

Classroom Acoustics

By David Lubman, FASA

Why are good acoustics often overlooked when trying to universally design classrooms? No one would think of teaching in a dark classroom. No one would use textbooks in which every third word is deleted. Yet the acoustics in many classrooms today are so marginal that many students cannot accurately hear much of what is being said.

Currently, there are no generally recognized standards for classroom acoustics in the United States. This has led to acoustic neglect, for few designers are trained in the basics of acoustic design. This would not be tolerated if schools were required to meet acoustic standards, as they do lighting standards.

Acoustics and Universal Design

Because of the universal benefits of good acoustics, the universal design movement provides a timely opportunity to promote better acoustics in classrooms and elsewhere.

A common misunderstanding is that only a small group is impacted by poor classroom acoustics. To the contrary, good acoustics benefit everyone. In fact, the benefits more than justify the cost. For example,

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Ralph Rapson: Universal Visionary Ahead of His Time



Cedar Square West in Minneapolis, first occupied in 1973, still represents a balanced blend of subsidized, student, elderly and high-income housing.

Ralph Rapson—renowned architect, artist, furniture designer and educator—has always believed that architecture is first and foremost about the people who use it. His basic belief about incorporating people into the design process has helped to set the stage for what today is the universal design movement.

Throughout his career, Rapson has embraced European modernism, with its simple, sleek, straightforward structures. Some of his more noteworthy design projects include: the embassies in Stockholm and Copenhagen; Cedar-Riverside, a high-density, accessible urban housing development (*see related story on page 4*); the Guthrie Theater in Minneapolis; and experimental housing projects such as the Glass Cube, an abstract, geometrical composition of glass and steel.

Early in his career, Rapson discovered a gift for teaching. This led to a 30-year tenure (from 1954 to 1984) as the head of the University of Minnesota's School of Architecture and Landscape Architecture.

Notes former student John Salmen, AIA, president of Universal Designers & Consultants Inc., "Ralph Rapson has affected the professional lives of thousands of architects and the quality of countless buildings through his visionary designs and educational efforts. As the dean of the School of Architecture at the University of Minnesota, he quietly advo-

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COMMENTARY

Universal Design: Another Viewpoint

Universal design is not a set of inflexible rules. Its proponents, while recognizing the value of standards such as the ADA [Americans with Disabilities Act] Accessibility Guidelines, realize that compliance alone does not guarantee accessibility for all people. Instead, universal design focuses on the complicated interrelationships that exist between the physical environment and the users.

Universal design incorporates the general principles of its predecessor—barrier-free design—which emphasized the removal of physical barriers and the creation of specially designed features for people with disabilities.

Unlike barrier-free design, however, universal design is not based on the assumption that wheelchair-accessible facilities are, by their nature, accessible to individuals with other disabilities. For some, wheelchair-accessible features can even be hazardous.

Universal design avoids these types of limitations by incorporating a more comprehensive view of human needs and abilities. We believe that the following four commonly held goals provide the basis for the universal design movement.

1. Accommodate human movement characteristics. Universal design addresses three aspects of human movement: body space, reach range and effort.

- ◆ Body space represents the area immediately surrounding a person and any mobility aid that she or he may use. In other words, it's the space needed to move through an environment. Acces-

sible design requirements for clear space, such as vertical clearance and minimum width, are related to maneuvering space.

- ◆ Reach range represents the distance users can reach to retrieve an object. These ranges are used to determine where items should be placed in order to be accessible.

- ◆ Effort represents the physical exertion required to perform a function, such as flipping a switch or ascending a ramp. The required level of effort is determined by the dexterity (i.e., the required degree



FROM THE PUBLISHER'S
DESK

"While the Seven Principles of Universal Design, developed by North Carolina State University, have gotten a lot of press, we at *Universal Design Newsletter* believe that it is critical to explore other viewpoints, especially when they come from practicing professionals such as MIG. For that reason, we have printed their perspective on universal design in this—our last issue in the 20th Century."

— John Salmen
Universal Design Newsletter Publisher

of manipulation), force and the sequence of steps needed to perform the function.

2. Ensure safety. When facilities are designed to accommodate the way people work and move through their environments, obstructions and hazards are minimized. A well-designed pathway, for example, provides a smooth and secure path of travel for someone who is walking, using a wheelchair or carrying a bulky item.

3. Provide adaptability. Facilities must be planned with both present and future needs in mind to accommodate constant changes in population, technology and building regulations. Every aspect of a facility should be designed for maximum flexibility and use by the broadest spectrum of people.

4. Be cost-effective. Affordability and cost-effectiveness are valued in universal design. Expenses are reduced when designs accommodate the easy rearrangement, addition or removal of structural elements, rather than requiring constant retrofitting or renovation. Furthermore, the selection of products based on the general requirements of human movement eliminates the need to purchase costly specialized equipment. Lever-type door handles, for example, are not significantly more expensive than other types of handles, yet they make doors easier to open for all users.

This Guest Editorial was written by Moore Iacofano Goltsman (MIG)—recreation specialists, landscape architects, social scientists, planners and communication professionals in Berkeley, Calif. ■

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FCC Enacts Major Telecom Ruling

The Federal Communication Commission (FCC) has ruled that manufacturers and service providers will be required to design telecommunications equipment and services with the needs of people with disabilities in mind. As a result, people with disabilities will soon have access to a broad range of products and services that they cannot use today—such as telephones, cell phones, pagers, call-waiting and operator services.

According to FCC Chairman William E. Kennard: “Today’s action represents the most significant opportunity for people with disabilities since the passage of the Americans with Disabilities Act in 1990...Now, just as persons with disabilities can navigate our public streets because of the ADA’s requirements for curb cuts, all our citizens can navigate the information superhighway without confronting barriers that stop them cold.”

He says that the benefits of increased accessibility to telecommunications are not limited to people with disabilities. Just as people without disabilities benefit from the universal design principles in the ADA and the Architectural Barriers Act (e.g., pushing a stroller over a curb cut), people without disabilities also will benefit from accessible telecommunications equipment and services.

He noted that the new rules are flexible, and that changes must be readily achievable.

The FCC’s action addresses Section 255 of the Telecommunications Act of 1996. In developing these rules, the FCC relied heavily on the U.S. Access Board’s guidelines for equipment developed pursuant to Section 255, and on discussions with numerous disability and industry groups. For more information, see: <http://www.fcc.gov/> or <http://www.trace.wisc.edu>.

Accessibility of Housing in Chicago

The developers and architects of two Chicago-area housing developments have resolved allegations by the Justice Department that they violated the Fair Housing Act by not providing accessible housing to persons with disabilities.

The cases, filed in U.S. District Court in Chicago, allege that the developers and architects failed to include required features that would have made the units more accessible. These include: accessible common areas, accessible routes into and through the units, doors wide enough for wheelchairs and bathrooms that can accommodate grab bars.

Under the agreement, the defendants must retrofit the public use and common areas, modify future housing development plans to comply with the Fair Housing Act and build additional units in compliance with the act to make up for the non-compliant units

already built. For more information, contact the Justice Department at: 202.514.2007 or visit: <http://www.usdoj.gov/>.

Accessible Exterior Surfaces

To develop guidelines on accessible ground and floor surface materials, the U.S. Access Board recently had a subcontractor test nine different exterior surfaces. In accordance with the Americans with Disabilities Act Accessibility Guidelines, exterior surfaces must be stable, firm and slip-resistant.

A new, portable surface measurement device that can rate surface firmness/stability (a rotational penetrometer) was used. The study found a strong correlation between the measurements of this device and the amount of energy that people with disabilities use to traverse various surfaces.

Results indicate that under dry conditions, paved surfaces, path fines (with or without stabilizer), unpaved road mix and packed soil surfaces require the least amount of energy. Wood surfaces (chipped brush, wood chips, engineered fibers) and sand reportedly require the most energy. For more information, contact the Access Board at: 800.872.2253 (800.993.2822 tty); or at: www.access-board.gov.

Accessible Public Rights of Way

An advisory committee has been created by the U.S. Access Board to consider access to public rights of way, such as sidewalks, curb ramps and cross walks. The group will develop recommendations that the Board will use to propose new guidelines that will supplement the Americans with Disabilities Act (ADA) Accessibility Guidelines.

The Board previously proposed guidelines in this area during rulemaking for state and local government facilities under Title II of the ADA. Based on public comments, the Board has decided to coordinate its efforts with the transportation industry, including standard-setting organizations, before proceeding with the final guidelines. For more information, contact the Access Board at: 800.872.2253 (800.993.2822 tty); or at: www.access-board.gov.

Guidelines for Recreation Facilities

The U.S. Access Board has proposed accessibility guidelines for recreation facilities. Once finalized, they will supplement the Board’s Americans with Disabilities Act Accessibility Guidelines (ADAAG), which cover the construction and alteration of facilities in the private and public sectors.

While ADAAG addresses various types of facilities, it does not specifically address many recreation facilities in detail. The proposed rule covers a vari-

People with disabilities will soon have access to a broad range of telecommunications products and services that they cannot use today.

Ralph Rapson, from page 1

cated for buildings for people—all people—well before such thinking was fashionable.”

Following is *UDN's* interview with Ralph Rapson—a visionary of universal design.

UDN: What drew you to European modernism when you first started practicing in the early 1940s?

Rapson: It was a new kind of expression and style of design that reflected our emerging technological, industrialized world. It was based on the involvement of people in the design environment, very much like what we today call “universal design.” That is, designing structures that are built to serve people, to provide them with a better life.

Looking back, modernism grew in this country almost to the point where many designs lacked any kind of uniqueness. Then, we moved into the post-modern period, where classicism was once again being expounded. In a sense, with the current universal design movement, we're now returning back to the original principles that the early modernists used to believe.

UDN: Is there a central theme in all of your designs?

Rapson: Yes. The notion that you have to design with the end user in mind.



Ralph Rapson received the Topaz Medallion for excellence in architectural education

The Cedar-Riverside urban-renewal project, which is located in one of the oldest working class neighborhoods of Minneapolis, had accessibility in mind before the concept became fashionable or was required.

The goal of the project was to accommodate a large community of individuals—diverse in income, culture, race, age and need—in a high-density, central city environment.

Under Rapson's original master plan, Cedar-Riverside would have been home to some 30,000 people from all walks of life. It would have contained 12,500 dwellings, 1.5 million square feet of commercial space and 56 acres for parkland within five “neighborhoods.” Despite the expansiveness of the project, however, planning focused on the individual as part of the whole, with the design of each neighborhood based upon the needs of its residents.

Harsh fiscal realities, unfortunately, forced a

UDN: What are some of your favorite projects?

Rapson: One of my favorites is the Greenbelt House, which was designed on a constricted urban lot in Chicago. A belt of greenery was created to run through the house, creating a view of nature where previously none existed. On one side was the more active living; on the other side, the more passive living (sleeping, etc.). It was an atrium house designed for a family that didn't have the opportunity to move into beautiful suburbia.

Other favorites are the Cave House—a forerunner to the earth-sheltered structures that gained popularity in the 1960s—and the Fabric House, in which rolled, insulated fabric was used with a steel structure. It's an affordable building method, particularly when enclosing large spaces.

UDN: What are your views about architecture today?

Rapson: I have seen some exciting, innovative designs. At the same time, one of the problems plaguing our U.S. cities is the lack of social commitment exhibited by the design community.

In some cities, we're seeing explosions of unique, individual ego trips. Exploration and uniqueness is necessary—you need some of that. But the total concept is a lot more important than the individual buildings. We should direct our efforts to being responsible in our design, to the neighborhoods and

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Cedar-Riverside: Accessible Urban Housing

considerable scaling-back of the project. The result? Cedar Square West, which today consists of 15 buildings varying in height from two to 40 stories. Containing some 1,299 apartments ranging from low-income to luxury, all buildings are linked by climate-controlled pedestrian walkways. The parking lot is underground, with commercial, daycare, education and healthcare facilities ringing an elevated, landscaped public plaza. Accessibility was built into the project.

Cedar Square West, the first federally funded “new town-in town” in the United States, has won a series of awards, including an American Institute of Architects Bartlett Award, Design for the Handicapped. It welcomed its first residents in 1973.

Additional information about Cedar-Riverside, as well as hundreds of photographs and illustrations of Rapson's architectural works over the years, can be found in, Ralph Rapson: Sixty Years of Modern Design. This 256-page book is available from Afton Historical Society Press. For more information, please call 800.436.8443 or e-mail: aftonpress@aftonpress.com.



"We should direct our efforts to being responsible in our design, to the neighborhoods and to the people living in and working around the structures."

—Ralph Rapson

NORWAY: Universal Design in Master Planning

In 1998, the Norwegian government launched a four-year program to make accessibility a key issue in master planning, thus elevating technical accessibility details to a high-level, coordinated "urban design" policy issue.



Old Oslo, a central part of the city, demonstrates master planning with integration of services and

In the past in Norway (like many other countries), the implementation of accessibility was relegated to a low prestige, fragmented, end-product concern in a few pre-defined areas. Now, however, the Ministry of the Environment and the Norwegian State Housing Bank are planning to introduce universal design (design for all) as an aspect in the basic education of planners. To that end, five universities and colleges are developing universal design curricula.

In the government's program, universal design serves as a fresh strategy for developing integrated thinking, and making students and professors stretch for new approaches. The universal design concept offers a framework to handle many accessibility features. These conditions fall in line with current planning premises, such as high-quality pedestrian areas, acoustics and noise, perception and design of urban environments, and pollution control.

For more information about the government's four-year program, contact Olav Bringa at: olav.bringa@sveiva.telemax.no. Or, review the website at: <http://odin.dep.no/md/pfa>.

THAILAND: Six Asian Nations Address Internet Accessibility

Representatives from six Asian states—Indonesia, Lao People's Democratic Republic, Philippines, Singapore, Thailand and Vietnam—participated in an action-oriented, week-long Internet Accessibility Workshop in Bangkok, Thailand.

The International Presentation Team explored the implications of designing and implementing accessible Internet-based resources. Directed by Leo Valdes, with the Vision Support Office in Canada, the team also used lectures, multimedia CD-ROM presentations and distance collaboration (i.e., Internet "chat") to discuss Internet-related information policy, technology, structural issues and trends.

The group reviewed a draft of a strategic framework that would promote Internet accessibility by, for and with persons with disabilities appropriate to conditions among the members of the Association of Southeast Asian Nations (ASEAN). The evaluations

identified a desire for local seminars to be held in each member country.

The workshop was sponsored by the Secretariat, ASEAN, in cooperation with the National Institute of Development Administration of Thailand (NIDA). The Division for Social Policy and Development, United Nations Secretariat, in collaboration with the Social Development Division of the Economic and Social Commission for Asia and the Pacific, provided substantial assistance in developing the program. For more information, see: <http://www.worldenable.net>. Or, e-mail Valdes at: lvaldes@istar.com or Linda S. Posadas, ASEAN secretariat, at: linda@asean.or.id.

UNITED KINGDOM: Students Honored for Universal Designs

A car roof frame that enables people to lift large, heavy objects (such as bicycles) onto the rooftop and an easy-to-grasp electrical plug were among 22 universal design projects inspired by DesignAge and selected for the 1999 Royal College of Art Senior Show.



Student Martin Bloomfield designed this easy-to-grasp plug handle that fits most outlets.

DesignAge and the Helen Hamlyn Research Center, directed by Roger Coleman, provided the design challenge and the resources to students, who

created innovative solutions that take into account the "lifestyle, needs and aspirations of older people."

User forums were organized to allow entrants to test and develop their ideas on older consumers. The Helen Hamlyn database—a special collection of age-related material—also was available to students, so that entries could be grounded in solid research and understanding of user needs.

For more information, see: <http://DesignAge.rca.ac.uk/>.



Royal College of Art students discuss their innovative products with older consumers.

U.K. Royal College of Art students produced various innovative designs geared toward older consumers.

"World Update" is written by Elaine Ostroff, founding director of Adaptive Environments Center. If you have information about international universal design efforts that you would like to see published in *Universal Design Newsletter*, send it to: 6 Grant Ave., Takoma Park, MD 20912; or via e-mail at: UDandC@erols.com.

Universal Playground Embraces *All* Children

By Grace E. Fielder, ASLA, AICP, CLP, CPSI

Where can children—regardless of their ability—play in a safe, yet enjoyable environment? At Hadley's Playground, located in Little Falls Park, just outside of Washington, D.C., in Montgomery County, Md. Built to replace an inaccessible play area, Hadley's Playground was designed with all levels of use in mind.

The playground is split into theme areas—a castle, pirate ship and frontier town.

The castle, surrounded by a “moat,” contains “drawbridge” ramps that cross the moat and lead into the castle. The moat flows out of the playground into an area that contains reed grasses. The pirate ship, which “floats on an ocean,” includes a wheelchair-level globe so that children can “view the world.” The frontier town is accessible by ramp.

In addition to the theme park areas, the playground includes picnic tables, alphabet tables and swings with chair seats (so that children can be belted in if needed). The playground has equipment that helps develop upper body strength and that is reachable by children in wheelchairs. This area also contains an alphabet board with each of the 26 letters presented in sanserif type, Braille and sign language.

Another unique feature of this playground is a bus stop, which contains a talk tube, benches with shelters and spring “cars” with steering wheels that are located for easy access to children using wheelchairs. A “roadway” encircles three major elements of the playground, looping around the upper body strength area, castle and bus stop.

Other areas designed for wheelchair use include hopscotch and four-square that have been embedded into the surface of the playground. The surfacing also directs park visitors to other park features.

More than 20 trees from the original park were saved, including a large oak tree at the entrance of



A “roadway” for kids encircles and connects three major elements of Hadley's Playground.

the park. New trees were added to provide shaded areas for the children and their caregivers.

A Look Behind the Scenes

To protect the large oak tree at the main entrance, the entrance to the playground was designed at a 1:16 slope. All of the other walking surfaces have a grade of 1:20 or less. The playground meets or exceeds the standards of the National Playground Safety Institute, pending changes to the regulations of the ADA, Consumer Product Safety Commission and the American Society of Testing Materials.

Safety is a big concern in playground design and construction. To that end, a colorful surfacing of recycled tires was used. It is firm enough for wheelchairs/strollers, yet soft enough to cushion falls.

The depth of the resilient ground surface was adjusted across the playground from 1½ to 3½ inches deep, depending upon the use. However, the surface is very porous, and during the design process, there was concern about the impact that freezing and thawing might have on its durability. Therefore, the surface rests on a concrete base, which slopes at 2 percent to a curb with weep holes and drainage tiles to carry the water off of the playground. Hadley's Playground reportedly is the largest poured-in-place playground project in the world, with more than 40,000 square feet of surface.

The curb around the playground has a 1-inch wheel stop to prevent wheelchairs from rolling off. The base surface of the poured-in-place material is black; the top half-inch of this surface is imbedded with sharply contrasting colors, which is especially helpful for children with visual impairments.

Hadley's Playground was sponsored by Hadley's Park, Inc.—a foundation created by Shelly Kramm in honor of her daughter, Hadley, who has a disability. This group raised funds and obtained matching grants from local and state organizations. Without these donations, the playground would have cost about \$1.2 million to construct.

Grace E. Fielder, ASLA, AICP, CLP, CPSI, is president of Grace E. Fielder & Associates Chartered (GEF), in Laurel, Md. GEF donated its services. The firm prepared concepts, renderings and copyrighted construction drawings, and provided on-site construction observation and shop drawing review. For more information, call GEF 301.470.2544.

The surface of Hadley's Playground is firm enough for wheelchairs and strollers, yet soft enough to cushion falls.





Web Spotlight: The IDEA Center

The Center for Inclusive Design and Environmental Access (IDEA Center) is housed at the School of Architecture and Planning at the University at Buffalo, in New York. The website contains data about home modifications, functional assessments, and universal design testing and development.

- ◆ The Publications section of the website contains universal design materials, videos and slide presentations, and computer-aided instruction in designing for people with disabilities.
- ◆ The Designing Accessible Environments section includes exercises on building system details, accessibility problems and evaluating different environments. A test presents real-world applications.
- ◆ The Home Modifications section contains a "Bright Ideas" gallery that highlights accessible kitchen and bathroom products, ramps, lifts and grab bars. Other products featured include motion sensors, video entry systems and workplace assistive devices.
- ◆ The Fair Housing Resources section covers federal Fair Housing Accessibility Guidelines, Housing and Urban Development (HUD) programs, how to file a complaint through HUD and the U.S. housing code. The site can be found at: <http://www.arch.buffalo.edu/~idea>.

The IDEA Center's website contains data about universal design testing and development.

IBM Offers "Talking" Web Browser

IBM has developed a universally accessible web page browser in its Home Page Reader Version 2.5 for Windows. While the software was developed with blind and low vision users in mind, it offers usability for anyone in a multi-tasking environment.

The software is HTML 4.0-compatible and reads graphical web pages aloud in several languages. With a numeric keypad, on-line help and bookmarks, users can navigate frames, forms, images, image maps, tables, captions and summaries. A male synthesized voice reads the content, while a female voice reads the links. The male voice reads electronic mail through a built-in home page mailer.

Home Page Reader runs best on Microsoft Windows 95, 98 or NT. Users should have an Internet service provider and Netscape Navigator V301 or higher. Questions? Contact IBM Special Needs Systems at 800. 426.4832; <http://www.ibm.com/sns>.

Accessible Home Design Book

The Paralyzed Veterans of America (PVA) has published, "*Accessible Home Design: Architectural Solutions for the Wheelchair User*." Written by architects Thomas D. Davies, Jr. and Kim A. Beasley, this 66-page guide advises people about home remodeling and building.

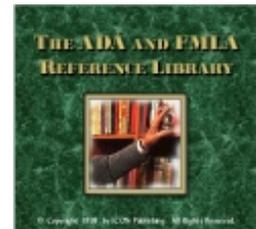
The book covers entrances, multi-level homes, kitchens, bath and toilet room plans and finishes, and bathroom fixtures. Easy-to-read floor plans, diagrams and black-and-white photographs accompany the text. The authors describe the basics of remodeling, stressing the need for functional, aesthetic designs. To order, call PVA Publications at: 888.860.7244.

ADA/FMLA Reference Library

Icon Publishing has compiled information about the Americans with Disabilities Act (ADA) and Family and Medical Leave Act (FMLA) on one compact

disc. Using information from federal and federally funded Internet sites, the CD-ROM includes a full-text search engine, technical assistance documents and manuals, and compliance and enforcement guidelines. The 5,000 pages of text are easily searched, indexed and read using PDF format with the included Adobe Acrobat Reader.

Users can easily search the text to locate specific material on accessibility guidelines for buildings and facilities, transportation vehicles, and a wide range of employment topics. An updated version, targeted for release in December 1999, includes recent U.S. Supreme Court rulings with regard to the ADA. To order, contact Icon Publishing at: 360.757.1770; <http://www.iconpublishing.com>.



Web Accessibility Tutorial

In "*The Web Isn't for Everyone...Yet*," a three-part tutorial featured in *Wired* magazine, author Matt Margolin takes web users on a tour of HTML 4.0. He offers guidelines on creating universal web pages and provides coding examples.

According to Barbara Bode, owner of an Internet promotional campaign business, the tutorial is geared toward making the Web friendlier to people using screen readers, Braille displays and other adaptive devices.

- ◆ Lesson 1 looks at the 1996 Telecommunications Act, the Americans with Disabilities Act and the Web Access Initiative of the World Wide Web Consortium.

- ◆ Lesson 2 discusses coding, links and attributes that simplify keystrokes.

- ◆ Lesson 3 explains stylesheets. Users have a choice of media options, and can link to a speech-based browser, a computer screen or a Braille device. The tutorial closes with web accessibility links.

See <http://www.hotwired.com/webmonkey/html/tutorials/tutorial1.html> for more information. 

Rehabilitation Has Never Been More Fun

A Project from the NEA's Search for Excellence in Universal Design

Design Project:

Rehab 1,2,3, Danbury, Conn.

Designers: David A. Guynes; Patricia A. Moore.

Discipline: Interior Design.

Designed for pediatric rehabilitation patients, their clinicians and families, Rehab 1,2,3 helps everyone who is involved with the patient cope in a therapeutic setting.

Part of the Rehabilitation Center at Danbury Hospital in Connecticut, the colorful, 400-square-foot environment of Rehab 1,2,3 features a draw bridge, cave, interactive pipe organ, climbing wall, basketball courts and therapy balls. The center also includes pneumatic stepping stones and a balance beam log, a trampoline, game table, slide, ball bath and crawling tunnel. There are more than 20 "play" stations in all.

Built with the help of philanthropic contributions, Rehab 1,2,3 accommodates a wide range of preferences, allowing patients to participate in all activities to the extent of their abilities. Use of the play stations is easy to understand, regardless of the user's experience, language skills or current concentration level. "You made me forget that I can't walk, because it doesn't matter here," said one young patient.

Editor's note: This article is one in a series highlighting projects from the National Endowment for the Arts' Search for Excellence in Universal Design and the elements that make them exemplary. The 38 winning projects are documented in "Images of Universal Design," a slide show available from Universal Designers & Consultants Inc. For more information, see: www.UniversalDesign.com or call 301.270.2470 (v/tty). ■



View of some of the play equipment housed in Rehab 1,2,3.

"You made me forget that I can't walk, because it doesn't matter here."

—Rehab 1,2,3 young patient.

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the average new construction costs for classrooms is about \$100 psf. The cost to upgrade classroom ceilings (to NRC 0.75 for reverberation times of about 0.4-0.5 seconds) is about \$0.13 psf or, less than 1/10th of 1 percent of the total construction cost.

Young children are very vulnerable to poor acoustics, which can delay language acquisition and inhibit the development of reading skills. Highly vulnerable groups include those with mild to severe hearing deficits, limited English proficiency and attention deficit disorders.

Teachers and staff are impacted, as well. Studies have shown that there is less student-teacher interaction when classroom acoustics are poor. The need to repeat instructions because students cannot hear reduces teaching time.

It is easy to show scientifically that poor acoustics reduces the intelligibility of spoken words. But there is more to verbal communication. Though hard to show scientifically, poor acoustics inhibits subtlety of expression. It makes the communication of shades of meaning and emotion difficult.

In the absence of national standards, the following performance criteria can help to improve classroom acoustics:

1. Low background noise levels. Spoken words should not be masked by noise. Heating, ventilating and air conditioning units are often the culprits. Central air handling reduces noise, especially when

the air ducts are generously sized to limit the air velocity. Most through-the-wall ventilators and air conditioning units are unacceptably noisy.

2. Low room reverberation. Reverberation can be reduced by applying sound-absorbing treatments to the ceiling, walls or floors so that speech—especially rapid speech—remains intelligible. Sound absorptive treatments also reduce the buildup of noise and help limit sound to the teaching area. Suspended acoustical ceilings can be effective in classrooms of moderate size. Carpeting is a second choice when maintenance and allergy issues are not prohibitive.

3. Sound isolation between classrooms ensures that students are not distracted by the sounds of activities in adjacent classrooms. The best way to achieve this is with properly designed floor-to-floor walls. Well-sealed doors and windows also are important, but they must be maintained to keep their sound-isolating properties. To prevent sound from being carried between rooms via air ducts, the interior of ducts should be lined with a sound-absorbing material that does not adversely affect air quality.

The Acoustical Society of America and groups composed of people with hearing loss are working to develop an American National Standards Institute (ANSI) standard for classroom acoustics within the ANSI S12 Committee's Working Group 42.

—David Lubman, FASA, is an acoustical consultant in Westminster, Calif. He can be reached at: dlubman@ix.netcom.com



PRODUCTS

Design Competition Highlights Senior Products

Each year, the American Society on Aging sponsors a competition to recognize new and innovative products designed for senior adults. Following are some of the 1999 award winners. For more information about the design competition, contact Margaret Wylde, vice president of the ProMatura Group LLC (the competition managers) at 601.234.0158.

Persist Trainer Program

The Persist Trainer Program was given the highest award. It was designed to enable individuals to independently correct urinary incontinence, one of the most profound yet publicly avoided topics in independent living. Designed by Strategix ID, the system has a small hand-held reader that assists the user in performing effective pelvic muscle exercises. The complete kit includes the training device, a progress journal, an informational video, and clinical support via phone and the Internet.



Powered Wheelchair

The Viva mid-wheel drive (MWD) powered wheelchair was designed by Electric Mobility Corp. The MWD places the chair's drive wheels under the seat, at the center, creating a compact wheelchair with a tight turning radius. This chair features an automotive-style spring suspension that can be adjusted to the rider's comfort, a center-mounted seat that swivels for transfers, and a quick-disconnect drive train that makes it easy to transport/service.



Strategix ID
Persist Trainer
 619 North Church Street, Unit 3
 Bozeman, MT 59715
 Ph: 406.585.7909
www.strategixid.com

OXO International
Good Grips Kettle
 75 Ninth Ave., 5th Fl.
 New York, NY 10011-7006
 Ph: 212.242.3333 or 800.545-4411
www.oxo.com

TODA
Good Grips Kettle
 526 West 26th St., 7B
 New York, NY 10001
 Ph: 212.366.4337

ClassCo, Inc.
Talking Caller ID
 99 Airport Road
 P.O. Box 669
 Concord, NH 03302
 Ph: 603.225.2990
www.classco.com

Electric Mobility Corp.
Powered Wheelchair
 #1 Mobility Plaza
 Sewell, NJ 08080
 Ph: 609.468.0270 or 800.662.4548
www.electricmobility.com

Good Grips Uplift Kettle

The OXO Good Grips kettle incorporates the characteristic non-slip grip into a hinged handle that eliminates the need to press a button to open the spout. When the kettle is lifted and tilted forward,

the spout opens automatically. Designed by TODA, this stainless-steel kettle reportedly is built with safety in mind. A two-toned harmonic whistle alerts even hard of hearing users and directs steam away from the handle that is set low and toward the back to reduce the risk of splashing and scalding. The large spout and lid make the kettle easy to fill and clean.



The New Products Column was provided by the ABLEDATA project, a computerized database of information on assistive equipment that is funded by the National Institute on Disability and Rehabilitation Research and administered by Macro International, located in Silver Spring, Md.

News FLASH! AIA Files Amicus Brief

In a startling development, the American Institute of Architects (AIA) has filed a "friend of the court" *amicus* brief with the U.S. 5th Circuit Court of Appeals in support of Cinemark USA, Inc., and supporting reversal of the stadium-style movie theater decision in El Paso, Texas. In that case, the U.S. District Court decided that Cinemark's movie theater in El Paso did not provide comparable viewing angles for persons with disabilities, even though the theater had passed all building code inspections and approvals in a state with a U.S. Department of Justice-certified equivalent building code.

The AIA brief says that the decision "effectively nullifies the certification process and undermines Congress' plan to encourage voluntary compliance with the ADA. In fact, the District Court's decision ensures voluminous litigation against architects, even when local code officials inform the architect that the facility complies with a certified statute."

Talking Caller ID

The Talking Caller ID CIDney 560 CW, designed by ClassCo Inc., allows users to screen their callers without having to read the caller ID display. A mechanical voice announces the caller's identity when the phone rings. Telemarketers and unwanted callers can be identified with the announcement of "number unknown" or "number blocked." The unit also works in conjunction with call waiting by announcing the caller's identification following the call waiting tone. An audible and visual message-waiting indicator is provided for network voice mail. The CIDney 560 CW can be installed on any analog phone line.



FedWatch, from page 3

ety of recreation facilities, including amusement rides, boating facilities, fishing piers and platforms, golf courses, miniature golf, sports facilities, and swimming pools and spas. It provides both scoping requirements, which specify what has to be accessible, and technical requirements, which spell out how access is to be achieved.

The requirements are based on recommendations prepared by the Recreation Access Advisory Committee (representing industry and disability groups), that the Board had established for this purpose. These recommendations can be found in, "Recommendations for Accessibility Guidelines: Recreational Facilities and Outdoor Developed Areas."

The Board has extended the public comment deadline on this proposal to Dec. 8, 1999 (from Nov. 8). After the comment period closes, the Board will revise the rule as necessary (according to the comments it receives) and republish the rule in final form. The guidelines are posted on the Board's web site at www.access-board.gov. Or, copies can be ordered by calling 800.872.2253 (voice) or 800.9932822 (tty).

Franchisors Open to ADA Suits

The U.S. Supreme Court, by refusing to review a lower court's ruling, has in effect endorsed the decision of an appellate court allowing franchisors to be sued when a franchisee is found to be in violation of the Americans with Disabilities Act (ADA). The suit, filed by the U.S. Department of Justice against Days Inns of America (the franchisor), alleges that at least five franchised Days Inns hotels were not built to provide access for guests with dis-

abilities.

A district court judge in South Dakota originally ruled that responsibility for ADA compliance is limited to facility owners, operators, lessors and lessees, and that the ADA did not specify "franchisors" with regard to compliance issues.

The 8th Circuit Court of Appeals in St. Louis, Mo., however, reversed the lower court's decision, stating that franchisors may have some responsibility for the lack of ADA compliance with regard to newly constructed franchised property. This leaves open the possibility for franchisors to be sued whenever a franchisee is found to be in violation of ADA regulations.

According to John P.S. Salmen, AIA, president of Universal Designers & Consultants Inc., lack of specific terminology in the ADA with regard to the responsibilities of franchisors is to blame.

"Without a clear definition of who is responsible, it means a lose-lose proposition. Either no one takes responsibility for accessibility and travelers suffer, or travelers end up paying higher costs for accessible facilities because of a duplication of effort," Salmen explained.

He added, "I think the fact that the Supreme Court would not review this case is extremely noteworthy. It leaves the appellate court's ruling as an important precedent for others to follow."

As a result of the Supreme Court ruling, four of the five Days Inns hotels have reached agreements with the Justice Department to make their hotels more accessible to guests with disabilities. At press time, litigation was ongoing in the fifth case. ■

Ralph Rapson, from page 4

to the people living and working around the structures. I get disturbed when I see each designer trying to out-shout the next.

UDN: What are some challenges designers will face in the coming years?

Rapson: There is an explosion of architects from the U.S. moving into the Asian Rim, designing buildings in places where they don't understand the customs or traditions. Information is available via the Internet, but from an architectural aspect, designers must also consider other influences, such as cultural, social, economic and educational issues. Too many are trying to put their own stamps on structures without understanding the total picture.

UDN: If you could wave a magic wand, what architectural changes would occur?

Rapson: We would understand people and place much better than we have in the past. Someone once said, "If the art of architecture doesn't control the building process, you don't have anything but the plumbing." In the art of architecture, we're often lacking poetry. It's easy to build technically, but we also have to build things that have meaning.

UDN: What advice would you give to a young architect just starting out?

Rapson: It's necessary to acquire all of the technical skills about the design environment, but the important thing is to have integrity, honesty and dedication—not only in your approach to design, but in your approach to life.

Strive constantly to learn, understand people and expand your mind. Don't become complacent. You must study, investigate and understand all of the aspects of the design assignment. Then, you must go beyond that and find a way to get to the real essence of design—to the people who will be using it. ■

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.**

Oct. 14-15, 1999: "Ninth Annual N.C. Assistive Technology Expo." Held in Raleigh, N.C., this event will feature a two-day educational program, as well as adaptive product exhibits. Questions? Call Carol Williams at 919.872.2298 (voice); 919.850.2787 (tty); e-mail: assist@pat.org.

November 1999: The U.S. Access Board provides training to firms, associations, agencies and other groups that must apply Americans with Disabilities Act Accessibility Guidelines to new construction and alterations of buildings and facilities. Training locations in November are: Nov. 1-4: Baltimore; Nov. 1-2: Juneau, Alaska; Nov. 4: Wheeling, W.Va.; and Nov. 16-19, Boston. Questions? Call Peggy Greenwell at 202.272.5434, ext. 34; or visit: <http://www.access-board.gov/>.

Nov. 11-13, 1999: "Third Annual Mission Possible: Building Bridges with Assistive Technology." This event, held in Denver, will examine current technology devices and services, and future trends. Attendees also will explore innovative technology, applications for assessment and intervention, and legislation impacting assistive technology. Questions? Contact Maureen Melonis at 303.864.5100 (voice); 303.864.5110 (tty); e-mail: Maureen.Melonis@uchsc.edu.

Nov. 18, 1999: "Royal Society of Art [RSA] Student Design Awards—New Design for Old." Submissions for this event are invited from colleges within the European Union. Products must improve the quality of life of an older person. Entries should be submitted to the RSA in London. Questions? Contact RSA Design for full details of entry eligibility. Phone: 44-0-171-930-5115; or via e-mail: debbie@rsa-design.demon.co.uk.

Dec. 6-10, 1999: "Universal Design Methods to Include the Widest Spectrum of Users in Park and Recreation." This National Center on Accessibility course, which will be held in Houston, is aimed at designers, architects and engineers from park, recreation, museum, outdoor education and historic environments. Participants will attend an Architectural Track on interior/outdoor environmental design. The registration deadline is Nov. 1. Questions? Call 765.349.9240; e-mail: nca@indiana.edu.

Feb. 1, 2000: "Creating Legible Environments" submissions are due for the student design competition. Selected projects will be exhibited at the "Designing for the 21st Century II, An International Conference on Universal Design," held in Providence, R.I., June 14-18, 2000. See www.adaptenv.org/21century/ for submission requirements or contact: elaineos@ici.net.

Feb. 10, 2000: "Caring Communities for the 21st Century: Imagining the Possible." Held at the U.N. headquarters in New York, N.Y., the event will focus on how technology, tourism and "people-friendly" cities can contribute to multi-generational communities. Questions? E-mail the International Council for Caring Communities at: iccc@undp.org or visit the website: www.un.org/events/agingcf.htm.

June 14-18, 2000: "Designing for the 21st Century II, an International Conference on Universal Design." Held in Providence, R.I., it is sponsored by Adaptive Environments Center and the Center for Universal Design. Check www.adaptenv.org/21century/ for announcements. Questions? Contact: mdilorenzo@adeptenv.org; 617.695.2225.

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