopes or cash) and adequate time allowance before the transaction was terminated.

People with low vision identified accessibility issues such as the contrast and glare of screen components and the size and font of the keypad. While opinions on the preferred mode of audio output varied among those with no vision, all emphasized the need for audio feedback during each aspect of a transaction.

Older participants noted difficulties with opening heavy doors, the complexity of the ATM operations, the visibility of the screen and time allowances during transactions.

Those with developmental or learning disabilities identified issues such as screen glare and legibility, the complexity of language, non-essential messages and inadequate time allowances.

Results

The survey results were disappointing. Only 2 of 29 sites provided adequate kneespace and controls within specified height and reach ranges for access by to wheelchair users. The lack of accommodation for people with learning disabilities or developmental delays was also wide spread.

The cancellation or capture of bank cards was another significant problem. This security feature can severely impede the actions of people who must complete their transactions more slowly. In some cases, these difficulties were compounded by policies requiring that captured cards be retrieved from different locations.

The biggest surprise of the survey was the discovery that one bank provides audio assistance via a telephone adjacent to the ATM. In four of five cases, personnel described the layout of the ATM, the instructions as they appeared on the screen, and confirmed the amounts keyed in and money received. This service for customers who are blind or who cannot read the screen is available at all times, not just during regular banking hours. The bank reported few problems with vandalization of telephones.

Discussion

The study has focused attention on the issue for banks and ATM manufacturers. A task force comprised of representatives of banks, ATM manufacturers, organizations of persons with disabilities and building code officials will work closely with the American National Standards Institute (ANSI) task force and the SATURN project in the U.K. It is anticipated that recommendations will be forwarded to the Canadian Standards Association for incorporation into the CSA Standard on Barrier-free Design.

Betty Dion prepared the Canadian Human Rights Commission report and has been a consultant in the field of barrier-free design for more than 10 years. Her accessibility studies for the Canadian Human Rights Commission include federal government offices, postal outlets, banks and banking machines. She is a member of the Canadian Standards Association's Committee on Barrier-Free Design.

ANSI Task Force Recommends ATM Changes

The ANSI A117.1 Automatic Teller Machine(ATM) Task Force has completed its work on recommended changes for ATMs and submitted a proposed set of criteria to the full ANSI A117 committee for consideration in its upcoming review of the standard. The recommended criteria cover the location of the operable parts of the machine and the input and output operation of ATMs. The primary difficulty encountered by the task force was the definition of how to make ATMs accessible to people with low or no vision without precluding the development of new technologies in the near future.

ADA Title II Action Guide For State and Local Governments

This 160-page practical manual and workbook is designed to guide state and local government entities through the Americans with Disabilities Act (ADA) Title II compliance process. This manual is comprehensive although the authors point out repeatedly that its purpose is to serve only as a source of informal guidance.

The guide discusses the five administrative requirements public entities must address in order to bring themselves into compliance with the regulations. It presents four principles of effective compliance and how they can be applied to the everyday workings of government. The book's self-evaluation and transition plan worksheets provide a structure for organizing and managing the compliance planning process, gathering and analyzing information, and documenting administrative decisions. The worksheets contained in the manual can be adapted to fit the needs and preferences of each entity. The manual also includes extensive lists of local and regional resources.

The guide was written and produced by Adaptive Environments Center Inc. under contract to Barrier Free Environments Inc. and funded by a grant from the National Institute on Disability and Rehabilitation Research (Grant # H133D10122).

For more information, contact: LRP Publications at 800.341.7874 ext. 353. The cost is $15.95, plus shipping. Available in alternate formats.

The Americans with Disabilities Act Title III: A Guide for Making Your Business Accessible to People with Mental Retardation

This 16-page document provides general information to promote voluntary compliance with the Americans with Disabilities Act (ADA). It addresses the definition of mental retardation and other cognitive disabilities and gives examples of some of the possible everyday problems such as travel, understanding menus, and way-finding.

A special feature of this publication is an "Access Strategies" chart to help restaurants, hotels, retail stores, professional services, recreational and social service facilities and other places of public accommodation become accessible to customers with mental retardation and other cognitive disabilities. This publication was developed under an ADA Technical Assistance grant from the U.S. Department of Justice.

Copies of this publication are available from The ARC, Attn: Publications, P.O. Box 1047, Arlington, TX 76004; 817.261.6003 (v); 817.277.0553 (tty) ; 817.277.3491 (fax). Request publication #30-18 (1994). The cost for one to nine copies $3 each; 10 to 19 copies, $2.50 each; 20 or more, $2 each. Regular print, large print and audio cassette formats are available at the same price.

The Americans with Disabilities Act: Pocket Guide to the ADAAG version 3.1

This pocket-sized (3˚ inches by 8 inches) 108 page condensed version of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) is intended to be a handy reference that highlights critical information. It includes tables, figures, and appendix material found in the full version of ADAAG.

Contact Evan Terry Associates, PC, 2129 Montgomery Highway Birmingham, AL 35209. The price is $15, plus $5 shipping and handling.

Signs and the ADA: An Americans with Disabilities Act Reference Manual

This two-part manual reviews regulatory requirements and provides practical guidelines concerning signs covered under the Americans with Disabilities Act (ADA). The first section deals with the basic requirements and specifications for sign usage as required by Title III of the ADA. It addreses the use of signage to aid persons with disabilities in identifying the location of wheelchair accessible entrances, as well as the use of Braille and raised letter signs to aid persons with visual impairments in gaining way-finding and other information.

The second section, entitled "An ADA Primer for Sign Users," identifies visually effective yet compliant sign options. This section is available in versions for designers, fabricators and people with disabilities. It provides specifications for character type and size; the proper use of pictograms and text descriptions; effective placement of tactile, directional and informational signage; as well as guidelines for the use of projecting, overhead, and free-standing signs. The manual also includes "Questions and Answers for Sign Buyers," a handout for sign companies to distribute to their clients.

The manual was written by Sharon Toji. For more information contact: Access Communications, 15320 South Broadway, Gardena, CA 90248; phone 310.323.5210. Copyright January 1992, revised February 1993. The cost is $60, plus $5 shipping.

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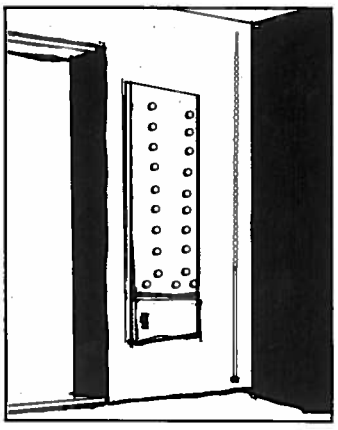
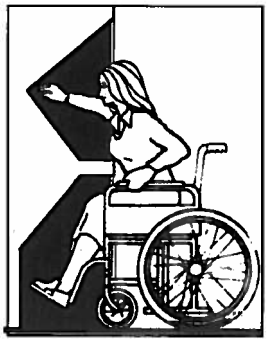
PROBLEM: An elevator control panel has some of the buttons well above the 54-inch maximum side reach limitation.



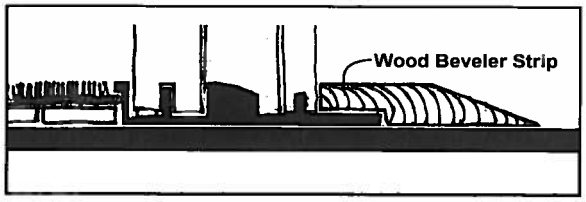
TIP: Instead of spending several thousand dollars to lower the panel, hang a rubber tipped 3/4-inch diameter dowel or plastic wand from a chain or cord near the control panel. The cord and wand should be long enough so that all of the buttons can be easily reached from a 36-inch high hand height.

PROBLEM: Bulletin boards, flush mounted dispensers, automatic teller machines, and other equipment that requires a front approach are difficult to reach for a person who uses a wheelchair.



TIP: Charles Rohan suggests providing a cut-out in the wall surface below the element to allow the footrests and/or knees of a person who uses a wheelchair to fit under the equipment during front approach. Thank you Charles!

PROBLEM: The threshold track of a sliding glass door is too high a profile to easily negotiate with the front wheels of a wheelchair.



TIP: Install a full width wood beveler that has been cut to fit the profile of the door threshold and sloped at 1:2 maximum to meet the adjoining floor surface.

Ergonomics in a Can, From Page 1

ing. And when changes were required, the entire design, modeling, measurement and testing exercise had to be repeated.

The typical outputs of this process were graphs, illustrations and reports that could be shared with the product development team of industrial design, marketing, manufacturing and engineering specialists. The process was slow and demanding, and with the increasing competitiveness in the industry, the process has become less and less viable.

Recently, however, computer based ergonomic design programs such as Mannequin Designer have improved the old drawing board methods of creating and analyzing scaled drawings of the designs. Software allows the designer to manipulate objects, show different views of the product or sizes of the user, and compare them against each other for use or fit. By importing from existing libraries, the designer doesn't have to manually draw and redraw things as was typically done in the past. Mannequin Designer provides quick and accurate 3D human factors analysis. When coupled with software such as Microsoft Power Point, the designer can produce colorful bar and pie graphs to better illustrate number comparisons. The beauty of these computer based tools is that as new information arrives, or as the parameters change, the design can be re-analyzed immediately. These new software capabilities provide the opportunity to answer human factors questions at the earliest possible time, even before models or mock-ups are constructed. The result is faster design time and far greater understanding of how the product will actually fit the ultimate users.

With tools like this, who knows what the bathtub of the future might be like.

Robert Giese is the senior human factors analyst with the Kohler Co. manufacturers of plumbing fixtures and equipment.

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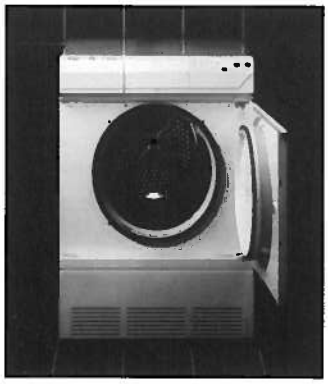
The Dorma ED 800 Series Door Control

This door control series is a combination surface door closer and microprocessor-controlled electromechanical unit designed to provide the user with the amount of assistance required for safe, barrier-free passage. The unit functions as a standard door closer on interior and exterior doors until signaled to provide opening assistance, either by a remote actuator

or through user activity. The device functions either as a low-energy power operator, opening the door but capable of being stopped by a force of 15 pounds or less, or as a power-assist unit, allowing the door to be opened by pushing on it with a force adjustable from 1.5 to 5 pounds. The unit also stops and balances the door when it meets an obstacle or unusual user response. Field-adjustable controls allow the opening angle, speed, and hold-open time to be set to accomodate user needs.

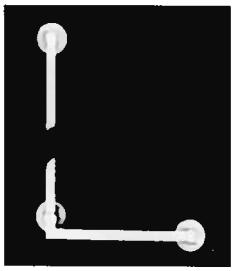
Asko Washing Machines and Dryers

Asko washing machines and dryers have load capacities equalling or exceeding those of conventional machines, but are more energy efficient and can be installed under 34-inch high cabinets, in closets, or stacked. Both the washers and dryers are front-loading and feature front-mounted controls, making them accessible to people who use wheelchairs. The horizontal-axis washers use only 11 to 17 gallons of water per load and save energy by heating water rather than drawing it from the hot water tank. The spin cycle reaches speeds of up to 1500 RPM, removing most of the moisture from the clothing and reducing drying time. The dryers feature stainless steel drums and heavy-duty ball bearings, three-setting drying programs, and electronic moisture and heat sensors to prevent over-drying. The Excellence model also includes an internal condenser which collects moisture from the dryer and eliminates the need for an outside vent.



SafeTek Thermoplastic Safety and Support Bars

SafeTek offers a full line of thermoplastic bath safety and support bars in decorator styles and colors, reducing the institutional look created by most grab bars. The non-conductive thermoplastic can be easily cut to custom lengths on site, warms to the touch and inhibits oxidation, mildew and bacteria growth. Straight, angled, and corner bars are available, all with sure-grip helical knurling.



GameTime Grills

Designed for permanent outdoor installation, these post-mounted grills/stoves feature adjustable racks and replaceable ash pans. Three models are available: the Standard Stove, the Deluxe Waist-Hi Stove, and the Family Sized Grill. The Deluxe Waist-Hi Stove, accessible to both wheelchair users and standing users, features a three-position fire grate, pivots for proper draft control, and provides 270 square inches of cooking surface.

The Original Cast Lighting ADA Wall Sconces

This line of wall sconces is designed to provide a variety of decorator and lighting options while complying with the provisions of the Americans with Disabilities Act dealing with public accommodations and commercial facilities. When properly installed, these sconces protrude less than four inches from the wall. The fixtures are available in a choice of four diffusers (enclosures) and 21 finishes.

The New Products column was provided by the ABLEDATA project, a computerized database of information on assistive equipment which is funded by the National Institute on Disability and Rehabilitation Research and is administered by Macro International, Inc., Silver Spring, MD.

DORMA Door Controls Inc.
Dorma Drive
Reamstown, PA 17567
800.523.8483

Asko Inc.
P.O. Box 851805
Richardson, TX 75085-1895
214.644.8595

SafeTek Intrnl. Inc.
P.O. Box 23
Melbourne, FL 32902
407.952.1300.

GameTime Inc.
P.O. Box 12
Fort Payne, AL 35967
205.845.5610.

The Original Cast Lighting
6120 Delmar Blvd.
St. Louis, MO 63112-1204
314.863.1895

Opening Up The Great Outdoors From Page 1

David C. Park is the chief of the Office on Accessibility for the US National Park Service. He has been involved in park and recreation accessibility since 1960 and is responsible for the development and coordination of the NPS's efforts to provide the highest practical level of accessibility for people with disabilities. Those efforts include a nationwide program in policy development, education, technical assistance, compliance enforcement, and outreach. During 1993-94 he served as the chairman of the Subcommittee on Developed Outdoor Recreation Facilities of the Access Board Advisory Committee on Recreation.

The development of these recommendations was difficult because outdoor recreation areas typically involve varying degrees of development and modification. At one end of the spectrum, are highly modified areas equated closely with the built environment for which existing design standards may be applied. At the other end, are areas which are preserved in their most natural condition.

The subcommittee attempted to develop recommendations that provide the highest degree of access, while preserving the fundamental nature of the outdoor recreation environment experience sought by the participant.

Design Criteria

The report contains specific design recommendations for picnic areas, picnic tables, cooking grills, water stations, campgrounds, tentpads, scenic overlooks, beach access, trash receptacles, and other elements. Some elements in outdoor recreation, such as toilets, showers, and parking lots should be no different than those found in the traditionally built environment. The outdoor recreation subcommittee agreed that existing standards can and should apply.

Outdoor Recreation Access Routes

	Easier (urban/rural)	Moderate (natural)	Difficult (back country)
Clear width (minimum):	48"	36"	36"
Sustained running grade* (maximum):	5 %	5 %	8 %
Maximum grade allowed:**	8 %	10 %	10 %
for a maximum distance of:	30'	50'	50'
Cross slope (maximum):**	3 %	3 %	3 %
Passing space interval (maximum):	200'	300'	400'
Rest area interval (maximum):	400'	900'	1200'
Small level changes (maximum):	1/2"	1/2"	1"

*Note: No more than 20 % of the total length of the outdoor recreation access route shall exceed the maximum sustained running grade.
**Note: The measurement of a maximum grade and cross slope should be made over a 24" measurement interval to correspond to the footprint of a wheelchair operating in that environment.

Recreation Trails

	Easier (urban/rural)	Moderate (natural)	Difficult (back country)
Clear width (minimum):	48"	36"	28"
Sustained running grade* (maximum):	5%	8%	12%
Maximum grade allowed:***	10%	14%	20%
for a maximum distance of:	30'	50'	50'
Cross slope** (maximum):***	3%	5%	8%
Passing space interval (maximum):	200'	300'	400'
Rest area interval (maximum):	400'	900'	1200'

*Note: No more than 20% of the total trail length shall exceed the sustained running grade.
**Note: Cross slope may not exceed 3% in maximum grade segments, or 5% in maximum grade segments on difficult access trails.
***Note: The measurement of maximum grade and cross slope should be made over a 24" measurement interval to correspond to the footprint of a wheelchair operating in that eevironment.

The universal design of products and elements of the outdoor recreation environment is a key element of the subcommittee's recommendations. Presently, manufacturers of picnic tables, grills, and portable toilets provide two different products. One is the "standard" item, the other is the "accessible" version of that item. The report recommends that all new tables, grills and toilets be accessible.

Accessible picnic tables

The Spectrum of Recreation Opportunities and Levels of Accessibility

The most critical issue addressed in the report is balancing accessibility with the preservation of the outdoor environment.

The subcommittee agreed with the ADA premise that accessibility modifications are not required if those modifications would result in a change in the "fundamental nature of the activity or experience." The "fundamental nature" of a back country hike or a trek in the wilderness would be changed if the environment in which those experiences take place was significantly altered.

The subcommittee built its recommendations around the recreation management approach developed by the US Department of Agriculture Forest Service called the "Recreation Opportunity Spectrum" (ROS). The ROS provides a framework for defining classes of outdoor recreation environments in terms of perceivable modifications to the natural environment, e.g., the presence of roads and trails or the existence of buildings, facilities, and conveniences.

The subcommittee felt that the concept of a "spectrum of recreation opportunities," provided an excellent approach to decision making for varying degrees of accessibility. "As the level of development and modification decreases along the spectrum, expectations of comfort, security, and accommodation for accessibility are also expected to diminish, while expectations of rusticity, challenge, and risk increase:

- Urban areas, because they are highly developed, evoke expectations of easy accessibility.
- Natural settings which are less developed than urban areas, but more developed than semi-primitive, evoke expectations of moderate accessibility.
- Back-country (semi-primitive) areas are

See Opening Up The Great Outdoors, page 11

Opening Up The Great Outdoors From Page 10

rarely developed, so expectations of difficult accessibility prevail.

· Primitive areas are undeveloped, have few, if any, environmental modifications and evoke expectations of the most difficult accessibility."

Accessible Routes, Outdoor Recreation Access Routes, and Recreation Trails

Paths of travel are perhaps the most critical access elements in the outdoor recreation environment. In the built environment these paths of travel are defined as "accessible routes," and very specific standards have been established. In the outdoor recreation environment, paths of travel also exist but take on added complexities due to length, natural topography, and the experience being provided.

The subcommittee concluded that many routes, particularly those in the urban or highly developed areas could and should meet the standards of "accessible routes." However, routes, in lesser developed areas such as nature and hiking trails, which may be recreation facilities in and of themselves, would be more difficult to develop in the same way.

The subcommittee proposed design criteria with gradations between highly developed, moderately developed, and minimally developed areas for the new terms "outdoor recreation access route" and "recreation trails," to differentiate these paths from those in the built environment.

Outdoor recreation access routes are paths that connect the primary areas and elements that are basic to the recreation experience being offered at the site.

Recreation trails are paths that provide access to recreation activities and elements that are not the primary activities at the site. Recreation trails, typically 1/4-mile or more in length, provide access to lesser-developed areas of a site, where natural features are emphasized. Frequently these trails are separate facilities (i.e. a hiking trail or nature trail). The subcommittee recognized that these trails should be as accessible as feasible, but that natural features, will often make access very difficult, and in some cases impossible.

A moderately difficult recreation trail

The recommendations provide a framework for assessing the relative difficulty of all trails. This is valuable information for all trail users, regardless of whether they have a disability or not. It allows people to make their own choices regarding the level of challenge they wish to experience in the outdoor recreation environment.

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CALENDAR

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Events to be placed in the UDN Calendar must be submitted to the Editor two months before the publication date.

July 10-13: The Summer Series on Aging sponsored by the American Society on Aging will be held in Chicago. This series offers an enormous variety of seminars investigating such topics as "Aging in Place," "Managed Care & Aging" and "Ethical and Legal Issues." Additional seminars will be provided in different locations including **July 17-20** in Philadelphia; **July 24-27** in San Francisco; and **Aug. 2-5** in Anaheim, CA. For more information contact ASA 800.537.9728.

July 11-12 & Sept. 12-13: US Architectural & Transportation Barriers Compliance Board meetings will be held in Washington, DC. to discuss and review the research and regulatory activities of the Access Board. For more information contact 202.272.5434.

July 13-14: Complying with the ADA in Facilities Planning and Design at the U of WI, Madison will show how to ensure compliance with ADA requirements in new and altered, owned and leased facilities. With Ellen Harland, AIA, Cynthia Leibrock, MA and James Terry, AIA.Call 800 461.0876 for more information.

July 19-22: "The Responsive Campus" is the theme of the Association on Higher Education and Disability's 18th International Conference in San Jose, CA. This year's conference will focus on the responsibilities shared among various campus staff members to provide ADA compliance, new curricula and appropriate accommodations for people with disabilities. Contact Ward Newmeyer at 510.643.5116 (v/tty).

Aug. 11-13: Abilities Expo, Rosemont, IL, and **Sept. 29 - Oct. 1**, San Mateo, CA is the nation's largest show devoted exclusively to products and services for people with disabilities. Special displays on assistive technology and educational workshops are included. Contact Epcon Associates at 203.256.4700.

Sept. 11-15: Universal Design, Breckinridge, CO. The National Park Service and the National Center on Accessibility, offer this course for designers, architects and engineers on state-of-the-art methods and techniques for designing building and facilities. Contact NCA at 800.424.1877.

Sept. 15: Common Threads: Weaving People with Disabilities into the Future Workforce Knoxville, TN, is a full day symposium, sponsored by the Tennessee Valley Authority. The gathering, will blend the perspectives of human resource and supervisory personnel to discuss innovative stategies that use existing resources to promote job opportunities for persons with severe disabilities. It will include a session on Universal Design in the workplace. Contact Edward Hilton at 615.632.2467 for information.

Oct. 10-12: Board for the Coordination of Model Codes (BCMC) will hold its 77th meeting in Scottsdale AZ. The BCMC establishes the scoping provisions for the accessibility requirments found in the CABO/ANSI A117.1 Accessibility Standard referenced by the nation's model building codes. To determine if there will be accessibility issues on the meeting agenda contact the International Council of Building Officials at 310.699.0541 x 3285.

Oct. 30 - Nov. 3: Retrofitting for Access is another in the continuing series of educational seminars conducted by the National Center on Accessibility. This session to be held in Martinsville, IN will focus on the responsibilities and issues faced by maintenance personnel. For information call 800.424.1877.

Nov. 15-16, Universal Design: Applications and Connections in the Real World -Boston World Trade Center - features interactive seminars with national experts. Sponsored by Adaptive Environments. Call Charlene White at 617.695.1225 x 0 (v/tty) for more information.

Nov.17-18, Universal Design Educators Forum, Boston focuses participatory workshops on the teaching of Universal Design in schools of design and continuing education settings. Sponsored by Adaptive Environments. Contact Charlene White at 617.695.1225 x 0 (v/tty).

Sept. 16-20, 1996 : Equality through Participation - 2000 and Beyond is the 18th World Congress of Rehabilitation International which will be held in Aukland, New Zealand. For more information contact Mrs. Bice Awan in Aukland New Zealand at +64.4.473.8487 (fax).

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