

## A Push for "Visitable" Houses

*Illinois group pursues basic access bill*

If a group in Illinois has its way, a segment of new single family detached homes built in the state will be required to have basic access features.

Access Living of Metropolitan Chicago, an advocacy group for people with disabilities, is pushing for legislation that would require "spec homes" to provide four basic access features. Spec homes are homes built to be sold on the open market, and not for an individual for immediate occupancy. The Home Builders Association of Illinois (HBAI) estimates that the requirement would apply to more than 13,000 new homes a year.

A visitable home is accessible to a resident's friends, relatives and neighbors who use wheelchairs, walkers, or crutches or other mobility aids. It is built with a basic amount of access whether or not the resident has a disability.

The features in this proposed "visitability" legislation are:

See Visitable Houses, page 6

## Putting Pictograms to the Test

### Canadian Government Funds Tests of Tactile Sign Prototypes

by Betty Dion

In a recent test funded by the Canadian government, people with a variety of visual impairments had difficulty identifying the meaning of some commonly used pictograms. The tests, performed by Betty Dion Enterprises Ltd., were designed to test the effectiveness of a series of signage prototypes.

The signage prototypes were constructed of layered plastic and were approximately 150 mm x 230 mm (6" x 9"). Three different colors were evaluated: black, royal blue and very dark grey. The prototypes incorporated raised pictograms and lettering as well as Braille. In addition, the text and Braille on the signage prototypes were in French and English, as the Canadian government requires of all its publications.

The signage, which was designed to be used by sighted, partially sighted and people with no vision, had 1 mm (1/32") raised pictograms and lettering and the characters were automatically kerned (the spacing of the characters was determined by their

See Pictograms, page 11



Photo: Concrete Change

"Visitable" homes are accessible to people visiting the resident.

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## Interpreting the Tip of an Iceberg

**A**s an observer and 20-year participant in the evolution of accessibility regulations, I thought I understood the Americans with Disabilities Act (ADA). However, I have recently been awakened to an important aspect of the ADA which I had not previously considered.

Since the 1960s, accessibility regulations have evolved as a part of building and construction codes intended to make buildings accessible to people with disabilities. This approach helped to make compliance easier to understand for those in the design, construction and enforcement fields. Accessibility regulations have consistently used building code format, structure and terminology and have been adopted and enforced as part of the building regulatory process. Architects and others are trained and held responsible for understanding this body of information.

The ADA, however, is a federal civil rights law that is intended to establish a consistent level of accessibility throughout America, rather than forcing people with disabilities to live with piecemeal accessibility inconsistently enforced by local regulators. The US Department of Justice (DOJ) is responsible for enforcing the regulations for Titles II and III of the ADA, and is empowered to interpret the ADA Standards for Accessible Design (a.k.a. ADA Accessibility Guidelines) in a civil rights framework.

The DOJ wants all those involved in the design

and construction of facilities to be responsible for compliance with the ADA. It has stressed this point in statements made by Attorney General Janet Reno at the American Institute of Architects Universal Accessibility Conference and by filing a lawsuit against the Ellerbe Becket architectural firm.

My recent realization is the apparent contradiction when architects trained to understand and interpret building codes are held responsible for complying with civil rights regulations.

The conflict between civil rights and building code regulation interpretations became obvious in the recent series of lawsuits over "comparable lines of sight" in new sports arenas. (See *Universal Design Newsletter*, Vol. 3, No. 1). That difference in interpretation, however, is only the tip of the iceberg. For example, the ADAAG assembly seating criteria requires that if more than 300 seats are provided, more than one wheelchair location is required. For a 1,000 seat auditorium, an architectural interpretation might produce a design with two, three, or even more wheelchair seating locations. However, since the sight line from each seat varies from every other seat, a civil rights interpretation could require 1,000 accessible seating locations in that auditorium.

So, how can architects be expected to interpret design regulations in terms of civil rights interpretations? I hope wiser minds can help us answer that question.

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LETTER to the  
EDITOR

## Playground Provisions Correction

**Dear Editor:**

The July 1997 issue of *Universal Design Newsletter* (Vol. 3, No. 3) article that I wrote entitled "Playground Provisions" incorrectly implied that work and energy are equivalent. The work required to cross a surface, as measured by the wheelchair work measurement method, depends on the forces applied to the wheelchair pushrim and the distance traveled. Energy refers to the oxygen consumed or

the calories used by the wheelchair rider. The energy required to cross a surface depends on factors such as the movement efficiency and physical fitness of the individual. For more information, please contact Beneficial Designs at 408.429.8447.

**Kathleen Wong, Science Writer**  
**Beneficial Designs Inc.**  
**Santa Cruz, Calif.**

## Architects Subject to Liability

Architects are subject to liability under Title III of the Americans with Disabilities Act (ADA), according to a federal district court judge in Minneapolis.

In *United States v. Ellerbe Becket*, the Department of Justice asserted that Ellerbe Becket, one of the nation's largest architectural firms, violated Title III of the ADA by failing to construct sports arenas in compliance with the ADA Standards for Accessible Design. Ellerbe Becket moved to dismiss on the grounds that it was not liable for violations of the ADA. In denying the defendant's motion to dismiss, the court found that architects may be held liable for new construction violations and that the ADA requires newly constructed arenas to provide wheelchair seating locations with a line of sight over standing spectators.

## What to Expect from the Access Board

The U.S. Architectural & Transportation Barriers Compliance Board (Access Board) has approved its rulemaking agenda for the next two years. Here is an overview:

**ADAAG Revision.** The board has agreed to a rulemaking process and voted on revised text of the Americans with Disabilities Act Accessibility Guidelines (ADAAG) at its September board meeting. The board intends to publish a notice of proposed rulemaking (NPRM) this spring and hold at least two public hearings to receive feedback during the comment period.

**Recreation Facilities.** The board is currently developing a NPRM for sports facilities, places of amusement, golf, and boating and fishing facilities. The NPRM is based on the recommendations of an advisory committee and public comments received. The board expects to publish an NPRM in 1998 and provide a 90-day comment period. It also plans to hold one public hearing.

**Play Areas.** The board approved the final report of the Play Facilities Regulatory Negotiation Committee in July and approved an NPRM on access to play facilities. The board plans to publish an NPRM in early 1998 (if not in late 1997) and provide a 90-day comment period. One public hearing is planned.

**Outdoor Developed Areas.** The board has created a 25-member Outdoor Developed Areas Regulatory Negotiation Committee to work toward a consensus on access in outdoor environments. The

committee will meet four times in 1998. If the committee achieves consensus, the board expects to publish an NPRM without change and provide a 90-day comment period.

**Detectable Warnings.** The temporary suspension of the detectable warning requirements continues. Currently the suspension is set to expire in July 1998. The board intends to publish an NPRM that proposes the suspension continue until July 2000. This will give the board time to address the requirements for detectable warnings in the ADAAG revision rulemaking.

**Water Vessels.** This rulemaking will address access to ferries, cruise ships, excursion boats and other vessels. The board and the U.S. Department of Transportation (DOT), will co-sponsor an advisory committee to assist in the development of a NPRM. A NPRM and final rule are expected in 1999.

**Over-the-Road Bus Access.** DOT and the Access Board plan to publish an NPRM on access to over-the-road bus service in 1998.

**Acoustics.** The board is preparing a notice for the Federal Register requesting information on a variety of issues regarding accoustical environments.

## Access Board Okays Telecommunications Rule

In September, the U.S. Architectural & Transportation Barriers Compliance Board (Access Board) adopted a final rule for Telecommunications Act Accessibility Guidelines. The Office of Management and Budget is currently reviewing it before publication in the *Federal Register*. To receive a copy of the rule when it is available, call the Access Board at 800.993.2822 and request publication S-34. To order by e-mail, send a request to [pubs@access-board.gov](mailto:pubs@access-board.gov). 

*...the court found that architects may be held liable for new construction violations and that the ADA requires newly constructed arenas to provide wheelchair seating locations with a line of sight over standing spectators.*

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## POINT

*Stadium Style Seating in Movie Theaters: Two Views***The View from the Front**

by Brian D. Black

I think I was 12 the last time I sat in the front row at a movie. It was the Palace Theater on Main Street, Steve McQueen was playing in *Bullett*, and my friends and I figured it would be the best place to experience the San Francisco chase scenes. Problem is, the sound track was too loud there (this was before surround-sound), trying to see everything on the left and right of the screen was like watching a ping pong game, and every other goofy (and noisy!) 12-year-old in town had the same idea.

Most people over preadolescence have figured out that the front row seats at a movie are the worst seats in the house. Watch an audience file into the typical multi-cinema theater, and the seats up front are rarely occupied and are often the last to go in a sell-out. The problem is, for today's movie patrons who use wheelchairs or are otherwise unable to negotiate stairs, our contemporary theater design concepts and current accessibility requirements have conspired to force the mobility-impaired public into these worst seats, where trying to follow the action on screen and hearing over today's 12-year-olds' chatter can give a whole new meaning to the term "physically challenged."

In the late 1980s, the *Board for the Coordination of Model Codes* (comprised of representatives of our national model code groups) tackled the issue of scoping the ANSI A117.1 requirements for wheelchair locations in assembly areas. The board agreed that dispersing these locations throughout an auditorium, arena or stadium was critical to the integration and sightline provisions of the accessibility standard. However, representatives from the movie theater industry pointed out that such dispersion was

*Brian D. Black is the director of building codes and standards for the Eastern Paralyzed Veterans Association, Buffalo, N.Y.*

difficult when designing the typical "shoe box" multi-cinema theaters common at the time, theaters having a typical capacity of 150 to 200 people.

Given the low number of wheelchair spaces required in such theaters, and the option of moving to other open locations in the theater often provided by the ramped aisles, the board agreed to permit the wheelchair locations to be grouped in a single space in assembly areas with a capacity no larger than 300. In practice, this placed the wheelchair spaces in the rear of the theater, near the lobby doors, and while wheelchair users sometimes complained about being stuck in the back, at least the movie could be seen and enjoyed.

The U.S. Architectural & Transportation Barriers Compliance Board (Access Board), while never citing this model building code allowance, established identical scoping requirements in the Americans with Disabilities Act Accessibility Guidelines (ADAAG). The Department of Justice adopted ADAAG as its accessibility standard, and this single location for wheelchair spaces remains the acceptable accessibility measurement for small movie theaters designed to comply with the ADA.

But the designs of the '80s have recently been abandoned by the movie theater industry in favor of the tiered seating of today. Ramped aisles have been replaced with stairs, and the separate-but-tolerable rear theater wheelchair spaces have given way to a standard practice of moving theater entrances to the front and designating open spaces in the front row as the required wheelchair viewing locations.

The Eastern Paralyzed Veterans Association (EPVA) has found that all but one of the major national movie theater corporations use the ADA "single location" exception to force wheelchair users into the front row of the theater – arguably the worst and least desired seats in the house. Even where the seating capacity of a theater exceeds 300, designers are often splitting the number of required seating locations between the left and right sides of the front row of the theater, claiming this meets the dispersion requirements of the ADA and applicable building code.

Where access requirements permit a single location for wheelchair seating, designers and building owners should determine how an assembly area is used to ensure that comparable lines of sight are provided. The front-row worst seats for watching *Batman III* may be the best seats for *Beethoven's*

See The Front, page 8

***The Eastern Paralyzed Veterans Association (EPVA) has found that all but one of the major national movie theater corporations use the ADA "single location" exception to force wheelchair users into the front row of the theater – arguably the worst and least desired seats in the house.***

### Workshop Planned to Tackle Challenges of Stadium Seating in Movie Theaters

The Florida Board of Building Codes and Standards will conduct a design charette Feb. 10 in Orlando, Fla. Ten design professionals (five representing the theater industry and five representing disability advocacy groups) will be invited to come and work toward viable compliance solutions with regard to stadium style seating in movie theaters. The workshop will be open; the public is invited to come to observe. For more information contact: Dept. of Community Affairs, phone 850.487.1824.

*Stadium Style Seating in Movie Theaters: Two Views*

# A Move Toward Immersion

By John Paul Scott, AIA

With stadiums and arenas being targeted by the U.S. Department of Justice (DOJ) for non-compliance with the intent of the Americans with Disabilities Act (ADA), the next likely target is the new practice of using stadium seating in motion picture theaters.

Seating positions in movie theaters have long been a problem for people using wheelchairs and their companions. Frequently these spots have been relegated to the neck-breaking first row, or the far-sighted back row of the theater -- if they were provided at all!

### The Movie-going Experience and Immersion

Motion picture theaters are playing a major role in the revitalization of cities and urban gathering places. Multiplexes of 10 to 30 theaters, convenient parking facilities, and a broad choice of themed restaurants, and chain retail, now offer the heady mix of activities that can generate a three-to four-hour entertainment experience -- a self-sustaining synergy required for a successful commercial development.

Theaters pull the guest completely into the entertainment experience itself. This "visual immersion" experience is the "draw" that attracts people to these retail complexes.

### Stadium Seating - What is it?

Stadium seating creates a sense of visual immersion in an economic fashion. By stepping the seating in a highly raked fashion, a movie viewer's sight line is no longer blocked by a tall guy, a tall hair-do or the big hat of a viewer in front of them. A 60-degree arc of unobstructed viewing is the ideal cone of vision. Each seating aisle is stepped from 12 to 16 inches in height. Each seating row then provides that magical "clear line of sight" -- if you can get to the row by walking up steps and stairs!

Two theater complexes that incorporate these new concepts plus disbursement of wheelchair seating locations are the United Artists Complex in Burbank California and the AMC Complex in Downtown Disney in Orlando, Fla.

Both theaters began as trend setting developments. They were eight- and 12-theater auditoriums that happened to generate enough neighborhood development to warrant expansion. Both expanded to meet the prevailing needs of the public -- 20 to 25 screens. Both centers increased guest amenities

and seating options. Ticket booth windows and concession stands are at the right heights for usability. There is a speaker and microphone system at the ticket window -- the ticket seller is not yelling at the customers anymore! Accessible seating options are now provided in areas other than the front and back row.

The entertainment industry has found that its products perform best when the designers and decision makers are forced to figure out what the public wants from an experience.

Besides fresh hot popcorn, classic movie-going candy, snuggle-love seats and a place to put one's coke -- what are we looking for? 1) A nice place to view the movie without interruptions; 2) A great sound system; 3) Nothing blocking the view. People want a full immersion into the theater experience where all awareness of the surroundings, the hundreds of other viewers, and the theater disappear.

### Performance-Based Solutions

The Americans with Disabilities Act Accessibility Guidelines (ADAAG) and most building codes are prescriptive requirements. They tell you when, where, how many and how to apply a rule. Prescriptive requirements police solutions, where performance requirements encourage solution creation.

The AMC Theater near Orlando is one of several notable projects offering performance-based solutions to theater design and the movie going experience. Originally, the

12-screen complex offered limited wheelchair positions in its theaters. The expansion allowed a mix of theater sizes and types to be provided. Wheelchair positions are now paired and have adjacent, companion seating. Frequently, wheelchair seating locations are provided in what some designers term "the sweet spot," an excellent location for a theater viewing experience. Some of the possible combinations are:

- Large theaters with wheelchair positions at the
- See Immersion, page 10

*Frequently, wheelchair seating locations are provided in what some designers term "the sweet spot," an excellent location for a theater viewing experience.*

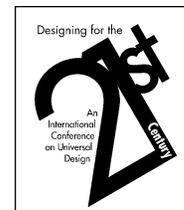


Stadium seating theater places wheelchair positions in the "sweet spot."

*John Paul Scott is principal project architect with Walt Disney Imagineering in Glendale, Calif.*

# Designers Making a Difference

## *International Universal Design Conference Preview*



**D**esigners have the power to create and eliminate disabilities, according to designer and author Cynthia Leibrock, MA, ASID, Hon. IIDA. "People are not necessarily disabled by physical differences," says Leibrock, founder of Easy Access in Ft. Collins, Colo. "People are only disabled when they can't do what they want to do, and frequently the environment is the cause."

Leibrock is a speaker at the upcoming Designing for the 21st Century: An International Conference on Universal Design set for June 18-21 at Hofstra University in New York. She embraces the notion that interior design and architecture make long-term contributions. "Many of these buildings will be in use for 50 years or longer. If not designed universally, we could be disabling people for decades, or we could leave a design legacy which will continue to empower people long after we are gone," she says.

Leibrock maintains that many of the existing accessibility codes and standard practices segregate by design. She notes that ramps often force people with disabilities to take one approach while everyone else takes another. "Ramps are also more difficult for older people with reduced balance or mobility, and over two-thirds of wheelchair users cannot negotiate a code compliant ramp with a 1:12 slope and a 30-foot length. A gradual site slope of less than 1:20 is a much better universal design solution."

Much of her research has centered around health care design, working with older residents to test products and design concepts in her offices in an assisted living facility. She notes that the concept of a continuing care retirement center is not an example of universal design. Leibrock says, "The idea that people have to move from level to level as their health deteriorates sets up segregation. For example, independent living will not dine with assisted living. The model constantly reinforces deteriorating health as residents are "demoted" to another level of care. Europeans don't think it's okay to live in a health care facility. Health care in Europe is portable enough to

bring to the home." She has conducted research at a Dutch apartment complex which has been universally designed to guarantee residents will never have to go to a nursing home, and the cost is less than the price of a skilled nursing facility.

She, along with Julia Child are among the advisors for the Universal Kitchen Project at the Rhode Island School of Design. The first is a compact version that is moveable; the second is a medium-sized and priced kitchen; and the third is a top of the line kitchen. When completed, all three will be displayed at the Cooper Hewitt Museum of Design in New York as part of the "Unlimited by Design" an exhibit opening in November 1998.

Leibrock is a featured speaker at the **Designing for the 21st Century: An International Conference on Universal Design, June 18-21 at Hofstra University in New York**. The conference, sponsored by Adaptive Environments Center, Center for Universal Design, Hofstra University and *Universal Design Newsletter*, will highlight universal design in information, products and environments. For more information, contact Adaptive Environments at 617.695.1225 ext. 0 (v/tty) or visit the conference web site at [www.adaptenv.org/21century/](http://www.adaptenv.org/21century/). 

*"Many of these buildings will be in use for 50 years or longer. If not designed universally, we could be disabling people for decades, or we could leave a design legacy which will continue to empower people long after we are gone."*



This "barrier-free" kitchen is designed with equipment from Whirlpool Home Appliances.

## Visitable Houses, from page 1

- At least one no-step exterior entrance (at the front, side, or back of the dwelling).
- 32-inch clear minimum interior doors.
- Reinforced bathroom walls to accommodate grab bars, if needed at some point by the resident.
- All electrical outlets at reachable heights -- between 15 and 48 inches from the finished floor.

According to Access Living literature, "Having basic accessibility features in new homes enables everyone, including people with temporary or permanent mobility impairments, to live more safely and independently in their homes as well as to visit the homes of others."

The group maintains that cost of incorporating these features ranges from zero to \$200 per home. The chief opponent of the measure is the HBAI. The home builders argue that there is no consumer demand for the features and that to incur the increased cost without the demand would be unreasonable. They estimate the cost of such additions to be \$1,500

See Visitable Houses, page 7

## Design Software

Designing Accessible Environments multi-media computer software, produced by the State University of New York at Buffalo, the Center for Assistive Technology and the Center for Inclusive Design and Environmental Accessibility, is an interactive training tool designed as an introduction to accessibility.

Through the structured exercises, problems and comprehensive tests, this practical presentation includes discretionary recommendations on accessibility codes, (e.g. not all recommendations are found in the accessibility codes and not all the codes are included).

For more information, contact RERC on Aging-SUNY at Buffalo and Center for Inclusive Design & Environmental Access, School of Architecture and Planning-University at Buffalo, Buffalo, NY 14214; phone, 716.829.3485 ext.329; e-mail, [idea@arch.buffalo.edu](mailto:idea@arch.buffalo.edu).

## Visitable Houses, from page 6

to \$2,500 in a 2,000-square-foot house. The home builders believe that the industry should and will respond to market forces. "It is our position that a mandate of this nature would be contradictory to the free market system under which the housing market currently operates," said Chris Kratzer, assistant governmental affairs director for HBAI.

"Builders are in the business to sell homes. In discussions with our members, I have yet to find a builder who would not outfit a new home with any and all necessary accessibility accommodations a buyer might need or desire as a result of physical impairment or disability," said Kratzer.

The demand for such accommodations may be just around the corner as America's baby boomers continue to age.

Similar legislation is already in place in Atlanta. In 1993, Atlanta passed a city ordinance that requires at least one zero-step entrance to a home and all interior passage doors including bathrooms with 32" clear opening width.

Concrete Change Inc., the group that pushed for the measure in Atlanta, maintains that a home's marketability is enhanced by its visitability features. "People who particularly need the access features find house hunting simplified while others view these additions as amenities," according to Concrete Change.

Similar legislation is being pursued in Georgia and Wisconsin. 

## Access Prohibited? Information for Designers of Public Access Terminals

This booklet, written by John Gill, is for public access terminal manufacturers and service providers to encourage the adoption of accessibility standards and to inform them of the number of people with disabilities and the problems they face. It includes recommendations regarding public access terminals in the following areas: card systems; external features; labels and instructions; screens and interaction; operating instructions, keypads and touch screens; retrieving money; cards and receipts; and typefaces and legibility. Also included in this booklet are lists of related publications and websites.

For more information: Dr. John Gill, Chief Scientist at Royal National Institute for the Blind, 224 Great Portland Street, London WIN 6AA, England; phone +44.171.388.1266; Fax +44.171.388.7747; E-mail [jgill@rnib.org.uk](mailto:jgill@rnib.org.uk).

## Changing Needs, Changing Homes: Adapting Your Home to Fit You

Developed by the American Occupational Therapy Foundation Inc., and the American Occupational Therapy Association Inc. in cooperation with the Center for Universal Design with support from the Retirement Research Foundation, this 15-minute video and resource guide is directed at older consumers and their care-givers, housing design professionals, remodelers, and occupational therapy practitioners. It is intended as an instructional tool for people interested in home modification.

This educational packet explains and identifies housing problems and solutions associated with the difficulty and dependence experienced by people who are older performing routine household activities. Also included are: a bibliography; a guide to products and vendors; financing information; occupational therapy state contacts; a list of regional and state offices of the American Association of Retired Persons; information on state funding; and a list of local chapters of the National Association of the Remodeling Industry.

For more information, contact the American Occupational Therapy Foundation and American Occupational Therapy Association, 4720 Montgomery Lane, P.O. Box 31220, Bethesda, MD 20824-1220; phone 301.652.2682 (v); 800.377.8555 (tty); Fax 301.652.7711. 

*This educational packet explains and identifies housing problems and solutions associated with the difficulty and dependence experienced by people who are older performing routine household activities.*

Changing Needs,  
Changing Homes:  
Adapting Your Home to  
Fit You

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**?** **Problem:** How can a museum design its exhibits so that they are easily approached and viewed by people who are standing as well as those who are short or use wheelchairs?

**TIP:** The Red Hill Visitor Center of the Saguaro National Monument in Tucson, Ariz. has created displays that allow a close approach by a person using a wheelchair and yet have information that is displayed on a tilted surface so that it is viewable by short and tall visitors.



**?** **Problem:** When renovating a hotel guestroom bath for accessibility, how do you satisfy guests who want grab bars on both sides, as well as the ADAAG requirement for a clear floor space beside the toilet?

**TIP:** In their effort to provide readily achievable accessibility enhancements, the Goodwin Hotel in Hartford, Conn. installed a fold down grab bar on the open side of the toilet. This solution provides the guest with a choice of either having support on both sides of the seat, when it is needed or leaving the space open for unobstructed side transfer to the toilet.



## The Front, from page 4

*Pastoral Symphony* or the latest tour of the *Rolling Stones*, regardless of venue capacity. Different assembly events may create radically different demands for the types and locations of accessible seating, and these considerations must be part of the design and construction of assembly occupancies if our standards, codes and accessibility laws are to be met.

Congress clearly expressed its intent in passing the ADA by stating that “no individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodations.” Forcing wheelchair-using patrons to sit in the front row of a movie theater mocks both the “equal” and “enjoyment” provisions of the law, creating an inequity that theater owners and designers would do well to consider as new movie complexes spring up across the country. At least one company has found a way to locate wheelchair seating midpoint in the theater, providing an acceptable compromise between the front-row or back-row options afforded by its current competitors and older theater design. Other developers would do well by following (or improving) this example.

It is no secret that the design of accessible assembly areas has become the most contested aspect of the new construction requirements of the ADA. Prospective plaintiffs (and their attorneys) are already making inquiries regarding the tiered seating now favored in movie theater design, and the industry’s proclivity to stick wheelchair users among the 12- year-old rabble in the front row begs intervention by either the courts or federal rulemakers. In EPVA’s opinion, theater owners and designers can and should rethink their provisions for accessible seating now and provide the equality and enjoyment for all theater goers envisioned by the law. □

### Clarification

The October 1997 issue of *Universal Design Newsletter* (Vol. 3, No. 4) referred to a Federal Communications Commission rule that requires all phones manufactured in the U.S. after 1989 be compatible with hearing aids. The correct citation is: Section 68.112(b)(5) of Part 64 of Title 47 as amended. The actual criteria that the phones must meet is found in Section 68.316. Thanks to Jim Abrams of the California Hotel & Motel Association for bringing this to our attention.



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**PRODUCTS**

**Ezcom Pro™**

The Ezcom Pro from Ultratec is a TTY designed to connect directly to a standard telephone line and with an appropriate adapter, it is compatible with some cellular phones.

Because the device does not require acoustic cups, it offers a sleek profile and lightweight portability. Standard features include direct dialing from the keyboard, Turbo Code™ for more natural conversations with interrupt capability, a two-line 48-character display, programmable one-touch greeting to answer calls, last number redial, and a relay service dial key.



This TTY also offers up to 40 hours of battery life, a 20-name dial by name directory, and Auto ID™ to alert those being called that the call is being made via a TTY. An optional phone stand is available to enable the device to be stored underneath a voice telephone.

**Universal Ramp Systems®**

Universal Ramp Systems, from REDD Team Manufacturing Inc., are prefabricated, commercial-grade modular ramp systems designed for use in permanent and temporary applications.

The modular design enables the ramps to be moved or reconfigured as needed. Each system includes ramp sections, landings, legs, and handrails. Ramp height and slope are adjustable.



**Slip Tech Safety Floor Treatments**

Slip Tech Safety Floor treatments are designed to make most stone and tile floor surfaces meet the coefficient of friction criteria suggested by the Americans with Disabilities Act, whether the surface is wet or dry. The treatments work on both level and inclined surfaces and are applicable to ceramic tile, most stone surfaces, agglomerates, and concrete; they cannot be applied to wood, vinyl, or epoxy floors. Slip Tech increases the slip-resistance of the floor by a micro-etching process. Although the floor does not appear rough to the eye, the process creates hills and valleys in the surface. When a shoe makes contact with this surface when wet, water is evacuated to create a suction and greatly reduce slipping. The manufacturer warrants the process for five years and states that applications generally last 10 years.

**The Click 'N Clean Mop**

O-Cedar's Click 'N Clean Mop is a lightweight mop designed to eliminate bending and manual wringing from household mopping chores while completely eliminating dirty water from the yarn mop head. A wringing mechanism on the handle clicks and locks each time it is turned, with each turn further wringing water out of the mop. Once the mop is wrung out, the user needs only one hand to hold the mop upright and push the release button to return the mop head to mopping position.



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**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.**

## Immersion, from page 5

front and back of the house, but also near the center off the side aisle that has two exits.

- Medium-sized, stadium seating theaters with wheelchair positions located three to five aisles away from the screen behind the first third of the seating area.

- Medium-sized theater with flip up seats and additional aisle spacing providing an accessible route to a centrally located pair of wheelchair locations.

- Very large theaters with positions on an accessible seating aisle in a minimum of two locations. The first location is behind four to six rows from the screen at the base of the stadium seating riser system and the second location at the top level of the stadium seating riser system.

In the AMC Orlando project, several large stadium style theaters are grouped together and are accessed via a second story that has elevator access and two means of egress. The second floor access, balcony and atrium become a dramatic architectural feature and a hub of activity within the complex.

The complex has a centrally located, guest-ser-

vices counter, where one obtains general information and assistive listening devices. Also, the theater's employees include people with disabilities. Wheelchair disbursement concepts were also tested in the UA Theater Expansion in Burbank, Calif. to provide better solutions for the guest experience from a wheelchair location.

### The Proposed New ADAAG

The U.S. Architectural & Transportation Barriers Compliance Board (Access Board) convened an Advisory Committee to propose a revision to ADAAG and make it a state-of-the-art document, while harmonizing with the ANSI A117.1. The proposed new ADAAG includes a new method of determining wheelchair disbursement in assembly occupancies. The proposal is based on the concept of wheelchair clusters or groups. The proposal defines the rules for dispersing the location of these clusters, by level, seat and aisle spacing. The concept was developed as a mechanical and repeatable method of determining wheelchair dispersion.

Employed at the recently renovated Shubert Theater in Los Angeles, these wheelchair positions on a "common path of travel" concept (as permitted by the National Fire Protection Association) placed several wheelchair positions in the near center of a large orchestra seating section. That coupled with balcony and box seating provided for choice "sweet-spot" seating for this performance theater.

The proposed ADAAG requires two direct means of egress from every wheelchair position. Consequently all wheelchair positions are restricted to the outside perimeter of seating sections, or are limited to the front or back row, if they are directly served by an aisle having two ways out. Under this rule one could conclude that most theater balcony and box seating sections would not be permitted to have wheelchair locations due to the "two ways out" rule.

The proposed ADAAG's scheme for wheelchair disbursement should be given a fair chance at the plate. It should be actively tested by architects in a variety of theater-type venues. This type of real world testing is critical for the accessibility, rulemaking process. Finally, the evolution of design in the AMC, UA and Shubert theaters are prime examples of performance-based solutions. The current ADAAG rule, ANSI standard, the DOJ Stadium memo, and DOJ Consent agreements and law suits have failed to provide effective, prescriptive design requirements for accessible design in assembly occupancies. 

**The proposed ADAAG's scheme for wheelchair disbursement should be given a fair chance at the plate. It should be actively tested by architects in a variety of theater-type venues.**

### Designing for the 21st Century: An International Conference on Universal Design of Information, Products and Environments

June 18-21, 1998

Hofstra University,  
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Keynote presenters include: **Donald Norman**, author of "Design of Everyday Things"; **Roger Coleman** of DesignAge, Royal College of Art; **Patricia A. Moore**, Guynes Design; **Ron Mace**, Center for Universal Design; and **Frank Bowe**, Hofstra University.

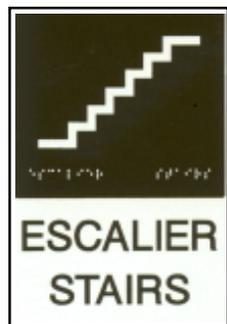
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# Pictograms, from page 1

shape). Two different testing sites were used. Two members of the blind community acted as recruiters, one French and the other English. A total of 240 consumers were contacted to obtain 102 participants. All participants were legally blind, 40 percent of whom were Braille readers and over 66 percent were adults.

The most significant finding in the study was the difficulty many participants had in identifying the meaning of the pictograms. This was particularly true for congenitally blind participants who had not ever come across symbols and pictograms that are familiar to those with sight. Some of the abstract symbol pictograms had to be carefully explained.



This Braille and tactile sign was manufactured by Eye Catch Signs Limited, 888.8401997

Some participants guessed that the symbol for stairs represented "lightning" while others guessed that the symbol for women was "an arrow." The symbol that caused the most frustration was the wheelchair with some people guessing it might represent "a toilet bowl." Participants expressed surprise, as this was their first introduction to an abstract symbol. Scores throughout the evaluation reflected partici-

pants' general delight at having signage that had been designed to meet their needs.

- The visual quality of the signs, both the lettering and the pictograms was rated very well.
- Participants found the tactile quality of the signs to be acceptable but expressed a desire to have the spacing of the letters slightly increased.
- Preferences for color contrast were tested in two locations. Black was the preferred color contrast in both the higher and lower illumination areas. But people with extremely limited vision rated the royal blue color higher.
- The quality of the Braille on the signage prototypes was rated high and the size judged "adequate."
- A series of pictograms was evaluated for visual and tactile legibility and understandability. Those pictograms with the wheelchair accessibility symbol were judged to be more difficult to decipher.

The research team recommended that a public education program be developed to introduce symbols and pictograms to members of the visually impaired community. The Canadian government has adopted a new standard for tactile signs and developed a communications plan to raise awareness of the signage system within both the general public and federal government.

Betty Dion is president of Betty Dion Enterprises Ltd., a research and consulting firm. (613.725.0566; bettydion@mail.intranet.ca.)

**The symbol that caused the most frustration was that of the wheelchair with some people guessing it might represent "a toilet bowl."**

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

**Jan. 12-14: The US Architectural & Transportation Barriers Compliance Board** will hold its bi-monthly meeting in Washington, DC. For more information contact the Access Board at 202.272.5434 (v); 202.272.5449 (tty).

**Jan. 21-23: Travelers with Disabilities: The Untapped Market** will be held in Washington, DC under the sponsorship of the President's Committee on Employment of People with Disabilities and the Paralysis Society of American. Presenters will include staff and board members of the U.S. Access Board and the Paralyzed Veterans of America. For more information, call 888.633.2403.

**Feb. 10: Stadium Seating Movie Theater Access Initiative.** The Florida Board of Building Codes and Standards will conduct a design charrette in Orlando, FL with invited design professionals representing disability advocacy groups and the theater industry to investigate accessibility solutions for tiered stadium seating movie theaters. The results of its work will be open to the public at the end of the day. For more information contact: the Department of Community Affairs 850.487.1824.

**March 9-10: The US Architectural & Transportation Barriers Compliance Board** will hold its bi-monthly meeting at a site to be determined. For more information contact the Access Board at 202.272.5434 (v); 202.272.5449 (tty).

**March 17-21: Los Angeles Technology and Persons with Disabilities** will be presented by the Center on Disabilities of the California State University,

Northridge. Dennis Cannon and June Kailes will be making presentations. For more information, contact 818.677.2578 (v/tty).

**March 30- April 1: Understanding Texas Accessibility** will be held in Dallas to explain the relationship between the Americans with Disabilities Act Accessibility Guidelines and the Texas Accessibility Standards. Marsha Mazz and David Capozzi of the U.S. Architectural & Transportation Barriers Compliance Board will be presenters. For more information contact 202.272.5434 (v); 202.272.5449 (tty).

**May 17-20: Home Safety and Universal Design at the Fourth World Conference on Injury Prevention and Control**, to be held in Amsterdam, the Netherlands, will deal with the links between injury prevention and universal design. For more information, contact [www.consafe.nl/conference/](http://www.consafe.nl/conference/) or contact Van Namen & Westerlaken Congress Organization Services PO Box 1558 6501 BN Nijmegen, the Netherlands or phone +31.24.323.4471

**June 18-21: Designing for the 21st Century: An International Conference on Universal Design of Information, Products and Environments** will be held at Hofstra University, Long Island, N.Y. The three-day conference will be packed with informative sessions. Many of the event's speakers are internationally known for their work in universal design. Conference sponsors are: the Adaptive Environments Center, the Center for Universal Design, Hofstra University and *Universal Design Newsletter*. For more information, check the website at [www.adaptenv.org/21century](http://www.adaptenv.org/21century) or call 617.695.1225 ext. 0 (v/tty).

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