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## A lesson in sustainability

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**NORTHERN ILLINOIS UNIVERSITY**

*“A Lesson in Sustainability”*

A Thesis Submitted to the  
University Honors Program  
In Partial Fulfillment of the  
Requirements of the Baccalaureate Degree

With University Honors

Department of Art

**By Kristin L. Kozial**

Dekalb, Illinois

**May 10, 2003**

## **“A Lesson in Sustainability”**

By Kristin Kozial

The purpose of this capstone is to design a prototype for a fast food restaurant, like McDonald's, which uses Green Design, and that serves as a tool for educating the public on sustainability.

The idea of sustainability is to ensure that our actions and decisions today do not inhibit the opportunities of future generations. This means we must engage in sustainable activities such as using materials in continuous cycles and using continuously reliable sources of energy. If we do not use this idea of sustainability, we will continue using non-renewable resources and using renewable resources faster than their rate of renewal. This will cause continued degradation of the environment and lead to extinction of other life forms, and eventually even humans. Green Design is a strategy for optimizing the design of space for the benefit of both the users and the environment through sustainability.

It is very important that the idea of sustainability and its importance gets out to the public, in order to make a significant difference. If a big company like McDonald's would use sustainable materials in a way that educates the public, other companies might catch on. McDonald's is a household name, and we are all effected by this corporation in some way. Maybe sustainability can become vernacular through this household name.

The prototype that I have designed uses elements of recycling, the incorporation of nature, and tools for educating the public. I believe that a fast food restaurant that

incorporates these ideas can reach the public and show them the importance of sustainability.

Recycling is an important part of sustainability because it creates less waste and cuts down on the use of non-renewable resources. Recycling will be implemented in this prototype in many ways. First of all, the prototype will adopt an in-store recycling system to control and reuse its own waste. Not only will this reduce waste, but it will also set an excellent example for the customers. The prototype will also use new ideas for recycled packaging. McDonald's already uses some recycled packaging. Their pie cartons, fry cartons, burger collars, and tray liners all contain recycled materials. McDonald's is also the largest user of recycled paper in the fast food industry, but they can do more.

McDonald's is currently using Styrofoam for their hot cups. Each year Americans use enough Styrofoam to circle the earth 136 times. Styrofoam is a petroleum product that is contributing to petroleum over consumption and depletion of this resource. It also does not decompose at a reasonable rate. I have researched a new product called Paperfoam that would be an excellent alternative. It is derived from completely renewable resources like starch, natural fibre, and water. Paperfoam can be recycled as paper or composted to biodegradable material. It can also be burned without environmental harm and provides excellent product protection, insulation, and anti-static properties.

The prototype will also implement the use of sustainable and recycled materials in the construction of the structure as well as the interior finishes. Extensive research has been made to find the most sustainable and practical products for the interior of the

restaurant. The countertops will be made of a product called Vetrazzo by a company called Counter Production. Vetrazzo is a unique product that is made from recycled glass. There are 89 different glasses available, so the counter tops can be custom made to fit any color scheme.

The flooring in the prototype will be a combination of areas with recycled rubber and reclaimed hardwood. Econights makes a rubber flooring that is made up of 80% recycled tire. Not only is it made from recycled and reclaimed products, but also after its useful life is over, which is many years, it can be recycled back into flooring. Econights comes in 20 standard colors to match any interior. There are a variety of reclaimed hardwoods that are available to use for flooring. Livingreen sells reclaimed hardwood primarily from barns and torn-down buildings in the eastern U.S. In most cases, the lower portion of the structures are rotted and beyond repair. However, the upper sections are still good and are being recycled for flooring. This is an excellent example of sustainability. Using waste to create a useful product cuts down on using other non-renewable resources.

The fabric for the seating in the restaurant will be made by Crypton. Crypton is an engineered textile made by exploring different characteristics of fibers. It is extremely stain resistant, moisture resistant, strong, and breathable. During the manufacturing process, all the chemicals are captured and recycle, so there is no effluent discharge into the environment. Crypton emits only water vapor.

The prototype will also incorporate elements of nature like plants, natural light, and ventilation systems. First of all, there will be an atrium to incorporate natural light and create an environment suitable for plants. Indoor plants have many benefits. Not

only do plants recycle oxygen, but they also break down pollutants in the air caused by various products like detergents, gasoline, oils, smoke, paints and varnishes. The chemicals are absorbed into the plants through the leaves, broken down, and taken up as nutrients. Some of the specific plants that absorb these pollutants include Gerbera Daisy, Philodendron species, Spathiphyllum, and Ficus species. These plants will be integrated into the interior of the restaurant.

Plants also have psychological and physiological benefits. Studies show that interiors are viewed as more relaxed with plants and anxiety levels drop in these areas. They appear to calm people and reduce stress. Plants also contribute to sound absorption, but do not congest the space. Plants also make a space more welcoming and pleasant to be around.

An appropriate ventilation system will also be implemented into the prototype. The system will use more natural unaltered air to ventilate the space. It will bring in outdoor air in a cycle that keeps air moving through the space.

Finally, the most important part and the purpose of this prototype are to educate the public about sustainability. Several education tools will be used. There will be a design for packaging that includes sustainable facts and information to reach even those who just go through the drive through. Sustainable facts will be laminated into the tabletops to educate customers while they are sitting at the tables. These facts will include information on the materials used in the restaurant itself. There will also be a web station where customers can hook up their laptops and look at sustainable websites provided by the restaurant.

The education of the children is also very important because they are our future. There will be an interactive Ronald statue that will talk to kids about sustainability. There will also be a play area with games about sustainability. The recycled tray liners are also a good area for education. Tray liners will be designed with coloring and games with sustainable information, so the kids are having fun and learning at the same time.

The unique design of the prototype should also be enough to catch the eyes of the customers and make them wonder about sustainable products. This prototype seems to be an excellent means of educating the common man about what is needed to save our environment for future generations. I honestly feel that this prototype would inspire more companies to adopt the ideas of sustainability, and in turn affect us all.

I feel that this Capstone Project was very beneficial to my future career. I learned a lot about the importance of sustainability and the products that already exist to help in sustaining our environment. I believe this project has become a wonderful resource for me. This knowledge that I have gained from this experience will be helpful to me when I get into the design world. It would be wonderful if I could implement some of these ideas into “real life” projects.

\*This Capstone Project coincides with a final project done in “Special Problems in Interior Architecture” which was a group project. The final drawings and model were created by the entire group; however, the research paper was created strictly for the Honors Capstone.

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The purpose of this project was to design a prototype for a fast food restaurant, like McDonald's, which uses Green Design, and that serves as a tool for educating the public on sustainability. A fast food restaurant was chosen as the means of education because it would reach the most people through its advertising and corporate name. Research was done to find the most sustainable products to be used in the prototype. The building was designed to include aspects of recycling, the incorporation of nature, and tools for educating the public on sustainability. The phases of this project included Research, Preliminary Design, Design Development, Building the Outcome, and Final Presentation. The Final Presentation includes a paper describing the research of products implemented into the design, a disk including images of the final drawings and model, and a brochure outlining the sustainable products. This prototype seems to be an excellent means of educating the common man about what is needed to save our environment for future generations. Hopefully it would inspire more companies to adopt the ideas of sustainability, and in turn affect us all.

**University Honors Program**

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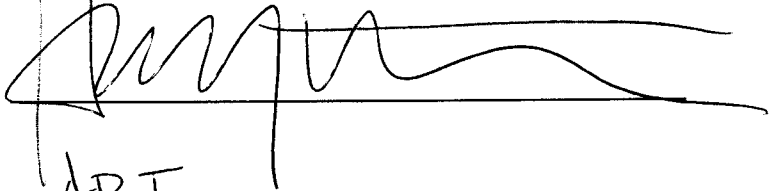
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