

Project #8 – Emergency shelter

ARC 2461 – Architectural Materials and Methods of Construction
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WW DATA:

In 2003 there were 38 different protracted conflicts in the world, accounting for some 6, 200,000 refugees.

Of the world's refugees 49% are female and 47% are children (under 18)

The average duration of major refugee situations has increased from 9 years (1993) to 17 years (2003)

The UN High Commissioner for Refugees estimates that there were 9, 200,000 refugees in the world in 2004

US DATA:

In the United States, buildings account for:

65.2% of total U.S. electricity consumption

36% of total U.S. primary energy use

30% of total U.S. greenhouse gas emissions

136 million tons of construction and demolition waste in the U.S. (approx. 2.8 lbs per person a day)

12% of potable water in the U.S.

40% (3 billion tons annually) of raw materials use globally

- Commercial and residential

Research

Primary source of research on social impact of catastrophic events and the existing needs and conditions at refugee camps shall be <http://www.mdc.edu/north/library/>

Examples:

click on Database

Database by subject

1. Social Science>World Geography>Demographics Now
2. Social science>Greenfile>ebSCO: research latest articles and diagrams for refugee camps
3. Science>Science in context>Climate Change: A warming Planet
4. Science>Science in context: Browse topics under Earth and Environmental Science

Other Valuable Resources / Links

<http://www.usgbc.org>

<http://www.architectureforhumanity.org/>

<http://www.metropolismag.com/cda/tropicalgreen.php>

<http://www.youtube.com/watch?v=PdcqEjmuxjA>

<http://www.poodwaddle.com/clocks2es.htm>

During natural emergencies such as flooding, fire, tornados and hurricanes, people become homeless. Your project is to design a small, light, temporary shelter that can be transported quickly and easily by flatbed truck to a useable site. The shelter shall be transported flat and disassembled to be assembled as needed. The assumption shall be that local government agencies and FEMA shall have a sizeable number of these reusable shelters stored at protected warehouses throughout the area to be used for emergencies.

The basic shelter module shall hold 2 people; with each add-on sleeping or storage module accepting 4 additional people (see attached Drawing). The shelter shall be constructed of recycled and/or recyclable, lightweight, durable materials. It shall be simple to assemble/disassemble by knowledgeable, but not highly skilled people.

The shelter shall be insulated and water resistant, and needs to be both elevated easily above grade by 30" to avoid debris and flooding, and able to be leveled to adjust to sloped ground conditions. Access shall be provided by ramping (12:1 slope) to provide for the handicapped. Sanitation is provided by portable chemical toilets with a holding tank in the shelter; water supply is provided by manual pumps from refillable tanks near the shelter. The choice of materials, attachment, joinery methods, footing/leveler design and roofing, is up to the students. (No conventional concrete footings – cannot be transported)

Submittal Requirements:

- Floor Plans and 2 Sections at $\frac{1}{4}'' = 1'-0''$
- Shelter Model at $\frac{1}{4}'' = 1'-0''$ (shall demonstrate how modules join each other)
- Detailed model demonstrating framing, attachment / joinery at $1'' = 1'-0''$ (or larger as needed)
- **Research documentation**

Both models shall be placed on a 24"x24", $\frac{1}{2}''$ plywood model base, framed, and with suitable title identification data. (Title of project, student name, professor's name, submission date, course name, MDC.)

EVALUATION:

40% Content	Construction Authenticity, appropriateness of representation, thoroughness of research
35% Graphics craftsmanship	Clear, artful, orderly, logically-sequenced graphic technique and good
25% Progress	Attendance, research, participation, submission on time

SCHEDULE: Tuesday, November 29, 2010
Tuesday, December 7, 2010

Project Issue
Project Due and Formal Presentation

NO LATE PROJECT WILL BE ACCEPTED