Design and construction of a refugee shelter

Universal Design

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Assessment

- Interpret the design requirements for the refugees including their human needs and environmental constraints
- The sustainability and recycling plan together with the health and safety plan (10% of your individual assessment). Universal Design should be an integral part of the Social Sustainability considerations.
- Group report – requires a detailed explanation of the design process.
Universal Design

As defined in Irish Legislation:

Means the design and composition of an environment so that it may be accessed, understood and used

• to the greatest practicable extent,
• in the most independent and natural manner possible,
• in the widest possible range of situations, and
• without the need for adaptation, modification, assistive devices or specialised solutions, by persons of any age or size or having any particular physical, sensory, mental health or intellectual ability or disability.
Universal Design –
Things you need to appreciate before your start designing
Universal Design Assumes

The range of human ability is ordinary, not special
Universal Design Assumes

No two people are the same and no two people have exactly the same ability
Universal Design Assumes

Ability can be influenced by both external and internal factors
Universal Design Assumes

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Every person experiences barriers, reduced functioning, some form of disability – temporary or permanent – at some stage in life.
Universal Design Assumes

Every person experiences barriers, reduced functioning, some form of impairment – temporary or permanent – at some stage in life.
Universal Design Assumes

Every person benefits to some degree from well thought out, usable, accessible, desirable designs

Every person is entitled to benefit from well thought out, usable, accessible, desirable designs
Universal Design is not...
Universal Design is not...

Designing to guidelines and prescriptive standards

Compliance with accessibility legislation
Universal Design is not...

Design only for people with disabilities
Universal Design is not...

• One size fits all

• Rather:
  – Widening the boundaries
  – Improving user experience for existing users
Universal Design is not...

Just about loos
Universal Design is not...

Just functional design
Universal Design is not...

Niche market design
Universal Design

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Universal Design
As defined in Irish Legislation:

Aspirational

End product
Universal Design is

A Design Process
Before you start...

• Why are we doing this?
• What needs should be addressed?

• Understanding of the interaction between the person and the design
Person-Design Interaction

- Mobility
- Manual dexterity
- Physical coordination
- Continence
- Allergy
- The ability to lift, carry or move ordinary objects
- Hearing, Vision, Speech
- Communication and Language
- Memory
- The ability to concentrate, learn or understand
Gain an understanding of....

• **Who** are the users and other stakeholders?
• **What** tasks will the product be used to achieve?
• **Why** does the user want this product?
• **Where** will the product be used?
Who are you designing for?

- Men
- Women
Who are you designing for?

- Children, Adults, Older people

Age Distribution, 2000
Who are you designing for?

- Families, Communities
- Injured people
- Pregnant women
- People with one or more sensory, cognitive, physical impairment
- People with babies and very young children
- People who have experienced trauma
- .......
Involving users

- Representative sample of population
- Interviews / surveys
- User testing
- Task analysis
- User feedback of existing designs
- Iterative design
Involving users - alternatives

• Personas
  – Substitutes for real users, enabling the project team to stand in the shoes of the end users
  – Extreme users
    • Trigger design solutions
Involving users - alternatives

• Functional analysis

• Critical actions or activities
  – Accessing and transporting the shelter
  – Building the shelter (removing from packaging .... a built structure)
  – Living in the shelter
Functional Analysis

- Food and water
  - Access to
  - Storage of
  - Disposal of
What else to consider?

- Privacy
- Dignity
- Independence
- Safety
- Security
Functional Analysis

- Other actions or activities that the refugees are likely to experience
  - Family gathering
  - Visiting neighbours
  - Travelling to meeting
  - Privacy
What else to consider?

- Communication
  - Language
  - Literacy

- Information communicated
  - Cognitive
  - Sensory
  - Tactile
Cognitive

Intuitive design
Sensory

Auditory cues
Sensory

Visual cues
Tactile Maps
Tactile

Navigation
7 Principles of Universal Design

Principle 1: Equitable Use
The design is useful and marketable to people with diverse abilities.

Principle 2: Flexibility in Use
The design accommodates a wide range of individual preferences and abilities.

Principle 3: Simple and Intuitive Use
Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
7 Principles of Universal Design

Principle 4: Perceptible Information
The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.

Principle 5: Tolerance for Error
The design minimizes hazards and the adverse consequences of accidental or unintended actions.
7 Principles of Universal Design

Principle 6: Low Physical Effort
The design can be used efficiently and comfortably and with a minimum of fatigue.

Principle 7: Size and Space for Approach and Use
Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.
Assignment

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• The sustainability and recycling plan together with the health and safety plan (10% of your individual assessment). Universal Design should be an integral part of the Social Sustainability considerations.

• Group report – requires a detailed explanation of the design process.
What to do

• Clearly demonstrate an understanding of who will be using your design
• Combination of personas, functional analysis and/or extreme users, demonstrate 3 design solutions that improve person-design interaction
Further Reading

• General Universal Design information
  http://www.universaldesign.ie

• Universal Design process information
  www.inclusivedesigntoolkit.com

• ‘Design like you give a Damn’ – Architecture for Humanity