



# Beneficial Designs

research/design/education

Designing beyond the norm to meet the needs of all people.

Working toward  
universal access  
through research,  
design & education

December 2001

## *Dear Friends & Supporters*

The end of the year is upon us now, as we reflect on the changes, challenges, and achievements we met throughout 2001. Beneficial Designs relocated its main office to Nevada early in the year, encountering new opportunities and discovering new faces. In addition to a warm welcome to the new community, BD was honored at the 18<sup>th</sup> Annual Governor's Industry Appreciation Luncheon for its contribution to Nevada's economy as a newly relocated business.

While also maintaining a design center in Santa Cruz, California, Beneficial Designs extended its doors once more this year with the establishment of a third office in Nashville, Tennessee.

We would like to share with you a few of the projects we have been working on this past year. Thank you for your continued support and interest in our work. All of us here at BD would like to wish you a joyful holiday season.

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*Seanna Kringen*

*Erica MacCabe*

*Kathy Mispagel*

*Mark Richter*

*Stacy Rose*

*Carla Shepard*

*Jenny Tuohy*

### UTAP Coordinator Workshops

Kathy, Jenny, Peter & consultant  
Patti Longmuir



This year 102 individuals were trained to lead assessments using the Universal Trail Assessment Process. The UTAP Coordinator Workshops were held in Arizona, California, Missouri, and Nevada and also in the Canadian provinces of Manitoba and Ontario. Workshop participants included trail professionals, college students, and volunteers. Presentations introducing the benefits of UTAP to land managers were made at the Western Trailbuilder's Association conference, California and Pacific Southwest Recreation and Park Training Conference, the Montana Trails Conference, 3<sup>rd</sup> International Trails and Greenways Conference, and National Recreation and Park Association.

### Training Program for UTAP Trainers

USDA SBIR Phase II Grant #00-33610-9415  
Kathy, Jenny, Peter & consultant Patti Longmuir

Phase II is currently underway for the UTAP Train-the-Trainer project. Materials are in development to provide training that will prepare Certified Trail Assessment Coordinators to teach UTAP Workshops. The first pilot training course was held in Nevada in April with seven participants. More courses are being scheduled for 2002, with the next to take place in Phoenix, January 15-18; and on the east coast, April 21 - 24.

### TrailWare: UTAP Software

NIH SBIR Phase II Grant #2R44 HD36538-02  
Kathy, Linda, Seanna, Jenny, Peter & consultants  
Patti Longmuir and Joan Lowden

TrailWare, the data processing software for the UTAP, is in its final stages of development. Several agencies and organizations are contributing to the production of the software that will benefit all who use the UTAP. Plans are underway to add modules that will identify compliance with design guidelines as well as reports for trail managers and trail users. Use of a hand held data collection device is also in the works.

### Trail Explorer Website

DEd SBIR Phase II Grant #ED-98-CO-0046  
Kathy, Linda, Jenny, Peter &  
Consultants Patti  
Longmuir & Joan Lowden



The Trail Explorer Website was completed this year ([www.trilexplorer.org](http://www.trilexplorer.org)). The site will be maintained as an on-line database that provides Trail Access Information on hiking trails across the nation. The website enables users of the TrailWare software to upload trail data.

### Wheelchair Training Guides

Denise, Stacy, Jenny & Peter

The Manual Wheelchair Training Guide is available for purchase through PAX Press.

The Powered Wheelchair Training Guide is scheduled to be released soon.



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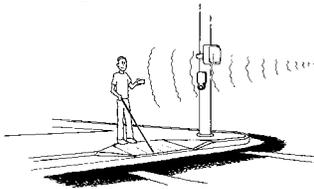
## Canoe Seating System

NIH SBIR Phase I Grant #1R43 HD36944-01A1  
Allen, Denise, Seanna, Stacy & Peter

A prototype seating system for use in canoes was fabricated, and user evaluations were completed in collaboration with Wilderness Inquiry in Minneapolis. Phase I of the project ended in April. Seanna presented a poster session at the Annual RESNA conference held in Reno in June. In April of 2002, we plan to submit an application for a Phase II grant to further develop the seating system.

## Sidewalk & Trail Design for Access

DOT FHWA  
Contract #DTFH61-  
97-C-00028  
Peter & consultants  
Julie Kirschbaum &  
Patti Longmuir



*“Designing Sidewalks and Trails for Access: A Best Practices Design Guide”* was published by the Federal Highway Administration this year. This document was a follow-up to *“A Review of Existing Guidelines and Practices”*, which was published in September 1999.

## FlexRim

NIH/NICHD Phase II Grant #R44 HD36533-02  
Mark & Peter

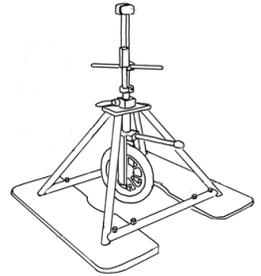
The FlexRim is a compliant handrim that replaces the rigid interface between the wheelchair wheel and the handrim, adding flexibility to reduce the impact forces experienced by users. The recent funding of Phase II will continue to refine the concepts of the design established in Phase I.

## Surface Accessibility

NIH SBIR Phase II Grant  
#2 R44 HD30979-02  
Denise, Jenny, Linda, Brent  
& Peter

The Rotational Penetrometer is currently being distributed by Beneficial Designs.

This portable tool can measure the firmness and stability of trail surfaces, carpet, and other pedestrian routes. Denise is chairing the RESNA subcommittee that is developing a national standard test method for surface firmness and stability based upon the use of this device. Beneficial Designs continues to conduct playground surface accessibility testing (ASTM F1951) on a contract basis for surface manufacturers.

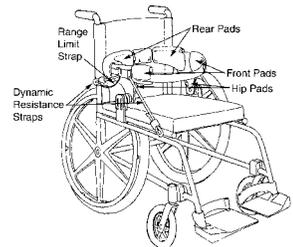


## HipGrip

NIH/NICHD Phase II Grant  
#R44 HD36156-02  
Allen, Denise, Seanna,  
Stacy & Peter, and  
consultants Amy Hayes &  
Jamie Noon

BD is currently in the Phase II development

of the HipGrip pelvic stabilization device for wheelchair users. Current work includes refining the design of a prototype device for clinical trials. The HipGrip is a spring-loaded pelvic support device that allows persons with spasticity to extend and then the device gently pulls them back into position.



## Wheelchair Seating Standards

Allen, Denise & Peter

The RESNA Standards Subcommittee on Wheelchair and Related Seating, chaired by Allen, participated in the development of an ISO draft standard in early 2001. These standards cover terms and definitions, and testing of postural support devices and seat cushions.

## Wheelchair Standards

Paralyzed Veterans of America  
Peter & Denise

As Chair of the RESNA Technical Standards Board, Peter oversees the work of all RESNA standards subcommittees. Peter was also re-elected as Chair and Denise as Secretariat of the RESNA Standards Subcommittee on Wheelchairs. Annual meetings were held this year in conjunction with the RESNA conference in Reno. Peter also continues as Convener of the International Standards Organization Working Group on Wheelchair Test Methods. Beneficial Designs hosted the May 2001 ISO Working Group meetings in Pray, Montana.

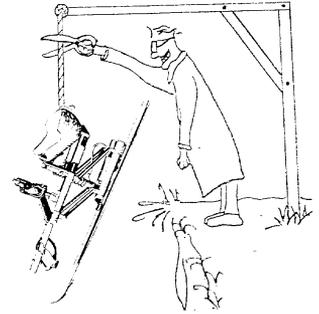
## Design Consulting

We have continued to provide testing and design services on a consulting basis for the seating and wheeled mobility industry. Peter and Allen have led the design team on several projects this year. BD is currently working with Independence Technology, a Johnson & Johnson company, in the seating design of the iBOT Mobility System ([www.indetech.com](http://www.indetech.com)).

## Ski Area Accessibility

Peter continues to consult for the ski industry, helping to make their facilities and programs more accessible.

He is also chair of a RESNA subcommittee developing a standard for adaptive ski equipment. The subcommittee met in December of this year in conjunction with the annual Ski Spectacular in Breckenridge, Colorado.



## Tools for Life

Denise & Peter

*Tools for Life* is a not-for-profit organization incorporated at the end of last year to provide information on people and organizations that facilitate the provision of mobility equipment and adaptive seating to persons with disabilities in developing countries.

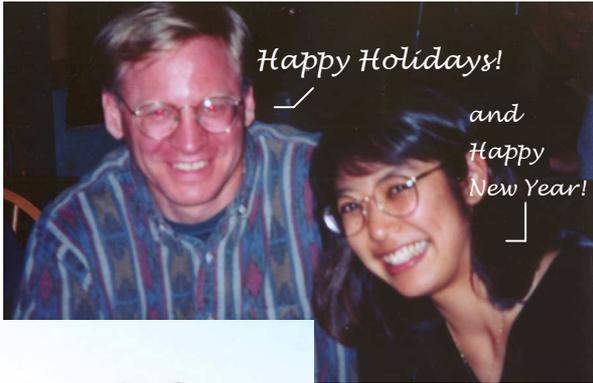
Funding agencies and other acronyms:

<b>DOT</b>	Department of Transportation
<b>FHWA</b>	Federal Highway Administration
<b>NIH</b>	National Institutes of Health
<b>RESNA</b>	Rehabilitation Engineering and Assistive Technology Society of North America
<b>SBIR</b>	Small Business Innovation Research
<b>USDA</b>	United States Department of Agriculture

# Beneficial Designs



**BD and guests at the 2001 Governor's Industry Appreciation Luncheon**



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## ❖ Meet the BD Team ❖

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❖ **Peter Axelson**, founder and Director of R&D, leads BD and spends much of his time traveling throughout the world to attend meetings and present our work. He's also a pilot and avid mono-skier.

❖ **Denise Axelson**, Director of Research, coordinates the research at BD and assists with technical writing and grant proposals. She loves to play volleyball.

❖ **Allen Siekman**, Director of Seating & Design, oversees the seating and design projects. He collects and restores antique cars and motorcycles and coaches youth softball teams.

❖ **Brent Armstrong**, Technical Assistant, assists in hands-on work with design projects and testing. He is a senior in high school and enjoys soccer, and camping.

❖ **Linda Armstrong**, Project Assistant, helps with various projects and assists with the technical aspects of the computers and phone system. She makes crafts known as "Linda's Lumpies" and loves to talk about her two sons.

❖ **Kallie Goheen**, Office Assistant, assists with various office duties. She is a junior in high school and hopes to someday be a teacher in another country.

❖ **Seanna Kringen**, Research Associate, has a background in physiological sciences,

and assists on the research components of our projects. She enjoys swimming and hiking with her husband and three children.

❖ **Ericka MacCabe**, Office Assistant, helps with many office duties. She is a senior in high school and enjoys snowboarding.

❖ **Kathy Mispagel**, Project Coordinator, is developing the UTAP Train-the-Trainers program and manual as well as the Trail Data Processing Software known as TrailWare. She enjoys swimming and making scrapbooks.

❖ **Mark Richter**, Research Engineer, is currently designing the low impact wheelchair pushrim as part of his doctoral research at Stanford University.

❖ **Stacy Rose**, Research Assistant, works on a variety of projects at BD. She is a performing singer/songwriter who also loves to run and bike in the beautiful Santa Cruz mountains.

❖ **Carla Shepard**, Bookkeeper, is in charge of BD finances. When she is not crunching our numbers, she enjoys four-wheeling, exploring old mines, playing piano, singing, and cross-stitching.

❖ **Jenny Tuohy**, Project Assistant, assists with projects and contributes to technical writing and illustrating at BD. She loves road trips, camping, fly-fishing, and cooking.

We would like to thank past employees Tim Pratt, and John Tipton, whose work on our projects was invaluable. We also wish to thank consultants Clay Butler, Amy Hayes, Julie Kirschbaum, Patti Longmuir, Joan Lowden, Jamie Noon, Jeff Thomas, and Mark Weber, who have made significant contributions to our projects this year. We are grateful to our technical consultants Bill Adams, John Endter, Arne Folkedal, Al Lewis, Jeff Liebermann, and Ron Scott, and to Dan Morgan for his helpful handy work around our office. Thanks also to Markus Ostertag for his help and support during our move to Minden, Nevada.