

## HOW A DESIGNER CAN SUPPORT SUSTAINABILITY IN A CREATIVE WAY

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### 1. Introduction

This paper explores the term “Interior Design” and in particular the relationship of the interior design profession with its direct and indirect impacts on the environment.

Through a brief analysis, we explore this close relationship, establishing opportunities designers have to promote environmental sustainability. This work goes on to elucidate the role of the interior designer in the delivery of sustainability, providing examples from literature.

Further, the process of design, within a context of sustainability is examined, from the design purpose, source of inspiration and subject through to the selection of materials, method of construction, communication of object’s messages and finally, the realization of the idea and usage.

Finally, the paper expands the relationship of the interior design profession to the wider scope of social and economic sustainability and suggests a strategy which leads to the involvement of community to promote the uptake of sustainability.

In summary, this paper presents an example of an innovative approach to design practice, working towards the promotion of holistic sustainable practice.

#### 1.1 The definition of Interior Design/Architecture

John F. Pile (1978 p.27) defined the term ‘design’ as a term which ‘describes all of the decisions that determine how a particular space will be.’ He explained further that ‘design’ can also be described as a determination of form, with form understood to mean every aspect of every quality including size, shape, material, structure, texture and colour that makes one particular physical reality different from any other’.

Further, Pilatowicz Crazyna (1995 p.5) gives as a shorter definition stating that ‘When we refer to interior design we mean the art of building aesthetically and functional pleasing spaces’.

Interior design is a creative practice that analyzes programmatic information, establishes a conceptual direction, refines the design direction and produces graphic communication and construction documents.

In the United States, what is considered "interior design" is called "interior architecture." However, practicing professionals cannot use the title of "Interior Architect" unless they complete the requirements for becoming licensed architects.

In mainland Europe the term "Interior Architecture" is generally used. In many European countries the use of the title "Interior Architect" is legally regulated. (ECIA)

In Greece and more specifically in Cyprus the term Interior Designer is broadly known and used parallel to the term Decorator (Diakosmitis). There is no legal regulation about the profession of Interior Design or Interior Architecture. Further, in Cyprus there are two professional associations where interior designers can involve with various relevant activities (competitions, presentations, seminars etc).

## 1.2 The definition of Interior Designer /Architect

International Federation of Interior architecture/design (IFI), states that the professional interior architect/interior designer is a person, qualified by education, experience and recognized skills, who: Identifies, researches and creatively solves problems pertaining to the function and quality of the interior environment; and performs services relative to interior spaces including programming, design analysis, space planning, aesthetics and inspection of work on site, using specialized knowledge of interior construction, building systems and components, building regulations, equipment, materials and furnishings; and prepares drawings and documents relative to the design of interior space, in order to enhance the quality of life and protect the health, safety and welfare of the public.

Further, British Interior Design Association (BIDA), defines interior designers as persons qualified by training and experience to plan the design and execution of interior projects and their furnishings, and to organize the various arts and crafts essential to their completion. The interior designer provides a full consultancy service including programming, design analysis, space planning, aesthetics, monitoring work on site, using specialized knowledge of interior construction, building systems and components, building regulations, equipment, materials and furnishings; and prepares drawings and documents relative to the design of interior space.

## 2. The relation of interior design profession with the various environmental issues

Designers are taking decisions and their decisions in various ways can support or not the environment. There are many environmental issues that are connected with the work of an interior designer. Some of those are:

- Tropical deforestation
- Waste
- Resource consumption
- The green house effect or global warming
- The ozone layer
- Water pollution etc.

If we analyze each of these issues separately, we will realize the prospects that the work of the designer has towards promoting sustainability. The following analysis concerning design decisions is given by Dorothy MacKenzie (1991).

- Tropical deforestation

The increase claim in Europe, North America and Japan for tropical hard woods is met by forestry applications which are not sustainable. Some companies claim that they re-plant and cut down only a small amount of trees, but the mass of felled timber results in loss of unique forests. Many species have been destroyed and many more are now in danger of disappearance. Tropical hard woods tend to be associated with high value end-uses, such as pieces of furniture, musical instruments and long-lasting boards for exterior protection of buildings. A great deal of them however it is used for chipboard, plywood and window frames. Also we are using those in other areas where other materials would be totally appropriate.

The simple design decision is not to indicate any tropical woods; unless it can be proved that they are produced in a sustainable way. Timber merchants should be able to provide that information and all trustworthy merchants should at the present be capable to advise and supply good alternatives for traditional tropical hard woods.

- Waste

The most efficient way of addressing the waste disposal problem is to generate less waste. This is an area where designers will have a very important role to play and where good design can really make a difference. For example, when choosing materials and in particular, when launching new material, designers should take into consideration the impact of that material on the eventual disposal.

- Resource consumption

By creating a fashion for minimalism is one approach, but another could be to design multi-purpose furniture and kitchen appliances could be replaced by machines which perform different tasks.

- The Green House effect or global warming

Prospects exist for scientists and designers to design products and buildings powered by alternative sources of energy, but perhaps the single most important theme for design generally, is energy efficiency. The quantity of energy used to produce different materials varies widely. For example aluminum uses up huge quantities of energy, but can subsequently be recycled several times with low energy costs.

Designers can play a significant role in conserving energy in different ways:

- a) By designing products that can be recycled.
- b) By indicating materials which have been produced efficiently. Many packaging manufacturers are now providing details of the energy costs of different materials.
- c) By using insulation materials, or solar panels together with construction techniques that harness the warmth of the earth. These can drastically lessen the energy requirements of buildings.

- The ozone layer

There are very few cases where CFCs (Chlorofluorocarbons) are needed, and the designers should make sure that they are specified. Alternatives exist for almost every use: insulation materials are being developed including one that uses waste paper. Refrigerator and air-conditioning now have an array of alternatives that have been tested.

- Water pollution

There are ways in which all designers can help to reduce water pollution and ease the storage of clean water. This will be as important in some regions as saving energy. Designers can try to design household appliances with far less water. Creative devices for collecting and using rain water also are also required. Further, the designer examines the record of providers of raw materials and components to ensure that their manufacturing processes are not polluting. As minimum requirements, providers should be able to demonstrate that have not broken local legislation concerning emissions.

### **3. The meaning of sustainability and its relation to interior design**

#### **3.1 What is sustainable design?**

Sustainable design is the art of designing physical objects and the build environment to comply with the principles of economic, social and ecological sustainability. It ranges from the microcosm of designing small objects for everyday use, through to the macrocosm of designing cities buildings and the earth's physical surface. It is a growing trend, within the fields of urban planning, architecture, interior design, engineering, graphic design and fashion.

The needed aim of sustainable design is to produce spaces, products and services in a way that reduces use of non renewable resources, minimizes environmental impact, and relates people with the natural environment. Wikipedia (accessed 15 October 2008)

We can say that sustainable design, is design that goes further than being just efficient, good-looking, on time and on budget. It is a design that cares about how different goals are achieved, about its effect on people and on the surroundings. An environmentally conscientious professional makes a commitment to continually try to find ways to diminish design's impact on the world around us.

#### **3.2 The role of the designer**

As Nathan Stegall refers: *'The role of the designer in developing a sustainable society is not simply to create 'sustainable products' but rather to envision products, processes, and services that encourage widespread sustainable behavior'*.

Further, American Society of Interior Designers (ASID), on 'Position on Sustainable Design' recognizes that sustainability should be an essential part of the interior designer's professional responsibilities. ASID acknowledges that sustainable interior design embraces the following:

- Integrated building design developed by collaborative multi-disciplinary teams
- Indoor environments that support occupant well-being and productivity
- Resource and energy efficiency
- Social equity at local and global levels

- Protection of the natural environment
- Positive economic impact of optimized operational and maintenance practices and life-cycle cost assessments
- Advocacy for safe products and services: Interior designers should advocate with their clients and employers the development of buildings, spaces and products that are environmentally benign, produced in a social and safe manner for all living things.
- Protection of the biosphere: Interior designers should eliminate the use of any product or process that is known to pollute air, water or earth.
- Sustainable use of natural resources: Interior designers should make use of renewable natural resources including the protection of vegetation, wildlife habitats, open spaces and wilderness.
- Waste reduction: Interior designers should minimize waste through the reduction, reuse or recycling of products and encourage the development and the use of reclaimed, salvaged and recycled products.
- Wise use of energy: Interior designers should reduce energy use, adopt energy conserving strategies and choose renewable energy sources.
- Reduction of risk: Interior designers should eliminate the environmental risk to the health of the end users of their designs.

Also, ASID believes that interior designers should endeavor to, whenever feasible, practice sustainable design. Interior designers should meet present-day needs without compromising the ability to meet the needs of future generations.

#### 4. Examples from literature

Everywhere, all over the world, designers and architects have become committed for their clients or themselves to the concept of environmental/green design. Older housing stock, industrialized and other commercial spaces are being restored, updated and renewed as contemporary abodes.

- a) The 'residential loft', a housing type developed in relatively recent times is the ultimate kind of urban renewal/recycling project: uninhabitable usually abandoned, row space is turned into spacious quarters for living and working.
- b) Henner Kuckuck, Kuckuck's designs employ unexpected materials that are adapting to the environment. They include aluminum and recycled plastics. In his designs he also takes into consideration the issues of weight, storage and transport. Many of his pieces are fabricates to:
  - be as light as possible
  - reduce the amount of materials consumed
  - allow for shipping at the lowest rate possible
  - collapse in order to store easily

'Formica' corporation has supported Kuckuck's explorations into the use of recycled materials.

- c) Lot/EK, (Ada Tolla – architect with Guiseppe Lignano) pieces are meant to be multifunctional – what they see as the wave – trend for the next century. Their philosophy is that *'if you live in a countryside, nature provides you with trees. The city produces waste so we use that for our designs'*.

Lot/EK's renovation of the kitchen in Alessandra Aleci's brownstone in Manhattan's Chelsea district is representative of environmental recycling in its most literal sense. Innovative elements were made from wooden police barricades, metal signs, food crates and other typically urban matter.

- d) Another example we would like to refer to, is a house renovation that is not the work of a designer or an architect and it can be a very good example for all of us.

Elisabeth A. McGee and Mark S. Pecker believe that is better to recycle than contribute to deforestation by purchasing new furniture. They only use pieces made by Pecker's father or found in McGee's family basement when they renovated their house in Brooklyn.

Fortunately, we can find many examples like the above, so we hope that not only designers/architects or other professionals, but all people will soon be very sensitive about environmental issues and will start to be more willing to 'green' their own homes.

## 5. Presentation of new work

The production of a coffee table is our new design work, therefore based on this concept as well as the fact we do not recycle paper in our area, we started to gather paper. (Figure 1)



**Figure 1. Paper waste**

With the presentation of this emerging design work, this paper aims to illustrate the development of an innovative way of design thinking that applies evolving sustainability principles directly into the interior space. The intention of this work is to relocate all the qualities of the sustainable design process within the interior space. As Stuart Walker posits, *“Design is purposeful and does have utilitarian intent. It is driven by social and/or economic motivators, and products are designed to be purposeful.”* He goes on to say, *“Design can be regarded as an activity which, potentially, bridges the different sides of our nature and becomes a holistic endeavor that looks towards our inner self.”* [20] Therefore objects and spaces that have been designed from recycled materials gathered from the community and processed in small workshops employing local workers represent an enhanced and holistic embodiment of sustainability.

### 5.1 Work Process for paper blocks

Employing Lot/EK’s philosophy: ‘If you live in countryside, nature provides you with trees. The city produces waste so we use that for our designs’. It is a rational action to take as designers. People were willing to recycle and do more about this issue, but the State was not at that moment ready to provide the option of recycling. Working this out in our mind we decided to use some of these papers. We created a series of paper blocks. They were magnificent. Warm to see and touch. The color was neutral. Some splits from the colorful pages of magazines were obvious. Also some vivid white pieces from white paper were clear. (Figure 2).

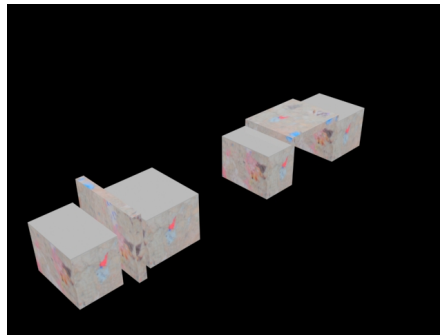


**Figure 2. Paper mass**

The reactions of people around us make us work further. Some of them wanted to have a piece just to have and look at. Some others said they would like to have a frame of the paper mass to put a picture, a girl asked us to give her a flat piece so she can draw on it. We were delighted and encouraged to continue.

Therefore, the next year we were trying to organize ourselves and others to support us on this effort. We asked from neighbors to keep their waste paper in box for us. We thought it was a good idea to

start with a simple object design. Therefore, we created a three pieces coffee table that can also be used as a small stool in a living area.



**Figure 3. Paper blocks**

The three paper blocks that we have produced can be placed into different spatial relationships to form a ‘flexible’ object. (Figure 3)

This concept allows us to organise a series of modular paper blocks that can be combined together in order to create various 3d object combinations each time. These pieces can be developed from a small coffee table, to a polymorphous rectilinear partition wall.

On the surface of the table it has been decided to add a clear glass surface with informational text, in an attempt to present to the viewer information about environmental and other relevant issues. In this way the information becomes one with the 3-dimensional object.

## **5.2 The semiotics of the coffee table**

‘Graphic design is the most universal of all the arts. It is all around us, explaining, decorating, identifying: imposing meaning on the world...it acts on our emotions, and helps to shape how we feel about the world around us’. (Newark 2002 p. 6)

Coffee table - a sustainable communication design – was based on processes of global considerations with good sustainability values that encourage the viewer to develop a sensitivity and friendliness towards the environment.

It is an object for every day use, that its primary sources are paper blocks and glass – materials that are in continuous cycles. One of the main sustainable values and principles was to fulfill more than one purpose. That is, to function as a table, as well as to inform and transmit messages about global environmental issues. This is given through the text that is printed on the glass surface of the coffee table. Furthermore, the surface can also accommodate texts of various contents that are legible to the viewer. (Figure 4).



**Figure 4. Coffee table plan view**

‘What ever the information transmitted, it must, ethically and culturally, reflect its responsibility to society’. Josef Muller-Brockmann (Newark 2002 p. 13)

The role of graphic design in society as well as the responsibility of the designer are vital in communicating the right messages to the viewer.

Our attempt was to rethink how a message/meaning is transmitted. The presentation of text was submitted in an eco-conscious context, rather than that of a commercial context. This way, allows the

viewer to build new reading and spatial relationships between himself and the object, himself and the content of text that forms and transmit linguistic messages. This drives the viewer into different reading experiences and knowledge.

The use of an integrated design process that resulted into the production of a coffee table, consisted of recycled paper blocks, glass, colors, textures and text. All are interrelated and construct meaning (connoted/denoted) on environmental issues.

Speaking of the semantics of our product (Krippendorf & Butter in 1984), the sign, the product itself, the signifier, 'the form that it takes' and the signified, the 'concept it represents', give reflections towards our mission and the reaction we want to create.

The three-dimensionality of the product denotes its function. This in turn connotes recycling, process or even generates positive attitudes towards environmental issues.

## 6. Suggestions and Conclusions

Some years ago MacKenzie Dorothy (1991 p. 38) stated that 'architect and designer have a major role to play in determining how well the building will perform in terms of energy usage and human health and safety'. She also stated that they have a role in promoting the use of materials which are produced in an environmentally sensitive way.

The intention of the created piece of work falls in line with MacKenzie's ideas, and takes them further, transferring all the qualities of the selected design process within the interior space, this concept additionally provides a place for the wider community throughout its realization.

As Daniel Christian Wahl and Seaton Baxter write: 'Since sustainability requires widespread participation, communities everywhere need to begin to shape local, regional and global visions of sustainability, and to offer strategies to engage humanity collectively in cooperative processes that will turn visions (designs) into reality'.

The benefits associated with this potential shift from the conventional design process to one that embraces community engagement in many aspects, it may be possible to impart new values to interior spaces through our designs. As a result, designs will carry essential, and more lasting, value. Firstly as a result of the use of a making process which is not harmful to the environment; secondly, as a result of community involvement; and finally as consumers will be exposed to the displayed text about relevant issues. As a result, the object has the potential to transfer its environmental and sustainable values at different levels. (Figure 5)



Figure 5. Coffee table view

## References

Brandt, E and Messeter J., *Facilitating collaboration through design games. Proceedings of the eighth conference on Participatory design: Artful integration: interweaving media, materials and practices – Vol. 1*, Pg: 121 – 131, 2004.

Buijs J.A. and Valkenburg A.C., *Integrale Produktontwikkeling. LEMMA, Utrecht, 1996.*

Buijs J.A., *Innovatie an Interventie. Kluwer, Deventer, The Netherlands, 1987*



Fincham, R. and P.S. Rhodes, P.S. *The individual work and organisation: behavioural studies for business and management*, Oxford University Press, Oxford, 1994.

Findeli, A. *Rethinking Design Education for the 21st Century: Theoretical, Methodological, and Ethical Discussion*, *Design Issues: Volume 17, Number 1 Winter 2001*

Friedmann K., *Design Science and Design Education*, University of Art and Design Helsinki UIAH, Helsinki, 1997. 54-72.

Hofstede, G.; Hofstede, G.J; (2005). *Cultures and organizations: software of the mind (Revised and expanded 2nd ed.)*. New York: McGraw-Hill.

Hubka V *Engineering Design*. Butterworth Scientific., London 1960

*International Engineering and Product Design Education Conference Delft, 2004*

James V. Carnahan, J.V., Thurston, D.L. and Ruh, R.L. *Experiences with an Industrially Sponsored Project Course*, 1992 *Frontiers in Education Conference*

Laurillard, D. (2000). *Students and the curriculum*. In: Scott, P., Editor. *Higher Education Re-formed*, Falmer Press, London, pp. 133–153.

Liem, A. *Developing a win-win mentorship-scholarship, higher education model for design through collaborative learning*. UNIPED (Tromsø) 2008 ;Volum 31.(3) s. 32-45

Nicolas Beucker, N. *Research Skills as Basis for industrial Collaboration in Design Education*,

Ntshoe, M. (2004). *Higher education and training policy and practice in South Africa: impacts of global privatisation, quasi-marketisation and new managerialism*. *International Journal of Educational Development*, Volume 24, Issue 2 , pp. 137-154.

Scott, P. (2000). *A tale of three revolution? Science, society and the university*. In: Scott, P., Editor. *Higher Education Re-formed*, Falmer Press, London, pp. 190–206.

Sonnenwald, D.H. *Communication roles that support collaboration during the design proces*. *Design Studies*. Volume 17, Issue 3, 1996, Pages 277-301

Website: <http://www.idsa.org/webmodules/articles/anmviewer.asp?a=57>

Website: <http://www.jdesign-online.com/codeofethics.html>

Website: [http://www.studiegids.tudelft.nl/a101\\_displayCourse.do?course\\_id=11271&\\_NotifyTextSearch](http://www.studiegids.tudelft.nl/a101_displayCourse.do?course_id=11271&_NotifyTextSearch)

Yourdon, E *Managing the system life cycle*. Yourdon Press, New York, 1988

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