

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

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

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. 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.

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

Sociological Dimension

Dependence
Independence
Interdependence

Personal Technologies

Activity-Specific Technologies
Environmental Technologies

Environmental Technologies

Things that do not move

Activity-Specific Technologies

Arroya Sit Ski
Mono Ski
Dynamic Seating Spring Assist
Dynamic Cross Country Ski
Pax Back
Aircraft Aisle Chair
Piano Pedal Pusher
Manual Vehicle Hand Controls
Dynamic Seating
Hiking Wheelchair Cobra
Hand Bike

Contoured Seating

SKELI with Pelvis Model
Seating Pressure Measurement
Pressure Seating Graphs

Adjustable Skeletal Loading Indenter

Obliquity, Posterior Pelvic Tilt, Rotation

Pressure Measurements

Pelvis Movement During Extensor Thrust

**Activity Force at Thigh and Backrest During
Extension**
Pelvis Moves Up, Out and Rotates

Variations of Belt Angle

Downward Pull Limits Upward Movement
Allows Posterior Pelvic Rotation
Limits Full Anterior ROM

HipGrip

Dynamic Pelvic Support
Provides Pelvic Stability
Allows Controlled Anterior Tilt ROM
Enables Dancing

The HipGrip is a postural seating device designed to help control pelvic position and provide stability while in a wheelchair while allowing range of motion and movement in anterior and posterior pelvic tilt. Available from Bodypoint

Functional Assessment Process

Functional Forward Reach
Functional Reach Downward

FlexRim Ergonomic Pushrim

Frictional improvements
Impact absorption
Repetitive load Tests
Subjects Testing

GripRim

Adaptive Canoe Seat

Bench Seat with Sidewall Brackets
Pelvic and Low Back Support
Upper Back and Lateral Thoracic Support
Available from Chosen Valley Canoe Accessories

Canoe Seating Testing Methods – Endurance

MedGraphics portable metabolic system
Resting, self-selected paddling, and + 20%

Methods – Strength

Dynamic power from Concept2 rowing ergometer
Maximal isometric paddle pull

Lateral Balance Test

Water Egress Testing

Wave Ski

Tools and Technology for Accessible Trails

Universal Trail Assessment Process (UTAP)

Objective measurement system for trails
Proven accuracy and reliability
Simple, inexpensive tools
All trail data in one assessment
(mapping, interpretation, access, etc.)

Key UTAP Information

Length, Grade, Width, Surface, Cross Slope,
Features & Facilities

High Efficiency Trail Assessment Process (HETAP)

Playground Surface Testing ASTM F 1951–99

American Society for Testing and Materials (ASTM)
Standard specification for determination of accessibility of surface systems under and around playground equipment

Rotational Penetrometer

Objective surface measurement device
Draft Standard for firmness with stability measurement under development

Trail Gate Barrier

Inverted Bollard Design
Electronic Vehicle Detector
Pedestrian and Motorized Vehicle Trail Traffic Counter

Trail Explorer

<http://www.trilexplorer.org>

Standards for Trail Design

Designing Sidewalks and Trails for Access

ADA Recreation Trail – Design Standard

Grade

up to 30% of length > 8.33%
5% for any distance
Cross Slope 5%
Rest Areas 60 inches length
Edge Protection 3 inches minimum

ADA Outdoor Access Route

Surface firm and stable
Width 36 inches

Public Rights of Way Assessment Process (PROWAP)

Wheeled Instrument Sensor Package (WISP)

Digital Measuring Wheel
Digital Height Measuring Device

The Manual Wheelchair Training Guide

Wheelchair Standards

Volume 1: Requirements & test methods for wheelchairs
Volume 2: Additional requirements for wheelchairs with electrical systems

A Guide to Wheelchair Selection

Universal Design of Fitness Equipment (UDFE) Standards

Control Contrast Measurement

Development of Uniform Standards for Cognitive Technologies

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Working toward universal access through research, design & education