

# Automated Doors: Toward Universal Design



William Lebovich

Automated door at Smithsonian Institution, Wash, DC.

**F**rom the Flash Gordon serials of the fifties to Star Trek: The Next Generation, the automated door has been a standard element in science fiction. Yet, after 40 years of imagery, life has not imitated art. The automated door has yet to become universal.

Recently, however, Edward Steinfeld, DArch and G. Scott Danford, PhD, of the Adaptive Environments Laboratory, in the School of Architecture and Planning at SUNY/Buffalo, researched the state-of-the-art of automated doors as part of a contract from the U.S. Architectural and Transportation Barriers Compliance Board (ATBCB). They recommended changes to the ADA Accessibility Guidelines (ADAAG) in light of their findings. The performance specifications below summarize some of the recommendations. Detailed technical design criteria for all of the recommendations and rationales were included in the final report of the project which is available from the ATBCB (202.272.5434).

**1. Required Automated Doors:** All new public buildings should have at least one automated door at accessible entrances. There should be an exception for very small buildings where adding such doors may pose a financial hardship.

see **Doors**, page 6

## Signs of a Different Type

by Paul Arthur, Toronto, Ont  
Samuel M. Genensky, PhD, Pacific Palisades, Calif.

**T**echnologies are not the only way to provide effective environmental communication to people with special needs. Infrared transmitter-receiver and low-frequency radio transmitter-receiver technologies may be very effective communication devices for people who are functionally blind and need visual substitution devices and techniques. (See Universal Design Newsletter Vol. 1 No. 3, July 1993, for related article.) There is however, another approach — touch activated audible signs — that can be of value

see **Signs**, page 4

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**W**ith this issue we mark the first anniversary of *Universal Design Newsletter*. It's hard to believe, but we have already published four issues. I want to thank everyone involved in getting the publication up and running, especially the subscribers and advertisers. Your commitment means we can continue

this venture and bring you the best information available on Universal Design.

In our October issue we asked readers to complete a questionnaire and tell us what they liked and didn't like about *Universal Design Newsletter*. You will be seeing changes in our format and coverage starting with this issue to reflect those comments. We urge you to tell us your thoughts or concerns on how *Universal Design Newsletter* can better inform you of this emerging field.

On a personal note, I'd like to share some of the discussions I have heard in my meetings in Washington and travels around the country teaching Universal Design. In October, Selwyn Goldsmith, RIBA, author of *Designing for the Disabled*, a basic manuscript for accessibility in the United Kingdom, met with about 20 of the nation's foremost Universal Design thinkers, designers and regulators in Washington D.C. He posed the questions found in his article on Page 5. His observations on the differences between the European scene and Amer-

ica's implementation of the Americans with Disabilities Act focused our attention on the opportunities and challenges involved in trying to regulate or promote Universal Design. Many of the attendees agreed that Universal Design is really just "good design", i.e., the more people in our society that a design supports the better and more universal it is. But the problem we face is: How do we hit the moving targets of changing public expectation and acceptance of accessibility, while the technology that allows access is rapidly evolving at the same time?

This issue's articles on automated door recommendations and the use of audible signage at ATMs point to this dilemma. Would these solutions have been thought of, much less considered practical, even five years ago? How can we encourage designers, manufacturers and building owners to go beyond the rigid standards and criteria found in the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and building codes? Our article on Tolerances, (Page 10) addresses the problems of developing rigid standards.

The attendees seemed to agree that one solution to this question might be to involve end-users in the design process versus a rigid demand for a certain end product. Flexible solutions, like the "readily achievable" rule for existing buildings and the "equivalent facilitation" concept under Title III of the ADA might be models. The real question, however, is can businesses be encouraged to invest the time and effort to develop better solutions that meet the needs of a wider market, instead of opting out for the easiest and most standard solution?

LETTERS to the EDITOR

Dear Editor,

We have been most appreciative of ... the Universal Design Newsletter. Shortly after receiving the first, on the "Family Restrooms," a local architect contacted us with some concerns about bathroom design. We drew on your article for an answer and recommended your newsletter to him.

Shortly thereafter, another inquiry came on truncated domes, and once again we were able to respond with a recommendation of your publication.

On several other occasions, as well, we have been able to enthusiastically spread the word about your services. ... Thank you for your continuing efforts to improve accessibility through universal design.

Sincerely  
disAbility Resource Center  
Spotsylvania, VA

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The advisory board helps advise *Universal Design Newsletter* on current topics of interest. *UDN* is responsible for all editorial content and invites readers' comments and suggestions.

#### Riverbank Park

**Correction: The article on Riverbank Park in the October 1993 issue of UDN inadvertently failed to identify Richard Dattner & Associates—New York City, as the designer of the new and very accessible facility. Both our apologies and our congratulations are extended to Mr. Dattner.**

## DOJ Technical Assistance Grants Awarded

The Department of Justice announced grant awards of \$1.4 million to eight organizations nationally to conduct technical assistance projects promoting compliance with the Americans with Disabilities Act (ADA). "Educating the public is a key priority for our ADA enforcement program," said Attorney General Janet Reno in announcing the awards.

Grants were awarded to:

**Access Video Funds** to produce a videotape entitled "Open to the Public" documenting the efforts of two cities to comply with Title II of the ADA.

**Adaptive Environments** to support an ongoing project to incorporate Universal Design concepts into the curricula of architecture, interior design, industrial design, and landscape architecture schools and programs.

**Community Board Program** to oversee a model project designed to develop effective mediation techniques to resolve ADA complaints.

**Disability Rights Education and Defense Fund** to continue a telephone information line to assist persons with disabilities, businesses, state and local government agencies, and the general public in understanding the requirements.

**Police Executive Research Forum** to produce materials for training police regarding the ADA rights of persons with mental illness.

**U.S. Conference of Mayors** to provide a variety of materials and programs on the requirements of Title II for cities.

**The Video Fund** to develop a video tape that will document the Disability Rights and Education Defense Fund ADA training program.

**The American Museum Association** to develop materials to help museums and historic facilities to implement voluntary compliance measures or provide alternative methods of accessibility.

## The Access Board Moves to Coordinate with ANSI

At its November 1993 meeting, the Architectural and Transportation Barriers Compliance Board (Access Board) established an ADAAG Review Advisory Committee to assist the Access Board in reviewing the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and working toward a single set of accessibility criteria with the Council of American Building Officials and the American National Standards Industry ANSI A117 Committee. The committee will make editorial recommendations

to the Access board to improve the format and usability of ADAAG, compare ADAAG to CABO/ANSI A117.1 - 1992 and propose substantive changes to ADAAG, and for the future coordination of the development of federal and private sector access standards.

## Access Board Publishes Title II ADAAG

At its November meeting the US Architectural and Transportation Barriers Compliance Board (Access Board) adopted its final rule to amend the Americans with Disabilities Act Accessibility Guidelines (ADAAG) to include requirements for state and local government facilities. This action expanded ADAAG by adding four new sections:

**Section 11:** Judicial, Legislative and Regulatory Facilities;

**Section 12:** Detention and Correctional Facilities;

**Section 13:** Accessible Residential Housing;

**Section 14:** Public Rights of Way.

The final rule will be published in early 1994. The DOJ is expected to adopt these criteria as its Title II standards later this year. At that time the criteria will take effect for all state and local governments.

## Access Board Temporarily Suspends Truncated Domes

In an expected move, the US Architectural and Transportation Barriers Compliance Board (Access Board) adopted a joint rule with the US Department of Transportation and US Department of Justice to suspend the requirements for detectable warnings (See article on Truncated Domes UDN Vol. 1, No. 2) at curb ramps, hazardous vehicular areas and reflecting pools until July 26, 1996. Research conducted during the interim will clarify the usefulness of these items as orientation aids for people with visual impairments. It is important to note, however, that the action of the Access Board does not change the present ADAAG requirement for detectable warnings at the edges of transit platforms.

*"Educating the public is a key priority for our ADA enforcement program."*  
*Attorney General Janet Reno.*

## Signs, from page 1

### Accessibility and ADA Compliance for ATM'S

Since the passage of the Americans with Disabilities Act, the manufacturers of Automated Teller Machines (ATMs) have wrestled with the problem of how to make the machines accessible to people who are blind or severely visually impaired. In a joining of two new technologies, audible signage has been installed in an ATM by Verbal Landmark, Inc. of St. Louis, Mo. to provide an ATM that is fully accessible to people who cannot read a CRT screen. (See related articles in UDN Vol. 1, No. 2&3)

The ATM user is issued a special receiver by the bank. When approaching the ATM the receiver tells the user where to insert the card for service. The system then verbally disseminates the same information displayed on the CRT. As each screen changes, the corresponding verbal instructions are broadcast and can be privately heard through an earpiece. As function keys are pressed, audible messages verify the accuracy of transactions. Messages can be changed or updated to coincide with changes in the ATM's operation.

The world's first installation of this system will be on an ATM at the home office of the St. Louis Telephone Employees Credit Union. Information obtained at this test site will be used to adapt the system to any working ATM, regardless of make or model.

to the functionally blind, and also to a much larger population. This includes partially sighted people with severely impaired but still useful vision, people with literacy impairments, people with various forms of learning disabilities, people who would prefer audible information instead of maps and directories, and foreign visitors who cannot read our written language.

The infrared and low-frequency radio technologies require a person to be equipped with a small hand-held receiver about the size of a small TV remote control. When turned on, the hand-held device scans its immediate surroundings. When it receives an orientation message from a transmitter located inconspicuously nearby, it transmits the message confidentially to the person with the hand-held unit. In effect, the receiver does what sighted people do all the time — it scans the environment for information. It also reduces the need for functionally blind people to make themselves conspicuous by having to “feel the wall” in search of a sign.

Until such devices are widely distributed, however, they do nothing for the larger constituency. Building complexes such as hotels, convention centers, transportation systems and health facilities might be equipped with these systems. They could then offer infrared receivers to incoming visitors or customers as is done in performing arts theaters. Arena Stage Theater in Washington, D.C., pioneered the use of a checkout and return system for infrared assistive listening headsets available at the door to performances -- a very successful service that is now used in theaters across the country.

But we still have the problem that only limited numbers of people will probably

ever have receivers. And even if every person with a visual impairment had a permanently issued receiver, would they always remember to bring it with them?

The problem is complicated by the fact that there are two competing, incompatible technologies — one using infrared, the other low-frequency radio.

There are two alternatives that do not require receivers. In one, an infrared sensing cone is beamed out from the sign. Whenever a person moves past it, it begins to “talk”. Some people feel this technology may be best used in ‘point-of-purchase’ advertising. Others feel, however, that the gratuitous provision of information to people who don't need it or want it can only be irritating, especially when they are looking for directions.

A second alternative is touch signs which ‘talk’ only when touched by the user. They can provide a person with orientation and wayfinding information without the mindless repetition of unwanted information. But how will partially sighted, let alone functionally blind people, find such a device?

In the future, as wayfinding is considered more seriously, all

information that helps people get around the environment might be displayed at a consistent location. Some have suggested 1600 mm or 5'-3" off the ground and 25 mm or 1" horizontally away from door frames on the latch side. This is eye level for most standing adults and well within the cone of vision of short people, older children and persons in wheelchairs. At intersections of corridors, signs, maps, and other devices might be located at all four corners. In such a perfect world, everyone would benefit by knowing intuitively where these devices are located.



*Touch activated audible signage from King Products, Ltd.*

# Accessible Environments — For People With Disabilities or for Everyone?

By Selwyn Goldsmith, RIBA, London, England

*Editor's Note: The following material is an excerpt from a presentation on Oct. 18, 1993, made by Selwyn Goldsmith, RIBA, one of Great Britain's foremost authorities on accessible design and author of Design for the Disabled. Goldsmith spoke at a conference sponsored by Universal Designers & Consultants Inc. and hosted at the American Institute of Architects Headquarters, Washington D.C., of national accessibility experts gathered to discuss the state of the art of accessibility in the United States and Europe. The attendees discussed a wide range of topics including how to move from compliance with the minimums to creating great design for all — Universal Design.. This article has been edited for length.*



If architects are to treat me - and other disabled people who feel as I do - as normal, there is one absolute principle to which I say they *must* adhere: It is that they must work from the premise that people with disabilities *are* normal people and their needs can be accommodated by normal provisions in buildings, not that they are peculiar people who need special provisions. The ideology of designing for those with disabilities to which architects in Britain are accustomed — meaning the 'treat-as-different' ethos of Part M, [British building code] — has to be turned inside out. They should cease regarding people with disabilities as an identifiable and distinct subset of the total population of building users. They should

no longer ask: Who are disabled people and how many of them are there? They should pause before invoking the checklist habit, and enquire what can be done for wheelchair users, for blind people, for mentally handicapped people, for deaf people and so on. In place of the traditional 'for the disabled' design tactic they should extend the accommodation parameters of normal provisions in buildings they design. By doing so, they will expand the proportion of their building users who are conveniently accommodated *as normal*, including many people with disabilities. The result is *Universal Design* as good practice.

The traditional and solidly established convention is that people with disabilities are different from normal people, and that architects, when designing public buildings, should make special provisions for them. It was based on the presumption that for normal people there was one set of design standards, albeit standards that were never formulated or officially documented, and that for people with disabilities there ought to be a separate set. The further presumption was that people with disabilities as a subset of the total population were homogeneous, and that their needs could be covered by a single package of design specifications applicable to buildings of all kinds. We now are beginning to realize that both of those presumptions are erroneous, and that the model of Universal Design for all people fostered by the Americans with Disabilities Act is an achievable and cost effective endeavor. ▣

**“... [Architects] must work from the premise that people with disabilities are normal people and their needs can be accommodated by normal provision in buildings ...”**

A 3 tape audio cassette recording of the complete discussion is available for \$50 from:  
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## Talking Signs<sup>®</sup>, Inc.

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## Doors, from page 1

**All new public buildings should have at least one automated door at accessible entrances.**

2. **Automated Revolving Doors:** Automated revolving doors with enough space within them for a person in a wheelchair and an attendant should be allowed as part of accessible routes if they have safety systems that will prevent the door from contacting a person or an object in its path.

3. **Remote Controls:** Remote controls, keyed switches, card readers or combination switches should not be the sole means of control for required automated doors during normal operating hours.

4. **Door Width:** Full powered or low energy bi-parting and telescoping doors should be allowed to meet clear opening width requirements based on the width of the entire opening rather than only one door leaf, as in manual doors.

5. **Door Timing:** Automated doors should remain open long enough to allow people with disabilities to enter and pass through the door.

6. **Bump Force:** The force induced by a low-energy door should be limited so it doesn't knock an individual off balance. Three options should be considered, a maximum force threshold, sensor controlled variable forces and safety systems that prevent contact.

7. **Door Swing:** Full powered doors that swing against the direction of travel should have features that insure they will not hit someone approaching the door.

8. **Control Location:** Switches for operating low-energy automated doors should be located as follows:

- a.) within the reach range of people with severe disabilities who use wheeled mobility devices;
- b.) where access to the door is convenient

after use;

- c.) in close proximity to the door;
- d.) in standard locations;
- e.) on the door itself only if on the push side of the door.

9. **Detection Zone:** Sensors and control mats at the pull side of hinged doors should detect people approaching doors early enough to insure that the door will open before the user reaches the sweep area.

10. **Visual Instructions and Warnings:** Warning signs should be provided for all automated doors except power-assist doors. Instructional signage should be provided for all automated doors. Both types of signs should be in highly-visible locations, have easily noticed colors and be large enough to be read by people with visual impairments. Switches for low-energy automated doors should be identified with the International Symbol of Accessibility.

11. **Maneuvering Space:** There should be enough maneuvering space in front of automated doors and controls to accommodate use of wheeled mobility devices.

12. **Ground Floor and Surfaces:** Floor and ground surfaces in the maneuvering clearances and at the control location should not have a slope exceeding the minimum required for drainage.

13. **Background Noise:** Audible warnings and messages should be distinguishable against the ambient background noise and be accompanied by visual warnings or instruction labels.

Just as the first access standards limiting door opening resistance spurred a new generation of competitively priced door closers, it is expected that implementation of the study's recommendations will lead to competitively priced automated door products. We may not have to wait to be 'beamed up' to the starship Enterprise to find universally designed doors that work for everyone. □



*International Symbol of Accessibility*

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## Entrances to the Past: Accessibility & Historic Preservation

The National Park Service has developed a 25 minute video tape which explains the process of making historic facilities accessible under the requirements of the Americans with Disabilities Act. The video focuses on the dual need to provide reasonable access solutions for mobility-impaired individuals and to save historic buildings for future generations. It outlines a simple step-by-step planning process that helps identify accessibility problems and find appropriate accessibility solutions. "Appropriate" is defined as achieving a balance between accessibility and preservation mandates. A series of site-specific examples illustrate successful accessibility solutions for large scale and smaller structures.

The video is available for \$13 each from Historic Windsor, Inc. PO Box 1777 Windsor, VT 05089-0021 802.674.6752 or 800.376.6882. Specify open or closed captions.

## A Design Guide for Accessible Outdoor Environments

*Universal Access to Outdoor Recreation: A Design Guide* is the first comprehensive guide for designing accessible outdoor environments. The guide book was developed by the PLAE, Inc. and other public and private partners including the U.S.D.A. Forest Service to address issues associated with providing accessibility while maintaining the integrity of natural settings. It sets forth a framework to determine appropriate level of access for outdoor sites and presents detailed guidelines for designing the systems and elements necessary for ensuring accessibility—paths, signs, restrooms, drinking fountains, picnic tables, tent pads, and more.

The 300 page 8-1/2" X 11" illustrated book is available for \$44.95 from MIG Communications, 1802 Fifth Street, Berkeley, CA 94710-1915 510.845.0953


## Case Studies of Universal Design

DESIGN FOR DIGNITY: Accessible Environments for People with Disabilities (1993; 250 pp.; \$49.95) by William Lebovich presents the human side of the ADA by addressing accessibility from the viewpoint

of those most affected by the law. Through case studies, Lebovich shows that when accessibility is treated as a major design issue rather than a constraint, it can lead to the most architecturally impressive and aesthetically pleasing aspects of buildings and landscapes.

Case studies presented in the book include homes, schools, medical facilities, museums, offices, government buildings, and such public accommodations as theaters, churches, sports arenas, waterfronts, hotels, and airports. DESIGN FOR DIGNITY enhances the reader's appreciation for the potential in accessible buildings and universal design.

The book is available from John Wiley & Sons Publishers, 605 3rd Ave., New York, N.Y. 10158-0012 212.850.6000



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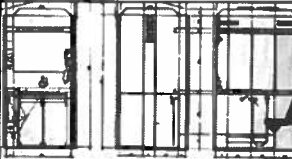
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## COLUMN

**Signs,** from page 4

But we live in a less than perfect world and more study is needed before embracing this approach to wayfinding.

How much information can we expect a person to absorb when listening to a talking sign?

What voices work best in what environments; male, female or both?

Where should the signs be located?

How far apart should they be?

Companies are seriously investigating these questions and searching for a universally designed solution. Talking Signs Inc., of Baton Rouge, La., and Verbal Landmark System, of St Louis, Mo., are discussing these questions with the Toronto firm, King Products. They plan to develop signs that will work with receivers and by touch.

Will these new technologies really work? This question needs to be addressed by manufacturers, building owners and operators, and most importantly, by the people who will use them. □

**Editor's Note:** UDN will publish comments on this topic as space allows in future issues.

*In the future, as wayfinding is considered more seriously, all information that helps people get around the environment might be displayed at a consistent location.*

**Low Vision Print Legibility**

**Problem:** Shaded or colored print is difficult for some people to read.

**TIP:**

Text should be printed with the highest possible contrast. There is much evidence that for many older and partially-sighted readers, light (white or light yellow) letters on a dark (black) background are more readable than dark letters on a light background.



**Problem:** The beginning or end of a line may be difficult to find for a person with low vision:

**TIP:**

Leading, or spacing between lines of text, should be 25 to 30 percent of the point size. This is generally greater than that used in small-print text.



**Problem:** Glossy paper causes distracting glares that may make reading very difficult for people with poor vision.

**TIP:**

Provide non-shiny, matte finish papers that do not cause glare problems.



**Problem:** It is hard for people with print disabilities to quickly recognize words that are printed in capital letters.

**TIP:**

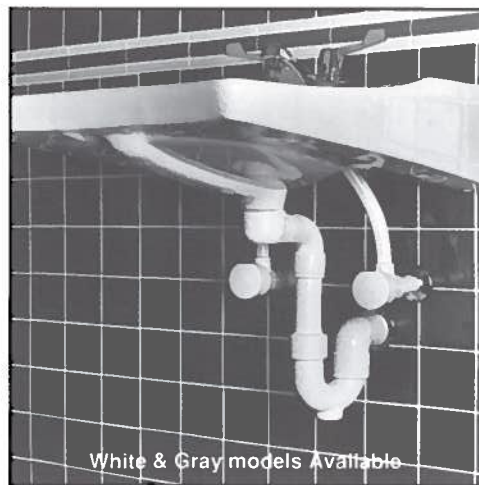
The shape of words is sometimes a cue that helps people recognize and comprehend the word. The use of upper case and lower case letters tends to accentuate this shape. For instance, "LITTLE" looks like a block of letters where as "little" is quickly recognized. □

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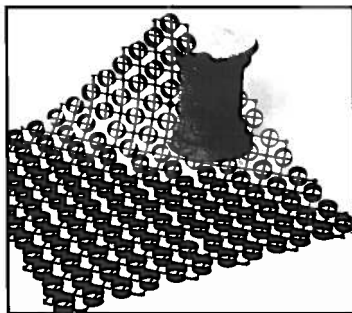
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**The Everhard Lift**



Everhard Lifts are vertical platform lifts for wheelchair users and persons with limited mobility specifically designed for historic and other sensitive sites. The lifts are installed and hidden underground until activated, allowing an undisturbed view of the building. They are appropriate for retrofit or new construction. The units are made of industrial grade steel and are vandal resistant.

Perimeter guard rails are retractable to below-grade level after use. Pressure sensitive electro-switching strips on the top of the guard rails and gates are interconnected to the lift's operational controls and will stop the lift with a minimum pressure of 4 pounds applied at any point. The Everhard Lifts meet a host of electrical and materials standards, and are designed to comply with the ADA. (Available from Aging Technologies Inc.)

**Window-Jack**

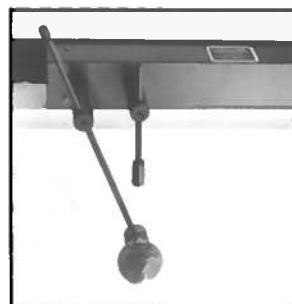


The Window-Jack was created to assist individuals with arthritis, limited hand dexterity or strength, in operating double

hung or sliding windows. This device has a turning crank handle mechanism designed to be retrofitted to existing window sills. The opener, which is also available with alternative handles for individuals who have difficulty grasping knobs, requires a turn of the crank handle to release the window; no lifting or pushing is necessary. The Window-Jack is customized to each window, and can be removed for window maintenance or conversion to regular lift operation. (Available from Kinetic Resource Corp.)

**Window Ease<sup>TM</sup> Actuator**

The Window Ease<sup>TM</sup> Actuator is a device designed to facilitate opening windows in compliance with access standards. This rotary crank mechanism reduces a 31-pound actuating force to under five



pounds. The crank has a round knob 2 inches in diameter, and requires approximately seven rotations to open a window to a height of 24 inches in seconds. Due to ease of operation, this device may be used by persons

with disabilities, limited arm strength, or manual dexterity, and by any individual in the event of a fire or other emergency. The device can be installed with common tools for right- or left-hand use, and is sold for single- and double-hung vertical opening or horizontal sliding windows. A-Solutions, Inc. offers different colored powder coatings and alternative knob shapes to accommodate individual needs. (Available from A-Solutions, Inc.)

**Editor's Note: 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.**

**Kinetic Resource Corp.**  
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# A Question of Tolerance

by John A. Raeber, A.I.A., FCSI, San Francisco, Calif

**S**ection 3.2 of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) states, "Dimensional Tolerances. All dimensions are subject to "conventional building industry tolerances for field conditions." This simple statement seems to be of little concern. But to an architect it may prove to be a trap in the years to come. It is often the architect's contractual responsibility to verify that construction conforms to the contract documents and to certify final completion for final payment. Since accessibility barriers in existing or new buildings must be addressed by the owner, it is likely that architects will also be challenged when people claim that buildings do not meet the intent of the ADA.

So, what happens if a drinking fountain has only 26 1/2" of clearance height beneath it rather than the required 27"? What is an acceptable tolerance?

Who defines building industry tolerances?

Presently, the only tolerances clearly defined in the construction industry relate to locations of structural members. Tolerances must be allowed, but are not really defined.

Which leads us back to the architect and the certification of completion. When

the architect certifies that the building is complete, it is typically assumed that the work, in general, has been judged to conform to the contract documents. Should the architect have noted the low drinking fountain dimension in periodic reviews and final inspection? Are these too specific or trivial to catch or challenge, or are they important aspects of barriers in construction?

It is doubtful that either the U.S. Architectural & Transportation Barriers Compliance Board or the U.S. Department of Justice would be willing to accept anything less than the minimums listed in the ADAAG. But what about potential court interpretations of Sec. 3.2? Are such variations likely to be considered within "conventional building industry tolerances for field conditions"?

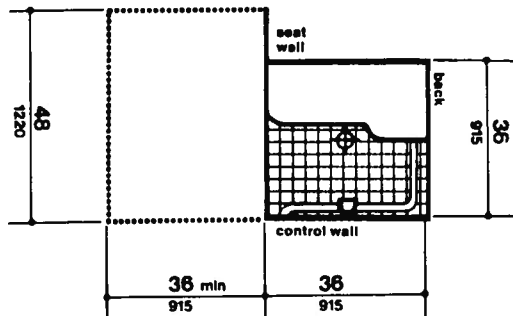
One possible solution is for architects to develop an early approach to construction industry tolerances by avoiding "zero tolerance" situations. Where possible, design drinking fountains with 28

or 27 1/2 inches clear beneath, taking care not to exceed the 36 inch maximum height for the spout outlet. Or better yet, provide a range of drinking fountain heights. The architect should also inform the contractor during pre-bid and pre-construction meetings that dimensions will be inspected and anything varying from those identified in the construction documents will not be acceptable. The contractor will be required to modify the construction as required to comply.

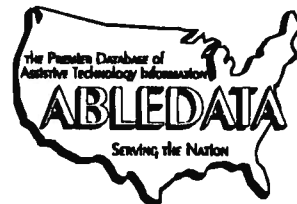
Architects should begin by developing a list of ADAAG required minimums and checking to see where potential problems exist. Standard details then can be developed which would minimize the potential of zero tolerances. Finally, a list of acceptable tolerances could be developed and made available to contractors so there is no doubt where potential problems are anticipated.

If there is a potential trap, the best defense is a good offense. Recognize the problem and provide a solid solution.

**What is an acceptable tolerance? Who defines building industry tolerances?**



**What are the tolerances in this illustration. Are the stall dimensions minimums, maximums, or absolutes.**



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**FedWatch,** from page 1

**Federal Transit Administration To Test Truncated Domes**

The Federal Transit Administration (FTA) has issued regulations that require a transit system to install detectable warnings at platform edges of all new stations, as well as at other stations that have been designated as "key" stations. Because of the controversy surrounding truncated domes, the FTA has funded a program to find reliable materials. The primary objectives of the FTA program are to evaluate commercially available detectable warning materials through laboratory and field tests and to provide the transit industry with information concerning the relative performances of these materials.

An independent laboratory will conduct various tests for slip, wear, and impact resistance as well as adhesion/bond strength. Acceptable materials will then be installed at rail station platform edges at three transit systems and tested to determine ease of retrofit installation, installation integrity over time, durability and, weather and maintenance-related performance. Laboratory testing occurred in October 1993. Field testing will occur through April, 1994. The findings will be distributed to transit systems and other interested organizations.

Manufacturers have been asked to submit study samples. Those interested in more information should contact H. Norman Ketola at 617.272.3033. 

# ADA Update Conference Proceedings

Tape recordings and written transcripts of the ADA Update Conference held in November 1993 are available. You can now hear the presentations from leading representatives of the EEOC, DOJ and ATBCB. The written proceedings include the handouts from the conference. Included are listings of litigation actions, technical assistance forms and latest interpretations

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■ **Jan. 11-14: Project Access - Comprehensive Training** - The National Park Service and the National Center on Accessibility will conduct a training seminar for designers of park facilities in San Diego, CA. Contact Gary Rob 800.424.1877

■ **Jan 28,29: Pacific ADA Conference** - Sponsored by the Hawaii Centers for Independent Living. This conference will bring guest speakers from Washington, D.C. to discuss issues of interest to the design/construction, business and tourism industry. Contact 800. 556.1141

■ **Feb 17: Association of ADA Coordinators Conference** will be held in Oakland CA. This networking and information update program will be repeated in Long Beach CA on **March 3**, and Washington DC on **March 24**. Contact Paul Hagle 800.722.4232.

■ **March 19-22: American Society on Aging 40th Annual Meeting** will be conducted in San Francisco and will include seminars on design and programming for older people. Contact ASA 415.974.9600

■ **August: Rehabilitation Ergonomics** will be featured at the annual Conference of the International Ergonomic Association in Toronto, Canada. Contact Barbara Cohen 202.401.6532

■ **Nov 17-19: Universal Design Education Project** will host a national conference for design educators and practitioners highlighting the results of its first year of programs. Educational sessions and exhibits will be presented in conjunction with Build Boston, the Boston Society of Architects Annual Convention in Boston, MA. Contact Elaine Ostroff 617.695.1225 (v/tt)

## Call for Papers

■ **April 19-21, 1995 2nd Symposium on Elevators, Fire and Accessibility** will be held in Washington D.C. and co-sponsored by many federal and national organizations and associations. Contact Marcy Weinstock 212.605.8793

■ **Design Studies**, an international journal for design research in engineering, architecture, products and systems, is developing a special issue on Universal Design. Papers of approximately 5000 words in lengths must be submitted by Jan 30, 1994. Contact Prof. Henry Sanoff 919.515.2201

■ **Innovation Magazine** published by Industrial Design Society of North America will be developing a special issue on Adaptive vs. Universal Design. Articles are needed by early 1994. Contact Peter Axelson 408.429.8447



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