Beneficial Design – Examples of...
Designing Beyond the Norm to Meet the Needs of All People

Stanford University

19 February 2019

Peter W. Axelson, MSME, Beneficial Designs, Inc., Minden, Nevada
www.beneficialdesigns.com

Beneficial Design
Designing Beyond the Norm to Meet the Needs of All People
Research
Design
Education

Beneficial Designs’ Mission Statement
Beneficial Designs works towards universal access through research, design, and education. We believe all individuals should have access to the physical, intellectual, and spiritual aspects of life.

Beneficial Designs’ Mission Statement
We seek to enhance the quality of life for people of all abilities, and work to achieve this aim by developing and marketing technology for daily living, vocational, and leisure activities.

Employees and Consultants

Machine Shop

Wheelchair Testing

Design of Consumer Products
Product Development
Assessment of Products
Universal Design of Products

Product Development
Mainstream Products
Opportunity for Universal Design
Adaptive Products
Personal Technologies
Activity Specific Technologies

Balance Dimension
Physical
Intellectual
Spiritual

Variety of Recreational Opportunities

Sociological Dimension
Dependence (example)
Independence (example)
Interdependence (example)

Personal Technologies
Activity-Specific Technologies
Environmental Technologies

Activity-Specific Technologies
Arroya Sit Ski
Mono Ski
Available from several companies
Bi Ski
Dynamic Seating Spring Assist
Cross Country Ski
Pax Back
Available from BES Rehab Ltd
Piano Pedal Pusher
Do it yourself design specifications

Manual Vehicle Hand Controls
Available for purchase

Dynamic Seating
Hiking Chair
Hand Bike
Contoured Seating
Seat Cushion Testing
ISO and RESNA standards

SKELI
Used for Standards testing

ASLI Prototype
HipGrip
Available from Bodypoint

FlexRim Ergonomic Pushrim
Available from Spinergy

GripRim
Adaptive Canoe Seating
Available from Chosen Valley Canoe

Accessories
Wave Ski
Environmental Technologies

Things that do not move

Small Watercraft Launch Areas

Water Trail Access Information

Tools and Technology for Accessible Trails

Universal Trail Assessment Process (UTAP) – 1200 people trained

Key UTAP Information
- Length, Grade, Width, Surface,
- Cross slope, Features & Facilities
- Training available from BD

High Efficiency Trail Assessment Process (HETAP)
- USDA SBIR Phase II
- Equipment available from BD

Developed Outdoor Recreation Assessment Process (DORAP)
- Under development at BD
- Outdoor Constructed Features
  - Bench, Camp Shelter, Cooking
  - Surface/Grill, Fire Ring, Wood
  - Stove/Fireplace, Outdoor Rinsing
  - Shower, Parking Area, Picnic Table,
  - Pit Toilet, Tent Pad/Platform, Toilet
  - Building, Trash/Recycling
  - Receptacle, Utility/Sewage
  - Connection, Viewing Area at
  - Overlooks, Viewing Scope, Water
  - Spout

Trail Access Information
- Signage available from BD

www.trailexplorer.org

Develop Standards for Trail and Sidewalk Design

Architectural Barriers Act Outdoor Recreation Access Guidelines

ADA Recreation Trail

Grade
- 8.33% for 200 feet
- 10% for 30 feet
- 12.5% for 10 feet

Cross Slope
- 5% maximum

Rest Areas
- 60 inches length, 5% slope

Surface
- firm and stable

Width
- 36 inches minimum

Surface Testing

ASTM F 1951–99
- Standard specification for determination of accessibility of surface systems under and around playground equipment
- Testing available from BD

Rotational Penetrometer
- Objective surface measurement device
- Available from Beneficial Designs

Surface Stabilizers Gravelpave2

Pedestrian Right of Way Assessment Process (PROWAP)
- Wireless Measurement Devices
- Measuring Process
- GIS Data
- Mapping
- Services available from BD

Universal Design of Fitness Equipment (UDFE) Standards
- Accessible “mainstream” fitness equipment
- Low Step-up Height Design
- Grip Bars
- Weight Pin Color Contrast
- Weight Pin Gripability
- Control Panel Contrast
- ASTM standard now published

Development of Uniform Standards for Cognitive Technologies
- Goal—Increase Access to Technology for People with Cognitive Impairments
- RESNA draft standard in process

Amusement Park Wheelchair Access
- Accommodates Wheelchair
- Accommodates Transfer
- Development of Transfer Devices
- Design services available from BD

Aircraft Seating
- The Problems with Boarding Chairs
- Aircraft Aisle Chair
- Aircraft seating issues
- PVA funded development project at BD

Beneficial Designs, Inc.
Mindem, Nevada
www.beneficialdesigns.com
peter@beneficialdesigns.com
775.783.8822 voice