The Cardboard Beach House

University & Client:

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Image of Cardboard
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Possibilities of Cardboard
Possibilities of Cardboard
Possibilities of Cardboard
Production of Cardboard
Production of Cardboard

Sources:
- Wood
- Scrap Paper
Production of Cardboard

Process:
- Pulping
Production of Cardboard

Proces:
- Cleaning
Production of Cardboard

Proces:
- Compressing
Production of Cardboard

Process:
- Rolling
Production of Cardboard

End Product
- Rolls of Paper (Kraftliner and Testliner)
Recycling of Cardboard

Can be used over and over!
Types of Cardboard
Types of Cardboard

Solid Cardboard
- Compressed Pulp
- Layers of sheets
Types of Cardboard

Corrugated Cardboard

- deformation
- glueing rollers
- glue compression (light pressure)
- support rollers
Types of Cardboard

Honeycomb Cardboard

- Single wall corrugated sheets
- Stacked sheets
- Cutting from the block
- Corrugated honeycomb

- Paper roll
- Stacked sheets
- Slice
- Unexpanded endless core
- Expansion process
- Expanded honeycomb
Types of Cardboard

Cardboard Tubes
Study of Cardboard

- Literature
- Knowledge Centres
- Research by Design
- Cardboard Factories
Study of Cardboard

Corrugated and honeycomb cardboard are good insulators
Study of Cardboard

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- 4 ways to make cardboard watertight
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- 4 ways to make cardboard watertight
- Cardboard is extremely light
- Cardboard is cheap
- Recyclable
- Can be made compact to expand in function
Coastal Area
Coastal Area
Coastal Area
Coastal Area – Wind Tunnel Test
Coastal Area

Method 1: Sand through the tubes
Coastal Area

Method 1: Sand through the tubes

Method 2: Sand fill in the tubes
Recommendations
Recommendations

Benefit the properties of the cardboard for the need at the coastal area
Design
Implementation

Design Requirements:

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Implementation

Design Requirements:

- The house can be build by two people
Implementation

Design Requirements:

- The house can be build by two people
- No heavy equipment is needed
Implementation

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- Can be build in two days
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Implementation

Design Requirements:

- The house can be build by two people
- No heavy equipment is needed
- Can be build in two days
- Everything fits in a small truck
- The price / lifespan ratio must fit the demand
- The design should help sand movement
Implementation

Marketing:
Implementation

Marketing:

- A manager has a number of houses
- Rents for one season
- People who want to construct themselves, want a cheap house or are cardboard fans
- Easy replacement of parts after the season
Construction
Construction

Main Tubes

Vertical Section

The Cardboard Beach House

Design

Implementation

Construction

Impression

Conclusion
Construction

Sub Tubes

Vertical Section
Construction

Wood Frame

Vertical Section

Wood Frame
Construction

Honeycomb Floor Insulation

Vertical Section
Construction

Wooden Floor

Vertical Section
Construction

Single Frame

3D Construction
Construction

Double Frame

3D Construction

Double Frame

3D Construction
Construction

End Frames

Construction

Floor Plan
Construction

Wind Crosses

3D Construction
Construction

Cardboard Tubes / Ridge

Vertical Section
Construction

Harmonica Wall

3D Construction
Construction

Harmonica Wall

Vertical Section
Construction

Harmonica Wall

Horizontal Section
Construction

Harmonica Roof

Vertical Section
Construction

Harmonica Roof

Vertical Section
Construction

3D Construction

Openings
Construction

Openings

3D Construction

Construction

Openings

3D Construction
Construction

Openings

Horizontal Section
Construction - Parts
Construction

End Roof (4x)
Roof (4x)
Wall (4x)
Honeycomb Panel (4x)
Cardboard Tubes Big (8x), Small (48x)
Tube Connectors (6x)
Wooden Floor (18x)
Wooden Frame Part (8x)
Window Framework (4x)
Transparant Plexiglas (6x) and Solar Panel Plexiglas (4x)
Wall Frame (8x)
Sail Roll in Wood (4x)
Cardboard Curtain (4x)
Construction

- 2x BCC Corrugated Cardboard PE, Kraft
- 4x BCC Corrugated Cardboard PE, Kraft
- 4x BCC Corrugated Cardboard PE, Kraft
- Honeycomb Cardboard, Kraft, Sealed
- 1x BC Corrugated Cardboard, Test
- Sail in Accoya Radiata Pine Wood Frame
- Accoya Radiata Pine Wood
- Plexiglas and Solar Panel Plexiglas
- Robinia Wood Frame
- Accoya Radiata Pine Wood Column, Fill Pinewood
- Deal Wood Floor
- Accoya Radiata Pine Wood
- Cardboard Tubes PE, Kraft and Test

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Research Cardboard Coastal Area Recommendations Implementation Construction Impression Conclusion

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Construction
Construction

10 years

3 years

Wood Elements

Corrugated Cardboard Kraftliner

Corrugated Cardboard Testliner
Construction

Furniture

Impression
Construction
Impression
Conclusion
Conclusion

Cardboard:

- Is not the Egg of Columbus!
- Can definitely be used in the building industry
- The possibilities are limitless
Conclusion

Cardboard:

- Is not the Egg of Columbus!
- Can definitly be used in the building industry
- The possibilities are limitless

And above all:

- Cardboard is an extremely cool material to work with!
Thank you for your attention.