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Evacuation Wheelchair Put to Test

John Abruzzo, a person with quadriplegia who worked in World Trade Center Tower One, is a survivor of the tragic Sept. 11 events. His escape from the 69th floor was made possible by several dedicated co-workers and a revolutionary emergency evacuation wheelchair, the EVAC+CHAIR.

An EVAC+CHAIR was used to evacuate John Abruzzo from the World Trade Center on Sept. 11.

Ten co-workers remained on the floor after the plane hit the building, checking to make sure that everyone from their office had evacuated. According to Abruzzo, a staff accountant for the Port Authority of New York and New Jersey, there was no debate or discussion about helping him down; it was a given to his fellow employees. Although Abruzzo was not sure of the exact location of the evacuation wheelchair, one of the supervisors knew where it was and retrieved it from underneath some boxes in another office.

The Port Authority had purchased 100 evacuation wheelchairs after the 1993 bombing of the World Trade Center. In that 1993 evacuation, co-workers had carried Abruzzo down the 69 flights in his power wheelchair – an effort that took a grueling six and a half hours.

One of the attributes of the EVAC+CHAIR, according to its inventor David Egen, is that it can be used with one assistant. However, since 69 floors is not a "typical" evacuation descent, seven of the 10 employees took turns guiding the chair, usually four men at a time. One of these men had

See Evacuation, **page 4**

Universal Design Then and Now

This year, *Universal Design Newsletter* is celebrating its 10th Anniversary. We will be asking various "movers and shakers" — designers, advocates, attorneys and officials — to reflect on what has happened in the field of universal design over the past decade. Our thanks to Jim Mueller and Lainey Feingold for being the first to contribute to our planned series of articles.

Ten Years of Universal Design

By Jim Mueller

In the first issue of Universal Design Newsletter, John Salmen pointed out that the built environment is typically designed only for the young, fit adult male, fits only some of us, and even those only for a short portion of the lifetime. Having aged nine years since then, I say, Amen to that, John.

Some of us became universal design advocates through the influence of the late Ron Mace, who coined the term in the early 1980s.

See Then and Now, **page 14**

CONTENTS

Ten Years of Dialogue

We are proud to bring you this 10th anniversary issue of ***Universal Design Newsletter***. During our tenure we have introduced physical and sensory access issues raised by the Americans with Disabilities Act (ADA), along with many broader issues of universal design. We have published articles dealing with everything from airports to zoos, often alerting readers to emerging issues or presenting expert and often opposing views on controversial topics. We have published some of the first articles on unobstructed lines of sight in assembly occupancies, Visitability to single family detached homes, playground and swimming pool accessibility, and "talking signs" – to name a few. Readers have told us that one of the best reasons for reading UDN is our presentation of the dialogue between differing viewpoints.

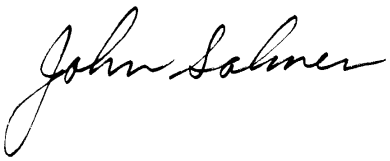
The 21st Century will be increasingly different than the 20th Century. Changes in technology, such as the introduction of cambered wheelchairs and scooters, along with the changing expectations of aging baby boomers including those with disabilities, demand that we consider new and diverse viewpoints. As a member of the ANSI A117 Committee I recently participated in a week of hearings considering proposed changes to that voluntary accessibility standard. While the hearings were long and tedious, they demonstrated the value of developing consensus-based standards through dialogue. I believe everyone in attendance, including industry and disability experts, came away from the hearings with new understandings of the reasons bothfor and against certain specific technical criteria.

One of the primary goals of UDN editorial policy is to present as many sides as possible of controversial issues, giving readers the opportunities to develop their own opinions. When we have "stirred the pot" in the past, we have done so with the intention of encouraging open debate. We all can get too comfortable in our own view and forget to open our minds to other possibilities.

We are always working to bring you divergent viewpoints from the US and abroad. In 1999, we added a World Update column – it carries enlightening news of universal design from around the world. In this issue, we are happy to bring you an excerpt from Elaine Ostroff's introduction to the new book that presents the international experience of universal design, edited by Wolfgang F. E. Peiser and Ostroff.

The events of Sept. 11 have brought to the fore the idea of universal design as a necessity, not a luxury. The good news is that there is an abundance of material on emergency and disaster preparedness – see the listing on page 5. The bad news is that there is so much more work to be done to make emergency egress safer and faster for everyone.

The solutions to the universal design problems we face are out there, but we will only uncover them if we work together. We hope that UDN will continue to bring you information on these evolving issues for another 10 years.



jsalmen@UniversalDesign.com

Seeking Mentors for International E-Mentoring

Access to Design Professions invites experienced designers to become mentors to design students or entry-level designers with disabilities in a new international e-mentoring program sponsored by the Adaptive Environments Center, Boston, MA. Supported in part by the National Endowment for the Arts, the project adapts the traditional one-on-one model of mentoring to a contemporary electronic format, through the Internet. The ultimate goal of this e-mentoring is the recruitment and support of individuals with disabilities in all design professions in order to improve design for all people.

To participate in an e-mentoring relationship, or to join the International Network of Designers with Disabilities, visit the project website at **www.adaptenv.org/accessdesign**, or contact Daniel Hunter at dghunter22@earthlink.net.

FEDWATCH

High Court Limits Ability to Obtain Attorneys Fees

A Supreme Court decision handed down last spring will limit the award of attorney's fees under the Americans with Disabilities Act (ADA).

This decision makes it more risky for plaintiffs to bring ADA Title II and III law suits against building owners and operators, since plaintiff's attorney and expert fees will only be paid by the defendant if the plaintiff prevails.

The case, *Buckhannon Board and Care Home Inc. et al v. West Virginia Department of Health and Human Resources et al.*, was initiated when Buckhannon, which operates assisted living residences, failed an inspection by the West Virginia fire marshal's office. The company was found in violation of the "self-preservation" requirements as defined by state law.

Buckhannon sued the state and state agencies claiming that the "self-preservation" requirement violated the Fair Housing Amendments Act of 1988 (FHAA) and the Americans with Disabilities Act. The state agreed to stay the order pending the resolution of the case. The state legislature then eliminated the "self preservation" requirement and the federal District Court granted the state's motion to dismiss the case as moot. Buckhannon requested attorney's fees as the "prevailing party" under the FHAA and the ADA. Its argument to entitlement was based the "catalyst theory," which maintains that a plaintiff is a prevailing party if it achieves the desired result because the lawsuit brought about a voluntary change in the defendant's conduct.

The high court held that the "catalyst theory" is not a permissible basis for the award of attorney's fees under the FHAA and the ADA. The court noted that parties are ordinarily required to bear their own attorney's fees, and courts follow a general practice of not awarding fees to a prevailing party absent explicit statutory authority.

The court noted that a "prevailing party" is one who has been awarded some relief by a court. In the majority opinion, Chief Justice Rehnquist stated, "The question presented here is whether ["prevailing party"] includes a party that has failed to secure a judgment on the merits or a court-ordered consent decree, but has nonetheless achieved the desired result because the lawsuit brought about a voluntary change in the defendant's conduct. We hold that it does not."

The Supreme Court upheld the lower court's decision.

Designers Not Liable

A US Court of Appeals has ruled that designers are not within the class of persons who can be sued under the Americans with Disabilities Act.

In the case, *Lonberg v. Sanborn Theaters Inc.*, two plaintiffs sued a theater owner and its architect for not complying with the ADA. Specifically, the plaintiffs claimed that the design of the theater's restroom and seating areas were not ADA compliant.

A lower court held that an architect can be held liable because of his or her significant control over design and construction. The US Court of Appeals for the Ninth Circuit rejected that argument.

This decision makes it more risky for plaintiffs to bring ADA Title II and III law suits against building owners and operators....

Cruise Line Signs DOJ Consent Decree

Norwegian Cruise Lines Ltd. will no longer impose special requirements on passengers with visual impairments under a consent decree reached with the US Department of Justice.

The consent decree resolves a suit filed by DOJ under the ADA against the cruise line in January 2001. DOJ received complaints from individuals who alleged that when they booked cruises on Norwegian ships, the cruise line imposed requirements on them because of their visual impairments that it did not impose on others. The complaints alleged that they were told that they had to have a sighted companion in their cabin, obtain a doctor's note stating that they were "fit for travel," and sign forms assuming financial liability for shipboard injuries.

Norwegian denied several of the allegations. The cruise line has changed its policies to allow persons with visual impairments to travel with no special terms and conditions.

Guidance on Assistive Listening Systems

New guidance will soon be available from the Architectural & Transportation Barriers Compliance Board (Access Board) on assistive listening systems, devices that enhance the sound quality and volume of public address systems for persons

See FedWatch, **page 12**

Evacuation, *from page 1*

also assisted Abruzzo in the 1993 evacuation.

According to Egen, it would take about five minutes for someone to read the directions, which are printed on the seat itself, and become familiar with the operation of the chair. In Abruzzo's case, his co-workers lifted him into the chair and proceeded with the evacuation without reading the instructions.

"We didn't know how the chair operated," said Abruzzo. "We just wanted to get out quickly. I more or less glided down the stairs. The chair does what it claims to do."

"We didn't know how the chair operated. We just wanted to get out quickly. I more or less glided down the stairs. The chair does what it claims to do."
John Abruzzo

An hour and a half later, a much better time than the six-and-a-half-hour evacuation in 1993, Abruzzo and his co-workers reached the lobby. The men carried Abruzzo in the evacuation wheelchair through the lobby, since debris had rendered the floor impossible to traverse by wheeling the chair. Once outside, emergency personnel transferred Abruzzo to a stretcher and urged the group to continue heading north. Abruzzo said he could see debris and bodies falling out of the World Trade Center. Ten minutes later the building collapsed.

The time saved using the evacuation chair and the strength and determination of his co-workers mean that Abruzzo is alive today.

Egen's decision to invent the evacuation wheelchair stemmed from a personal close brush with tragedy. In 1979, his wife, disabled by childhood polio, had to evacuate her 38th floor office. She, too, was fortunate to have co-workers who helped her although the evacuation was slow and difficult.

It took Egen four years to develop the first EVAC+CHAIR, which was introduced in 1982. A designer of industrial exhibits, Egen noted that although his background was not specifically applicable to designing such a product, the inclination was certainly there.

The chair is a hybrid design of stretcher, cart, and chair. Guided by one person, the chair is gravity-driven, and the weight of the passenger bears directly on the steps.

Egen, president of EVAC+CHAIR Corp. in New York City, is now working on the chair's fifth revision, a motorized version due out next year. The new chair will have the ability to go upstairs, which is key for basement evacuations.

The EVAC+CHAIR, which costs $969, weights 18 pounds and can carry a person weighing up to 300 pounds. Businesses, hospitals, schools, hotels, nursing homes, government agencies, correctional institutions and others have purchased the chair.

Most of the evacuation wheelchair sales are by word-of-mouth and from repeat customers. "The market is whereever there are people and stairs," Egen said. He recommended that EVAC+CHAIRS be provided for people who use wheelchairs but also noted that pregnant women, people recovering from an accident or someone injured during the emergency may need to use the chair as well.

Egen suggested that the chairs be inspected once a year, and be used during fire drills. Egen admitted that the reality is often similar to Abruzzo's office situation where the chair is packed away and its use never practiced before an emergency. Egen's wife, who has her own personal EVAC+CHAIR, of course, recently used her chair in an evacuation drill at her Time Warner office.

Following his experience with the evacuation wheelchair, Abruzzo has advised others to have a team of people trained in the operation of the chair and to have periodic practice drills as well.

"Without the chair, there is no way I could have made it down," said Abruzzo. "My co-workers couldn't have handled my body for that far. They literally bounced me down."

For Egen and his EVAC+CHAIR, there can be no stronger testimonials for its need than stories like Abruzzo's.

Portable Evacuation Device Standard?

The National Fire Protection Association is considering developing a standard for portable evacuation devices for use in stairways.

In some cases, NFPA 101 permits reduced stair widths for use of portable evacuation devices, which permits controlled descent of exit stairways. No standard currently exists for the design or use of such devices. The intended scope of this proposed project would address both the physical features of such devices, i.e. size, braking capacity, and storage requirements; and operating features, i.e. training requirements, number of persons required to operate the device, carrying weight limitations, and fail-safe modes.

Written comments and suggestions on this proposed project are welcome, according to NFPA. Include information on resource data, the names of persons interested in participating on the committee, the names of other organizations actively involved with this subject, and why there is a need for such a project.

Responses should be sent to Codes and Standards Administration, NFPA, 1 Batterymarch Park, PO Box 9101, Quincy, MA 02269-9101.

Evacuation and Disaster Resources

The US Architectural & Transportation Barriers Compliance Board (Access Board) has compiled a timely list of emergency evacuation and disaster preparedness resources on its website, **www.access-board.gov**.

Evacuation Planning and Assistive Products

Primary resources on fire safety include the US Fire Administration (**www.usfa.fema.gov**) and the National Fire Protection Association (**www.nfpa.org**).

The US Fire Administration offers a variety of materials specific to persons with disabilities:

· Emergency Procedures for Employees with Disabilities in Office Occupancies [PDF]
· Fire Risks for Persons with Mobility Impairments [PDF]
· Fire Risks for Deaf or Hard of Hearing Persons [PDF]
· Fire Risks for Blind or Visually Impaired Persons [PDF]
· Removing the Barriers: A Fire Safety Factsheet for People with Disabilities and Their Caregivers

Information is also available from these other sources:

· Emergency Evacuation Procedures for Employees with Disabilities (Job Accommodation Network, (**www.jan.wvu.edu**)
· FEMA Emergency Procedures: Providing Assistance (**www.ican.com**)
· FEMA Emergency Procedures: Special Equipment and Devices (**www.ican.com**)
· Ten Ways to Make Yourself Safe at Work (**www.ican.com**)

To access these links directly, visit the Access Board on line at www.access-board.gov/evac.htm

Evacuation and Emergency Alarm Products

Various products are available that are designed to accommodate persons with disabilities in emergencies. Mobility aids, such as evacuation chairs, are available to transport people unable to use stairs. These devices are designed with rollers, treads, and braking mechanisms that enable a person to be transported down stairs with the assistance of another individual. These devices can be a key element of an evacuation plan, particularly where areas of rescue assistance, horizontal exits, or evacuation elevators are not available. An evacuation plan should include the designation of people willing to provide assistance and their training in the type of evacuation devices supplied.

Other types of products are available that can enhance access in existing buildings that are not subject to ADAAG requirements, such as portable visual alarm devices. A resource on product information is ABLEDATA (**www.abledata.com**), a federally subsidized organization that maintains a database of information on more than 27,000 assistive devices and technologies.

The Job Accommodation Network website (**www.jan.wvu.edu/media/emergency.html**) also provides information on evacuation products.

Resources on Disaster Preparedness

Information on disaster preparedness and relief is available from the American Red Cross (**www.redcross.org**), the FEMA (**www.fema.gov**), ICan Inc. **(www.ican.com)**, the National Center on Emergency Planning for People with Disabilities (**www.disabilitypreparedness.com**), and the National Organization on Disability (**www.nod.org**). NOD is the leading force behind a newly established Task Force on Emergency Preparedness and People with Disabilities, which includes representatives from disability groups, emergency planning and response organizations, and various government agencies.

On-line information available from these and other organizations include:

· Assisting People with Disabilities in a Disaster (FEMA)
· Disaster Preparedness for People with Disabilities (FEMA)
· Disaster Preparedness for People with Disabilities (American Red Cross) [PDF]
· Disaster Preparedness for People with Disabilities (June Isaacson Kailes, Disability Policy Consultant, **www.jik.com/disaster.html**)
· Disaster Mitigation for Persons with Disabilities: Fostering a New Dialogue (**www.its.uiowa.edu/law/publications**)
· Guide to Disaster Planning (**www.ican.com**)
· How to Prepare for and Act in a Disaster (**www.ican.com**)

Universal Design: The New Paradigm

Editor's Note: The following has been excerpted from Chapter 1written by Elaine Ostroff, in the *Universal Design Handbook*, edited by Wolfgang F. E. Preiser and Elaine Ostroff, Ed.M.

All people are likely at some time to experience the misfit between themselves and their environment.

Contrary to the negative assumption that attention to the needs of diverse users limits good design, the experience of imaginative designers around the world reveals the range of applications that delight the senses and lift the human spirit when universal design is integral to the overall concept. Universal design is assuming growing importance as a new paradigm which aims at a holistic and integrated approach to design, ranging in scale from product design to architecture, and urban design on one hand, and systems controlling the ambient environment and information technology, on the other. The terminology differs from one country to another; there are significant cultural differences in how the movement has evolved in each country, but the similarities are more apparent than the differences as they transcend national laws, policies, and practices.

There is a confluence of factors generating the need for more universally designed products, environments and amenities - it includes the competitive, global nature of business today, the flourishing communications technology industry, the international disability movement, and the rapidly growing aging and disabled populations all over the world. All people are likely at some time to experience the misfit between themselves and their environment. Ambient conditions or stress may create problems with using products or buildings. Aging increases the potential for vulnerability in the environment. People worldwide are living longer, the aging population will double in the next 20 years (McNeil, 1997), and a child born today has a 50 percent chance of living to be 100 years old….

Terminology

The terms used to describe environments that promote human functioning differ in many countries, as will be seen throughout this book. There has also been a developmental change in the language used in some countries, reflecting not only the evolution from initial efforts to remove barriers that exclude people to a more inclusive design approach, but changing social policies as well. What follows are the most common terms and a discussion of what they mean in different contexts.

Universal design: Universal design is a term that was first used in the United States by Ron Mace (1985) but the concepts are also expressed in other countries. Universal design and inclusive design have become terms often used interchangeably in the United States to label a design approach that implies equity and social justice by design. Although there are other terms that are frequently used such as life-span design and transgenerational design, Mullick and Steinfeld (1997) explain that what separates universal design from these terms is universal design's focus on social inclusion. This distinction relates to the 'Separate is not equal" precedent of equal opportunity.

Unfortunately, the term universal design has inappropriately been adopted by some people, especially in the United States, as a trendy synonym for compliance with Americans with Disabilities Act Standards for Accessible Design. We see the poor design and the problems created by this confusion, especially in thoughtless new designs that end up looking like retrofits. Ramps added in new construction are a good example, where none would have been needed if the architects had considered the needs of all users as fundamental in the earliest stages of the programming process, rather than a technical requirement to be added at the end of the design process. Perhaps this misunderstanding is the result of good intentions – the use of what may be thought of as a politically correct term, but it inhibits the creative process invited by universal design. Welch and Jones (1999) note, "This indicates that significant systemic and attitudinal barriers stand in the way of real change."

Ron Mace noted that minimum standards are an important part, but not the definition of universal design. His 1988 definition of universal design is quoted in several chapters, "Universal design is an approach to design that incorporates products as well as building features which, to the greatest extent possible, can be used by everyone."

Barrier-free design: The initial term used around the world was 'barrier-free' design and

See The New Paradigm, **page 12**

Universal Design as Practiced in Europe

By Professor Edward Steinfeld, Arch. D

In late April and early May, 2001, I had the opportunity to travel to Denmark, Sweden, the Netherlands and Spain to lecture and to meet with several experts in universal design. This trip gave me a good understanding of the way universal design is practiced in the countries I visited, and, from my conversations with colleagues I learned more about what is happening in Western Europe in general. I also visited many buildings, public outdoor spaces and used public transport extensively, which helped me to understand how universal design is being realized in the public environment. This article is a summary of what I learned on my trip.

Education and Research

One of the most interesting developments in education is the organization of multidisciplinary research and teaching programs. In the US, ergonomics or human factors are usually taught in industrial engineering departments and sometimes in psychology departments, neither of which teach design. Although industrial design departments teach human factors, they don't usually put much emphasis on it and they do not have doctorate level researchers on their faculties. At the Technical University of Delft, Netherlands and at Lund University in Lund, Sweden, human factors has been brought together with industrial design to create an integrated curricula. Both of these schools have several faculty members with doctorate degrees who have active research agendas in design for rehabilitation and aging, and who are adopting the new paradigm of universal design, or "design for all" as it is called in Europe.

At the Aarhus School of Architecture, Poul Ostergaard has been working quietly for more than 20 years building up extraordinarily detailed studies of spatial requirements for people who use wheelchairs. He has been instrumental in the development of the accessibility codes in Denmark. Unfortunately for us, nearly all of his work, which includes many publications, is written in Danish.

A research group at Lund University, under the direction of Susanne Iwarsson, has pioneered the development of a tool for making assessments of environments based on the Enabler, a concept for understanding how functional limitations interact with the physical world (originally developed by a research team at SUNY Syracuse under my direction). It has recently completed an English version of the Housing Enabler and implemented the assessment methodology with a computer program. Agneta Stahl, an urban planner and expert in transportation planning for the elderly, is developing a Transportation Enabler. The Enabler research group recently received a large grant from the European Union to launch a multi-nation study on how housing supports older people as they age in place.

One of the more impressive publications I discovered in my travels was a study (in English) of anthropometrics and biomechanical performance of 800 older people in the Netherlands completed by faculty at the Technology University Delft School of Industrial Design Engineering. The Danish Accessibility Center has also developed many excellent publications including a "best practices" book focusing on architecture (not in English). The center has also completed a survey of accessibility in all the institutions of higher education in the eastern region of Denmark. The results of the survey will be published in searchable form on the World Wide Web (**www.dcft.dk**) so that prospective students can learn about the level of accessibility on each campus during the application process.

Making changes to improve accessibility without destroying the character of these historic places is difficult....

A sidewalk and curb ramp in the historic town of Lund, Sweden.

Design of the Public Realm

Perhaps one of the major obstacles to implementation of universal design in outdoor public spaces is the historic nature of European communities. Unlike US communities, the very

See Universal Design in Europe, **page 9**

The contents of this insert are provided by the Rehabilitation Engineering Research Center (RERC) on Universal Design at Buffalo, which is sponsored by a grant from the National Institute of Disability and Rehabilitation Research (NIDRR) U.S. Department of Education (DOE). These contents, however, do not necessarily represent the policy of DOE. Readers should not assume an endorsement by the federal government.

Studying 'Useable' Buildings

The study also found that people with impairments considered most other buildings they had experienced to be less usable for performing these transactions than did people without impairments....

Universally designed buildings are more usable for everyone. But while universal design has narrowed the "usability gap," it has still not eliminated it, according to the results of a case study in the Buildings in Use Projects of the Rehabilitation Engineering Research Center on Universal Design at Buffalo.

The Buildings in Use Project was initiated to test the claim that universally designed buildings are more useable for everyone by examining people's experiences with universal design through case studies of actual buildings in use.

For the study, 32 participants were individually guided by a member of the research team into and through the Lighthouse International's New York City headquarters building. The building was selected because it was one of the first buildings explicitly designed to embrace the concept of universal design. Each tour was recorded on a video camera. The group included 24 adults with single impairments (i.e., eight with a mobility-impairment, eight with a hearing-impairment and eight with a vision-impairment) and eight adults without impairments. The resulting videotaped record captured subjects' behavioral performance and verbal responses to eight follow-up questions as indicators of this building's usability for performing 12 separate transactions in its universally designed public areas.

The study also found that people with impairments considered most other buildings they had experienced to be less usable for performing these transactions than did people without impairments – i.e., most non-universally designed buildings present a "usability gap." And not only people with impairments but also people without impairments perceived this building to be more usable for performing these transactions than most other buildings they had experienced – i.e., universally designed buildings are more usable for everyone.

The study measured the appeal of universal design to many groups.

For more information, contact RERC at 716.829.3485.

Does this Braille & Raised character map make wayfinding easier for everyone?

Transactions Examined During the Study

- **Locating the building** (using visual & tactile landmark).
- **Finding the entrance** (using multi-sensory talking sign)
- **Entering and exiting the building** (using automatic door with motion detector).
- **Getting to the information desk** (using high-contrast tactile path indicator).
- **Locating the elevator and a public telephone** (using multi-sensory tactile map).
- **Getting an elevator** (using large high-contrast call buttons).
- **Getting to another floor** (using multi-sensory multi-level elevator control panel)
- **Getting to a public restroom** (using multi-sensory talking signs).
- **Getting a drink of water** (using multi-sensory multi-level water fountain).
- **Identifying the top of the step of staircase** (using wall-mounted tactile proximity indicator).
- **Using public seating area** (using open bench with tactile high-contrast perimeter markers)

Universal Design in Europe, *from page 7*

fabric of most central cities and small towns, including sidewalks, roads, streetlights, buildings, parks and other public facilities has great historic value. Making changes to improve accessibility without destroying the character of these historic places is difficult, particularly since, in many communities, there is a strong historic preservation lobby that doesn't want any changes at all made to the original designs.

Lund is a good example. All the sidewalks in this ancient city are cobblestone. To make them more accessible for everyone, the city has installed concrete paving in the middle of the walkways and built curb ramps at most intersections. Unfortunately, however, advocates have not been able to convince the urban designers and preservation groups to continue the paving through driveways and on the surface of curb ramps. Both are very beautifully designed with a fan pattern of cobblestones and paving them over would definitely make a difference in the appearance of the town.

A renovated entry to a historic building in Barcelona, Spain.

This does not mean that there are not ways to make historic cities accessible. In Barcelona, Spain an extensive city-wide initiative is making all public outdoor spaces accessible. Evidence of the success of this initiative is visible all over the city. For example, almost all intersections have curb ramps, which follow an interesting standardized design. The ramps are as wide as the entire marked crosswalk. Traffic signal poles and waste disposal receptacles are located to either side of the ramps, eliminating the need for side flares and creating landmarks for non-visual travelers. Walk/don't walk signs are cleverly built into the green light lens to reduce the cost of an additional system and all the signals have built-in transmitters that produce a sonic beacon for people with visual impairments. To avoid annoying noise in the vicinity, the signals are transmitted over a radio frequency. All people with visual impairments can obtain a free receiver for use in hearing the signals.

Parts of the city that have very steep streets have even been equipped with escalators, sometimes a series of four or five in a row that provide great assistance to ambulatory individuals in scaling the heights.

I found that most new and newly remodeled buildings I visited were reasonably accessible although there were notable exceptions. Designers have freedom to work out the details which sometimes leads to gaps in accessibility. As in the US, vigilance and quality control are critical. For example, at TU Delft, a new library was recently built with only one accessible entrance – the service and staff entry. Moreover, the paving on walkways around the building was designed with large paved slabs separated by grass strips about 6 inches wide. But, I also found excellent examples of universal design. For example, the entry halls of Kastrup airport in Denmark and Schiphol Airport in the Netherlands linked directly to train stations by elevators and escalators and the rail transportation in Denmark and Sweden was particularly impressive. The new trains from Copenhagen to Sweden have low floor platform level access with automated car doors, and accessible bathrooms with automated sliding doors. These features greatly facilitate convenience for all travelers. Local public bus transportation in Lund provided many accessible service options, including on-demand service within 50 meters of individual homes.

The new trains from Copenhagen to Sweden have low floor platform level access with automated car doors, and accessible bathrooms with automated sliding doors.

An illuminated sign at Schiphol airport, Netherlands.

Professional Practice

Although there are accessibility codes like those in the U.S., in the countries I visited, I was told that they are not implemented effectively. In some countries, like Denmark, the local building departments have the prerogative to overlook the national guidelines or standards. The legal mechanisms that are in place in the U.S. to enforce compliance are not available or not utilized effectively in Europe. Professionals are

See Universal Design in Europe, **page 10**

The Key to Inclusive Design

Designers need to see product design and product use as one and the same, according to Daniel Formosa, whose company, Daniel Formosa Design, consults on ergonomic research and design projects. Formosa advocates that rather than designing a product and expecting like-minded consumers to gravitate toward it, designers should put themselves on the same side of the equation with the user. To do this, designers need to define what it is the consumer needs before designing a product.

A designer himself, Formosa holds an undergraduate degree in Industrial Engineering from Syracuse University, a Master of Arts and a Ph.D. in Ergonomics and Biomechanics from New York University, and is a member of the Human Factors and Ergonomics Society. Formosa originally entered the field of universal design because he felt that historically -- and to a lesser extent, currently-- many designers "worship the object," sometimes without considering the end user.

He says he is proudest of — and had the most fun developing — the child-sized REACH "Wonder Grip" toothbrush, developed in conjunction with Smart Design in New York. "Children are not just little adults. We redesigned the grip—and took into account that children can't reach the toothbrush holder," he said. Formosa's design included a suction-cup base.

Formosa believes that the end users must be acknowledged at every level. He is confident that the process by which end users are currently ignored will end itself naturally — since there's a limit to the improvements that can be made to a product or service without considering the consumer. According to Formosa, without any input "you can compete on price, on speed. You can make it prettier. But after that, you almost need to begin considering what specific changes the con-

See Inclusive Design, **page 12**

"Children are not just little adults. We redesigned the grip—and took into account that children can't reach the toothbrush holder."

Daniel Formosa,
Daniel Formosa Design

Universal Design in Europe, *from page 9*

working to improve codes and standards. In Denmark, they just finished revising the accessibility code and they are hoping that local officials will take the new version more seriously.

Because of the limited enforcement, advocates and professionals interested in accessibility and universal design have explored other ways to implement accessibility and universal design. There are many organizations active in the universal design movement. Two that I visited on this trip were the Danish Center for Accessibility in Aarhus and Pro-A Solutions, headquartered in Barcelona. Both were initially funded by public agencies for a limited time and are actively developing sources of support through fee-based services and contracts. The mission of the Center for Accessibility is to develop projects that can be funded through national and regional public agencies like the best practices book and university access project mentioned above. The work of Pro-A Solutions in Spain was particularly notable. Francesc Aragall, the president and founder, was the primary mover in implementing the accessibility plan in Barcelona and Pro-A Solutions has worked with more than 40 local municipalities in Spain. Pro-A Solutions also organized a universal design commitment program involving about 30 manufacturing companies. These and other activities have resulted in the development of a successful model for universal design practice in Europe. The firm has opened offices in five other countries to cooperate on the internationalization of consulting in universal design.

Conclusion

Clearly there is a lot for U.S. practitioners to learn from the European scene. I hope that there will be more dialogue and information sharing between continents than there has been in the past. To this end, we in the U.S. should work with our colleagues in Europe, and throughout the world as well, to exchange knowledge, ideas and models of practice. Increased communications, exchange visits, joint conferences and other activities can only benefit us all. In particular, we need to find ways to translate the many excellent research materials available in other languages.

*Dr. Steinfeld's trip was partially funded by CIRRIE (**www.cirrie.buffalo.edu**), a center devoted to the international exchange of scholars and information in rehabilitation. CIRRIE is sponsored by the National Institute on Disability and Rehabilitation Research, US DOE.*

Website Spotlight: UK Site Highlights Design for Our Future Selves

The Helen Hamlyn Research Centre (HHRC,) based at the Royal College of Art in London, is focused on "design for our future selves" - using design to improve quality of life for people of all ages and abilities. The robust website at **www.hhrc.rca.ac.uk/** has numerous examples of inclusive design achieved through collaborations between HHRC and industry and other colleges and organizations. Programs and events detailed on the site include the winning projects from the annual Design Business Challenge, featuring five of the UK's leading design consultancies and their visions of an inclusive future; innovative social design projects from the Design for our Future Selves competition; highlights of work created through industry sponsored fellowships of the Helen Hamlyn Research Associates Programme; action-research developed in the DesignAge programme that presents the far-reaching implications of changes in the age profile across Europe and the developed world; the proceedings from the last INCLUDE conference; and Innovate, the research and development journal of the Small Business Programme with research themes related to "care for our future selves" and the interests of small businesses.

DOJ ADA Technical Assistance CD-ROM

This free CD-ROM published by the U.S. Department of Justice Civil Rights Division contains a complete collection of the Department's ADA materials, including regulations, architectural design standards and technical assistance publications. Designed for use on laptop computers in the field or other computers that lack high speed Internet access, the CD-ROM makes searching documents and identifying appropriate ADA information easier and more efficient. The documents on the CD-ROM are provided in a variety of formats, including HTML, WordPerfect, text (ASCII) and Acrobat PDF. To order, call 800.514.0301(v), 800.514.0383(tty) or visit **www.usdoj.gov/crt/ada/adahom1.htm.**

Complying with ADAAG

Architect and author Robert J. Lynch, F.A.I.A., has revised and expanded his *Complying with Americans with Disabilities Act Accessibility Guidelines* for 2001. The spiral-bound, 258-page digest is designed to help architects, contractors, code officials, interior designers, building managers and risk management engineers with questions about ADAAG. The guide features more than 300 drawings with real-world solutions to accessibility problems in every area of ADAAG—ramps, stairs, elevators, doorways, intersections, bathrooms, storage, signage and more—based on actual ADA surveys and remodeling details. The brief, simplified, large-print text is written in layman's language and is easy to find next to related illustrations. Factual requirements are displayed in Lynch's drawings and briefly stated text. The entire text of ADAAG is reprinted verbatim in the appendix. With its durable laminated cover and spiral binding that allows the book to lie flat or fold backward, *Complying with "ADAAG"* is a valuable reference guide for the office or in the field. To order, contact Robert Lynch, 7349 Via Paseo Del Sur, Suite 515-181, Scottsdale, AZ 85258.

The Architect's Handbook of Professional Practice

Published by the American Institute of Architects (AIA) and compiled by a team of experts from architecture as well as law, business and other professions, this 13th edition of the architect's comprehensive practice manual addresses vital business functions of the practice, explores client relationships, and defines core and expanded services beyond the design and creation of physical space. Among the book's highlights is a section on accessibility compliance, written by John P. S. Salmen. Found in the Design-Construction Services chapter, it outlines applicable accessibility standards for sample projects and discusses the ADA compliance process. This 987-page hardcover book has an accompanying CD-ROM that contains samples of AIA contract documents as Adobe Acrobat PDF files. The appendix contains a list of information sources, a finder for locating AIA contract documents and sample contract documents. For more information, contact AIA at 800.242.3837 or **www.aia.org**.

The guide features more than 300 drawings with real-world solutions to accessibility problems in every area of ADAAG....

Complying with the ADAAG

The New Paradigm, *from page 6*

related to the efforts that began in the late 1950s to remove barriers for disabled people from the built environment.

An international conference held in Sweden in 1961 cited extensive efforts throughout Europe, Japan and the United States, primarily by rehabilitation organizations, to "reduce the barriers to the disabled" (ISRD, 1961). Around that same time, a related international effort began, shifting care for people with disabilities who had been institutionalized and removed from mainstream society back to community-oriented programs and facilities. Christophersen and Gulbrandson (2000) highlight the Norwegian policy shift from "institutional care to special needs housing to equality and inclusion" as parallel to international trends. Lusher, in her detailed article on the development of access laws and codes in the United States (Lusher, 1989) reported on the efforts by the President's Committee on the Employment of the Handicapped and the Veterans Administration to study ways that the federal government might increase accessibility.

More recently, in the United States, the term barrier-free has been perceived negatively, as a feature prescribed only for use by people with disabilities. In Europe and Japan, the term has been used more broadly to describe universal design. However, in Europe, the term "design for all" is increasingly used and now the more popular term in Japan is universal design.

In the United States, accessible design became more widely used in the 1970s as a more positive term than barrier-free design but was and is still very much linked to legislated requirements.

Accessibility: This term has a very different meaning for some European experts involved in the European Concept for Accessibility (Wijk, 1996). For them, accessibility is the umbrella issue for all parameters that influence human functioning in the environment. They define accessibility as an environmental quantity. In the United States, accessible design became more widely used in the 1970s as a more positive term than barrier-free design but was and is still very much linked to legislated requirements.

Clarification

The primer, *Universal Design New York*, a book of guidelines for universal design of city buildings, sports and cultural facilities, public streets and side walks, public amenities, workspaces, and human services facilities was publicized in the last issue of *Universal Design Newsletter*. It was scheduled for publication in the fall of 2001. It is now available. For more information, contact Steven Truesdale at RERC on Universal Design at Buffalo **stt2@ap.buffalo.edu on.**

Inclusive Design, *from page 10*

sumer would make him/herself."

Formosa sees currently accepted design and recognition protocols as contributing to the attitude that neglects the end user. "If you look at competitions where most product design is judged, you'll find you're looking at a product description – a written description of the perceived benefits as seen by the designer. In contrast, if you look at the Academy Awards what the jury of peers is evaluating is the experience. Designers are judging only superficially." He likens it to members of the academy evaluating a film based on its promotional poster.

He does, however, see light at the end of the tunnel: "I think the positive end of this is that we're stripping away this process, and developing an attitude which concentrates on the end user. Today's consumers are no longer comfortable blaming themselves for not understanding a product or its use. And they're demanding products they can not only use and understand, but also feel comfortable with."

For more information, please contact the RERC on Universal Design at Buffalo, or call Formosa direct at Daniel Formosa Design, 201.307.5625

FedWatch, *from page 3*

with hearing impairments, including those who use hearing aids. The Americans with Disabilities Act Accessibility Guidelines require assistive listening systems in certain assembly areas, such as theaters, concert and lecture halls, and arenas. Under a project with the Lexington Center, a series of technical bulletins have been developed that explain the different types of systems available and provide guidance on their use and installation.

The series includes bulletins designed for different audiences, including consumers, system installers, and the operators of assembly facilities and other venues where assistive listening systems are typically provided.

The bulletins will soon be available on the Access Board's website at **www.access-board.gov** or can be ordered by calling 800.872.2253 (v) or 800.993.2822 (tty).

Accessible Toilets and Washlet Seats

Toto USA Inc. has designed two easy-to-install washlet seats that fit on its universally accessible toilets. The Chloe Seat, designed for elongated bowls, features a bidet-like dual action warm water cleansing system for men and women that works with a simple touch of a hidden wand. In addition, the Chloe provides a comfortable heated seat made of anti-bacterial plastic; and Toto's trademark safe, quiet SoftClose technology. The Jasmine Seat has the added features of pulsating spray, continuous water heater and an air blower for fast drying.

Stor-Trac and Michelle Cabinets

Construction Design Associates is now manufacturing a knock-down version of its popular Stor-Trac and Michelle cabinet system for easier shipping and assembly.

Following the successful introduction of the Stor-Trac pantry unit in 1995, Construction Design Associates now offers a complete line of universally designed cabinets that can be installed to provide either a 30-inch desk height or a 36-inch counter height work surface.

The compact storage system, ideal for residential, office and commercial applications, can be installed as a casework element or retrofitted into an existing pantry or closet and is available as 12-inch or 24-inch wide multi-drawer units. Items can be stored between 9 and 54 inches above the floor on adjustable, maintenance-free pull-out shelving or inside easy-to-open drawers featuring light-touch, heavy duty, full extension drawer guides. The cabinets are constructed of washable, melamine-coated particle board with a white plastic laminate exterior and brushed chrome drawer pulls. Custom finishes, drawer pulls and trim kits are also available.

Pressalit Multi System

The Pressalit Multi System is a wall-mounted track that allows a variety of washroom products—sinks, shower chairs, folding seats and support arms—to be adjusted both vertically and laterally, depending on need. Once the track is mounted, the fixtures can be quickly and easily secured at precise locations along the wall. The track is constructed of heavy-duty aluminum and steel and coated with a slip-resistant plastic. Available in white, red, and dark blue, the slip resistant plastic contrasts to the metal to indicate where users should hold, grip or sit.

The Pressalit Multi System includes a manually operated wash basin bracket ideal for occasional adjustment; a wash basin bracket with gas cylinder for frequent height adjustments; an ergonomically designed support arm with optional toilet back rest; several shower chair and folding seat styles; modular shelves; and a shower mixer bracket that provides multi-functional use of the water supply at the shower, toilet (bidet) and basin (hairwashing). Both the horizontal and vertical tracks are available in a variety of lengths to customize any washroom. In addition, Pressalit offers wall-mounted standard handrails as well as adjustable rails to fit the Pressalit track.

WingIts Commercial Fasteners

WingIts recently introduced several general purpose fasteners ideal for mounting railings, closet and towel racks, mirrors, paper dispensers, baby changing tables, hand/hair dryers, soap dispensers, hooks and other surface-mounted commercial accessories. Using the same technology found in the company's award-winning, patented grab bar WingIt system, which was successfully tested against 800 pounds of force, WingIts generic commercial fasteners are waterproof, fire resistant and install within minutes into all hollow wall substrates. The 1.9-inch diameter faceplate is made from LEXAN¨ , a nearly indestructible plastic, and its 0.040-inch thick profile makes it easy to hide behind any accessory.

TOTO USA, Inc.
(Accessible Toilets)
1155 Southern Road
Morrow, GA 30260
Phone: 800.350.8686 ext. 600
www.totousa.com

Construction Design Associates
(Stor-Trac)
820 South Monaco Parkway, #292
Denver, CO 80224
Phone: 303.758.7872

Barclay Products
(Pressalit Multi System)
4000 Porett Drive
Gurnee, IL 60031
Phone: 847.244.1234

WingIts
(Commercial WingIt Fasteners)
181 West Clay Ave.
Roselle Park, NJ 07204
Phone: 877.894.6448
www.wingits.com

Then and Now, *from page 1*

If we were young enough and fit enough then, we didn't realize that we were actually designing a world for our future selves – people we are today. Because of people like Ron, we can look forward to living more independent lives than generations before us. Thanks, Ron.

As the concept of universal design took root among professionals in landscape, architecture and interior design, it was inevitable that product designers should follow. The Universal Design Professional Interest Section of the Industrial Designers Society of America (IDSA) was born the same year as this newsletter and has grown from nine members to over 600.

The past decade has seen new products such as the Oxo Good Grips line of kitchen tools, which demonstrates that universal design can be hugely profitable for product designers and their clients. As further proof of the business value of the concept, Harvard Business School added a teaching case study on universal design to its catalog in 1997. Throughout the 1990s, long-standing consumer icons such as Fiskars, Tupperware, and Consumer Reports demonstrated their own successful approaches to universal design.

Legislation has played a significant part in promoting universal design. Just as federal accessibility laws spurred architects and interior designers, Section 508 of the Rehabilitation Act amendments have made it clear to product designers, specifically in electronic technology, that usability by customers with and without disabilities is now a business necessity.

The Principles of Universal Design were established in 1997. As one of the authors of these Principles, I find it exciting that these fundamentals continue to evolve with new input and perspective from designers, educators, researchers, and students around the world. "Designing for the 21st Century" conferences and the speed of the Internet have helped to enrich this exchange. After so many years since Ron Mace first coined the term, universal design continues to spark debate about its definition, scope, and application. I believe this constant re-examination and lively worldwide exchange is a very healthy thing.

As I myself age into greater personal interest in universal design, I hope this debate continues. I sometimes regret that we have not made greater progress, but I find the journey as exciting and challenging as ever. I'm heartened by the increasing momentum of this idea among design students, those who will be designing the world I look forward to aging into tomorrow.

Jim Mueller, an industrial designer, has been designing for persons with disabilities since 1974.

As the population of the United States ages, and as technology allows for new possibilities, I urge the architectural and design community to rededicate itself to the principles of universal design and do its part to ensure that the promise of the ADA becomes a reality for persons with disabilities.

Lainey Feingold

Thoughts on Universal Design

By Lainey Feingold

Has there been progress in Universal Design over the last ten years? Of course the answer is yes.

One need not look far to find parking lots that accommodate both a sporty two-seater and a lift-equipped van. There are now well over 1,000 Talking ATMs in the country providing independent access to financial transactions for anyone who has difficulty reading an ATM screen. With the work of the World Wide Web Consortium and implementation of section 508 of the Rehabilitation Act (29 U.S.C. §§ 794 (d)) more and more web designers understand that a website, through proper design, can be accessible to sighted persons looking at a computer screen and blind persons listening to a screen reader. And there are few architects left who would design a new building that could only be entered by persons who can walk up steps.

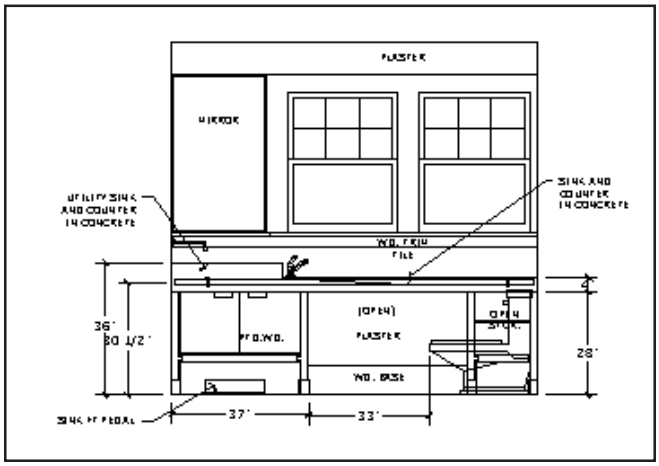
Is there still progress to made? Of course the answer is yes. Cell phone manufacturers are still designing products that can't be effectively used by blind persons. The disability community across the country has to fight to ensure that voting equipment is accessible to all voters. Even 10 years after the passage of the Americans with Disabilities Act (ADA), most owners of facilities built before the ADA have not embraced even the most minimalist universal design concepts for their facilities unless forced to do so by disability advocates and their attorneys.

As the population of the United States ages, and as technology allows for new possibilities, I urge the architectural and design community to rededicate itself to the principles of universal design and do its part to ensure that the promise of the ADA becomes a reality for persons with disabilities.

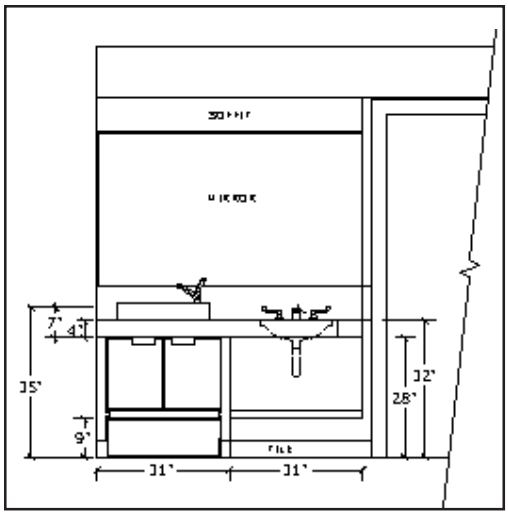
Lainey Feingold is a disability rights lawyer in Berkeley, CA, **lfeingold@california.net.**

? PROBLEM: How can lavatories accommodate both short and tall people?

TIP: In the new "Home for the Next 50 Years" kitchen and bath designer Jane Langmuir, AIA has developed designs that provide dual height lavatories in the bathrooms. In one bath, a design concept of John P. S. Salmen, AIA provides a shallow lavatory/counter with a high utility sink in a single concrete counter. In a second bath, a lavatory is undermounted in a low solid phenolic countertop with an adjacent surface mounted lavatory on top of the counter for tall users.



The above design provides a low lavatory/counter with a high utility sink in a single concrete counter.



In this design a low lavatory is undermounted in a solid phenolic countertop with an adjacent higher lavatory surface mounted on top of the counter.

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CALENDAR

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

Jan. 21, 2002: ***Home Modifications and Universal Design for Consumers and Practitioners*****,** Charlottesville, Va. Among the seminar sponsors are: the Piedmont Housing Alliance and the Virginia Assistive Technology System, Central Region. The goal of this seminar is to provide a comprehensive overview of home modifications and universal design, with an emphasis on audience information sharing and hands-on, practical experiences. For more information, contact **vats@virgnia.edu** or 434.982.4434 (fax).

Feb. 11-15, 2002: ***Access to Outdoor Recreation and Interpretive Environments,*** Cocoa Beach, FL, sponsored by theNational Center on Accessibility. For more information, contact NCA at **ncaonline.org** or 812.856.4422 (v), 812.856.4421 (tty), or **nca@indiana.edu**.

March 7-9, 2002: ***Universal Design Summit***, St. Louis, Missouri, sponsored by The Accessible Housing Clearinghouse, Paraquad, Inc.; Maryville University; City of St. Louis; and East-West Gateway Coordinating Council. The conference will highlight universal design and its applications in all design disciplines in a variety of places and settings. For more information, contact Michael Stathopulos of Paraquad at 314.567.1558(v) or **paraquad@paraquad.org**.

March 11-13, 2002: ***The US Architectural & Transportation Compliance Board*** will hold its bi-monthly meeting in Washington, DC. For more information, contact the board at 202.272.5434(v), 800.872.2253(v), 202.272.5449 (tty) or **www.access-board.gov**.

March 18-23, 2002: ***CSUN 17th Annual International Conference on Technology and Persons with Disabilities***, Los Angeles, CA. The conference is sponsored by the California State University at Northridge. For more information, visit **www.csun.edu/cod/**.

July 22-26, 2002: ***Union of International Architects Convention.*** For more information, contact **www.uia-berlin2002.com.**

Oct. 19-20, 2002: ***Universal Design on the Web***, Rhode Island School of Design (RISD), Providence, RI. Co-sponsored by RISD and Adaptive Environments. For more information, contact Lenie Kuit at 617.695.1225, ext. 29 or **lkuit@adaptenv.org.**

Oct. 27-30, 2002: ***6th Global Conference Maturity Matters,*** Burswood International Conference Centre, Perth, Western Australia, sponsored by the International Federation on Ageing. For more information, contact **IFA@congresswest.com.au.**

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