Going Beyond the Requirements

**Applying Universal Design Principles**

To Building Solutions
To Product Design
Going Beyond the Requirements

Applying Universal Design Principles

To Building Solutions
To Product Design
This program is registered with the AIA/CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product. Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.
The Learning Objectives

From the prospective of Designers, their clients (the users) and manufacturers: Current ideas and influences on the selection process

1. The history and current status of requirements relating to accessibility and equality

2. The importance of considering the existing specific needs and likely future needs of the client (the role of expert users)

3. The opportunity to enrich the experience of users and the long range value of projects and products by applying the principles of universal design

4. The array of influences that manufacturers face in developing products for market

5. How coordinated system design can meet the aesthetic demands of designers, the installation demands of a contractor and the functional demands of the users
Considering Design
Considering Designers
Considering Requirements
Considering Users
Considering ……..The Challenges
Considering ………………….The Opportunities
Our bodies are not designed for "design"

"Design" may discriminate against as many as 46% of us, who are functionally limited by age or disability.

If all the products and environments are made with human-centered design, all of us can live a life full of opportunity and experience.

Don't try to fit your body to design-centered design.

Choose Universal Design.
Our bodies are not designed for “design”

“Design” may discriminate against as many as 46% of us, who are functionally limited by age or disability.

If all the products and environments are made with human-centered design, all of us can live a life full of opportunity and experience.

Don’t try to fit your body to design-centered design

Choose Universal Design

Institute for Human Centered Design
What must a Designer do?

All projects are designed for target users

User and user’s needs change over the lifetime of a project’s use

Some projects are subject to legal requirements

ADA Standards for Accessible Design need not limit the usability or aesthetic of a solution

All projects benefit from the application of Universal Design Principles

7 Principles of Universal Design ©

Performance criteria developed by group of experts

Center for Universal Design, NC State, 1995-1997

Used to evaluate and educate:

The characteristics of more usable products and environments

Performance Criteria = Usable Results

Some projects are impacted by the specific client/user

Focus on the their identified limitations, abilities and disabilities
What must a Designer do?

All projects are designed for target users.

User and user’s needs change over the lifetime of a project’s use
65-69 yrs.

- Functional Limitation 45.4%
- Severe Functional Limitation 18.5%
75+ yrs.

- Functional Limitation 72.5%
- Severe Functional Limitation 41%

Courtesy: Trace R&D Center, University of Wisconsin

Copyright 2010 John O’Meara
Most common reasons for functional limitation of adults in the US...

Arthritis
Back problems
Heart disease
Respiratory disease

NOTE:
Only 2 – 3 million Americans use wheelchairs or scooters
Out of approximately 54 million with a disability

Source: Centers for Disease Control
Statutes (Laws)
- ADA – Americans with Disabilities Act
- ABA – Architectural Barriers Act
- Fair Housing Act
- The Rehabilitation Act of 1973

Codes
- International Building Code

Standards
- Uniform Federal Accessibility Standards
- ADA Standards for Accessible Design
- National Building Code of Canada Accessibility Requirements
- ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities

Applying Universal Design – enhancing usefulness
- Larger Print
- Sliding Doors
- Drawers not hinged doors

Adding Assistive Technologies – solving individual problems
- Eye Glasses
- Lower counter heights
- Motorized-adjustable work surfaces
The Hard Fought Benefits of Regulations

Major social and political steps to insure Civil Rights
- The Rehabilitation Act of 1973 and the subsequent signing of regulations in 1977
- The Americans with Disabilities Act (ADA) in 1990

Photos: HolLynn D’Lil

www.uceducation.org/resources/readings/welch.asp
Americans with Disabilities Act (ADA) 1990


Codifying new concepts:

**Design as a Civil Right**

**Inclusive Thinking/Design creates equality**

Lack of inclusive design creates inequality
Americans with Disabilities Act (ADA) 1990

New construction and alterations of private sector public accommodations and commercial facilities must comply with the ADA Standards for Accessible Design.

New construction and alterations of state and local government facilities must comply with either the ADA Standards for Accessible Design or the Uniform Federal Accessibility Standards (UFAS).

Jurisdiction of the Justice Department

www.ada.gov
Americans with Disabilities Act (ADA) 1990

In 2004, the US Access Board issued revised and updated accessibility guidelines for buildings and facilities covered by ADA and the Architectural Barriers Act (ABA).

These guidelines serve as the basis for enforceable standards issued by other federal agencies

www.access-board.gov/ada-aba/index.htm

The Board sought to harmonize the ADA and ABA Accessibility Guidelines with industry standards, particularly the International Building Code (IBC) and ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities.
Architectural Barriers Act (ABA) 1968

Federal buildings are not covered under the ADA.

The ABA requires access to facilities designed, built, altered, or leased with federal funds.

*It is one of the first endeavors to ensure access to the built environment.*

The Access Board develops and maintains accessibility guidelines under this law.

Four federal agencies are responsible for adopting the guidelines as enforceable standards:

- Department of Defense
- Department of Housing and Urban Development
- General Services Administration
- U.S. Postal Service
State and Local Codes

Some states and local governments have their own unique accessibility codes (e.g. California and Massachusetts).

Many states have adopted the International Building Code (IBC)

The Access Board maintains a list of the states’ accessibility requirements and contacts

[www.access-board.gov/links/statecodes.htm](http://www.access-board.gov/links/statecodes.htm)
Canada

The *National Building Code of Canada* (NBC) is a model code that includes requirements for accessibility.

[www.nationalcodes.ca](http://www.nationalcodes.ca)

The NBC has no legal status until adopted by a province, territory or municipal government.
“Universal Design”? 

“Barrier Free Design” – Germany

*From Wikipedia:*

Building modification consists of modifying buildings or facilities so that they can be used by the physically disadvantaged or disabled.

The idea of barrier free modification has largely been superseded by the concept of universal design.

Freeing a building of barriers means:

- Recognizing the features that could form barriers for some people
- Thinking inclusively about the whole range of impairments
- Reviewing everything - from structure to smallest detail
- Seeking feedback from users and learning from mistakes
Universal Design?

“Inclusive Design” – UK

Architects and planners need a new design philosophy to put inclusion at the heart of the development process, The Commission For Architecture and The Built Environment (CABE) has urged at the launch of a report on equality, diversity and the built environment.

Richard Simmons, CABE chief executive, warns that inequality is still literally being built into new places.

“Even though accessibility has improved over the last decade, the fact remains that poor and disadvantaged people are far more likely to live in poor quality environments.”

Universal Design?

“Design for All” – EU

There is a growing impact from the formation of the EU

Availability of public funding is being linked to compliance to guidelines for accessibility

“One way of helping to ensure that everyone can fully participate in the Information Society is for industry to design Information and Communication Technologies (ICT) products, services and applications that we all can use.”
Universal Design?

The United Nation’s Second World Assembly on Ageing: Madrid Political Declaration and International Plan of Action 2002

Addressed the potent role of design in its Priority Direction III:

Ensuring enabling and supporting environments

The Priority incorporates as assumption that we’ve moved beyond barrier removal and accessibility to the language of ‘enabling and supporting.’

From www.unis.unvienna.org/unis/pressrels/2002/soc4603.html
7 Principles of Universal Design ©

1. Equitable Use
2. Flexible Use
3. Simple and Intuitive Use
4. Perceptible Information
5. Tolerance for Error
6. Low Physical Effort
7. Size and Space for Approach & Use

www.design.ncsu.edu/cud
What must a Designer do?

Some projects are impacted by specific user needs

Answering specific needs of a known client/user
  Combining the input of client/user, designers, expert users and consultants
  Combining the needs of all users

Solutions are not limited to
  Regulatory requirements
  Standard offerings

  Focus on the identified needs
Manufacturing Products:
A continuous balance within a complex environment

- Lifestyle
- Fashion
- Design
- Architecture
- Manufacturing Competences
- Complementary Markets
- Market and Competitors
- Available Technology
- Economics
- Society / Politics

Copyright 2010
John O'Meara
Designing Solutions
Bathroom & Washroom

Products for Accessibility
Accessories
Kitchen Hardware
Door Hardware

Functionality for Living
Equitable Use
Equitable Use
Equitable Use
Equitable Use
Equitable Use
Flexibility in Use
Flexibility in Use
Flexibility in Use
Flexibility in Use
Flexibility in Use
Flexibility in Use
Flexibility in Use
Flexibility in Use

John O’Meara
Flexibility in Use
Flexibility in Use
Flexibility in Use
Flexibility in Use

John O'Meara
Flexibility in Use
Flexibility in Use
Flexibility in Use

Copyright 2010
John O’Meara
Simple and Intuitive Use
Simple and Intuitive Use
Simple and Intuitive Use
4.13.9* Door Hardware.

Handles, pulls, latches, locks, and other operating devices on accessible doors shall have a shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist to operate.

Lever-operated mechanisms, push-type mechanisms, and U-shaped handles are acceptable designs.

When sliding doors are fully open, operating hardware shall be exposed and usable from both sides.
Simple and Intuitive Use
Simple and Intuitive Use
Simple and Intuitive Use
Simple and Intuitive Use
EMERGENCY EXIT
Perceptible Information

Copyright 2010
John O’Meara
Perceptible Information
Tolerance for Error
Tolerance for Error

Copyright 2010
John O’Meara
Tolerance for Error
Tolerance for Error
Low Physical Effort
Low Physical Effort
Low Physical Effort
Size and Space for Approach & Use
Size and Space for Approach & Use
Size and Space for Approach & Use
Considering Design
Considering Designers
Considering Requirements
Considering Users
Considering ......................... The Opportunities
Designing Systems
This program is registered with the AIA/CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product. Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.
Accessibility Planning Guide

Regulations

Applying Universal Design Principles

Individual Needs
www.hafele.com
www.hewi.de
www.hawa.ch
www.eku.ch

www.design.ncsu.edu/cud

www.access-board.gov/ada-aba/

www.cabe.org.uk/default.aspx?contentitemid=2893

www.udeducation.org/resources/readings/welch.asp

www.humancentereddesign.org
Institute for Human Centered Design*

An international, educational, nonprofit organization dedicated to enhancing the experiences of people of all ages and abilities through excellence in design.

www.humancentereddesign.org

*Name changed on 30th anniversary in 2008 from Adaptive Environments
Going Beyond the Requirements

**Applying Universal Design Principles**

To Building Solutions
To Product Design