



2009-2010 FUTURE CITY ESSAY REQUIREMENT

Instructions

Essay Assignment:

Students will research and write an essay of not more than 700 - 1,000 words on: **“Providing an affordable living space for people who have lost their home due to a disaster or financial emergency.”** The living space should use sustainable materials, have a low-carbon emissions footprint, and achieve the “Green Ideals” of energy efficient building.

The living space design must consider the social, economic and ecological impact of the manufacturing and construction techniques, as well as the end solution to a housing crisis. It should be constructed with the ideal of providing affordable homes to those facing disaster, financial crisis, and earning only 50% - 75% of the median income of the surrounding city.

Students will:

- I. Select and define a living space of their choice (home, pod, orb, high rise, etc) using “green” materials, processes and standards. The living space must be easily expandable to accommodate various living requirements. It should also support the needs of the elderly or persons with disabilities. Students must:
 1. Define the living space type
 2. Define the location of the living space within a city as pertains to quality of life, access to city amenities, and the needs of the homeless
 3. Explain how the living space can be expanded (or reduced), the style of space created (stand alone, multi-family, clustered, etc), and the expected life of the housing.
 4. Explain the target demographic of the housing.
- II. Research and analyze existing sustainable processes, materials and technologies. The students should explore current:
 - Residential design
 - Manufacturing and construction processes
 - Materials and technologies for a living space
 - Interior and exterior design features
 - Processes in each element of the construction that assure a low-carbon footprint
 - Innovations to create the living space
 - Impact on landfill by the construction materials selected
 - Methods to maximize the use of sustainable materials while maintaining a level of comfort or lifestyle quality of the inhabitants
 - Locally sourced or recycled materials
- III. Develop and investigate a new technology or improvement to a technology researched above to incorporate to the residential space to insure sustainable/green design. The

technology or innovation should aim to satisfy the Materials and Resources “Green Ideal” as outlined below. Explain:

1. What specific innovation in Materials and Resources is achieved?
2. How the innovation will function?
3. What key sustainable methods or materials were incorporated in the design?
4. How do these material choices enable your building to fit within the community?
5. What is the impact of your material on construction waste?
6. How does your green material choice impact the appearance (exterior or interior) of your building?
7. What makes your material innovation a good economic, efficient and sustainable choice?
8. What tradeoffs were made to accommodate the economics of constructing your green living space?
9. What is the environmental footprint or impact of your design?

IV. Describe in detail how:

1. How is the living space is easily maintained?
2. How does this design improve the quality of life of the occupants?
3. How does this design improve the quality of the community?
4. What are the key features and benefits of your design and its impact on the community, residents, or environment?

GREEN IDEALS:

Green building and LEED criteria is briefly encapsulated in the “Green Ideals” outlined below. In general, green building is a far reaching process and methodology that encompasses the location, construction, and functioning of the building. While there are many topics designers, manufacturers and construction professionals of green buildings must consider (listed below), for the purpose of the essay requirement, students are asked to focus on Materials and Resources as outlined in Part C above.

- Sustainable sites
 - Access to public transportation
 - Carpooling resources
 - Reuse of existing buildings or developed land
- Water
 - Water use reduction features
 - Water-efficient landscaping
 - Innovative waste water technologies
 - Stormwater management
- Materials and resources
 - Collection and storage of recyclables
 - Reuse and recycling of previously used materials for construction
 - Use of local materials
 - Use of rapidly renewable materials
 - Certified wood

- Zero- or low-VOC (volatile organic compound) paints, resins, glues and other materials
- Construction Waste Management
- Environmentally Preferable Material
- Energy and pollution
 - Use of renewable energy
 - Hot water
 - High performance windows and insulation
 - Lighting, heating, and cooling
 - High-efficiency appliances
 - Daylight views
 - Reduce heat islands
 - Light pollution reduction

Benchmark Your Essay

For information and tips about researching and writing the essay, view the Future City Competition Tutorial CD-ROM. You can also review winning essays from previous years on the Future City Web site, www.futurecity.org.

Students should use a variety of sources of information, such as interviews with experts, reference books, periodicals, and the Internet. Students must attach to their essay a list of at least three sources upon which the students relied. The teacher or engineer-mentor must complete the Essay Form and submit it with the students' Research Essay and Reference List as directed by the Regional Coordinator.

Documentation Details

List the name of your Future City on each page of the Research Essay. Place the word count at the end of the essay. Be sure to keep copies of the Essay Form, Research Essay, and Reference List to take to the Regional Competition.

The Research Essay is 70 points of your total Future City score.

Various references may be used including:

- National Association of Home Builders' (NAHB) model green home building guidelines, <http://www.nahbgreen.org>
- Leadership in Energy and Environmental Design (LEED) from the U.S. Green Building Council, <http://www.usgbc.org>
- World Business Council for Sustainable Development. www.wbcsd.org