

Sustainable development of product design in residential interior

ass.-prof. Svetoslav Anev, New Bulgarian University

Sustainable development is a growth model, which aims to use resources to satisfy human needs, while protecting the environment. Model for sustainable development aims not only to be used in the present, but with an eye to future generations. It is bound to a concern about the capacity of natural systems with the social challenges facing humanity. Sustainable development can be conceptually divided into three main components: environmental sustainability, economic sustainability and sociopolitical sustainability.

Products with energy saving features can help the suspension of expenditure of the unnecessary energy, as well as helping to reduce overhead costs of housing.

Consistently developed in recent years, the approach has been officially recognized as very effective way, focusing on environmental problems in the manufacture of the product during the life cycle: from resources used in production through the use and marketing strategy to dispose of waste.

The pursuit of the environmentally friendly products is the basis of the approach. Also they have to be linked with an option of recyclability and produced from environmentally friendly materials.

Sustainable production is closely related with balancing the economic, environmental, ethical and social factors in the creation of the product, i.e. the product design. The creation of a stable product (sustainable design) relates directly to the quality of life and the reduction of energy use and resources.

Residential consumers are one of the largest energy consumers and greenhouse gas emissions producers. The use of eco-design in the production of individual products or in modern residential interior is a priority of more and more manufacturers.

One of the biggest challenges we face today is the world's economies' integrating environmental sustainability with economic growth and prosperity. On the agenda stands the simple idea of making more with less resource and this shall in no way runs counter to environmental factors. Climate changes and increased demand for alternative energy and resources are now a reality. The top priority for manufacturers is to improve the overall ecological performance of products during their life cycle, to promote and demand for better products and production technologies and to help consumers to make better and informed choice.

Sustainable Development Strategy adopted by the European Council examines in an integrated manner the economic, environmental and social problems describing the following seven key challenges:

- Climate change and clean energy;
- Sustainable transport;
- Sustainable consumption and production;
- Conservation and management of natural resources;
- Public Health;
- Social inclusion, demography and migration;
- Global poverty.

Some way or another, all these factors are directly related to the interior design. This is the reason why European policies increasingly turning their attention to the importance of design and in particular - the eco-design. A possible solution to solve problems and achieve better results with regard to sustainable development is seen in this. Therefore, it is very important for designers to emphasize on training and acquainting with the necessary skills and to obtain or update in topics such as eco-design, sustainable design, and environmental impact analysis, options for exit of engineered products methodologies and tools for life cycle assessment.

Of course this is a bilateral process. The role of the ordinary consumer who invests in design should not be underestimated. No matter how well trained and prepared is a designer for the introduction of sustainable design, he needs to work with clients and business. The key of solving these problems is the better awareness, the employee training, and management in implementing strategies for sustainable design.

Even sounds like is already widely used concept the eco-design is a trend. It is a way of thinking aiming to follow public sentiment. Also it is an aspiration for a better and fuller life. "Art eco-movement" is the formalization of the movement uniting in one the ideas of design and living environment and carrying out the connection between them. The movement is still develops and gains more and more supporters to his side. Thought and responsibility are the leading motives of the recent developments in construction materials in the interiors design.

"The realized design" is the idea that orientates people to more renewable resources and environmentally friendly homes built due to a combination of environmental and energy efficiency in a new and beautiful vision. The innovative conception of stability entries like application in the house interior – supplying with solar panels, isolations, for not wasting valuable energy, equipment with low economical class of energy – all are factors supporting the idea of sustainable design.

Ecological and green – these are the words which infiltrate in all spheres of our lives. In this sphere goes everything – from cars and houses till furniture. The focus now is on organic, natural, recyclable materials. More interior designers pay attention to the nature and designed elegantly, stylish and beautiful products for the home.

Modern furniture and products designed for home are widely accessible for the customers. Nowadays there is hardly any human activity that is not related in anyway with furniture. They are distinguished by high functionality, which means a maximal practical suitability in conditions of uses. This is secured by strict observing to the functional sizes, choosing the most appropriate materials, optimization of the construction on the basis of necessarily strength, forming stability, durability and steadiness during exploitation, precision of production and elegant and aesthetical presentation of the appearance of the furniture.

Production of furniture in the new conditions of dynamic design, technique, materials and technologies requires the improvement for the professional preparation of designers, technologists and manufacturers. Factors which can be identified clean furniture as the international standard ISO 14021 for the home should meet the following standards:

- Ability to recycle
- Ability to revision
- Reduced waste production
- Natural origin of the materials

- Longevity of the production
- The business main aim in product design is “Zero Waste” by:
- Estimate of the products and services to create the best consumer and ecological value within the framework of economical acceptability;
 - Minimalization of needless materials and decrease of recycled components in the products;
 - Discovering of productivity applications for second use, recycling and composting of 90% of the solid wastes;
 - Reducing the needs of delivery and the creation of products which answers the criterions of “Zero Wastes”
 - Creating of easily accessible systems for repairs, as well as the process for recovery of the products;

Piet Hein Eek, a Dutch product designer, deals with the above issues quite well. The idea of product recycling and returning them to second life is the basis of his work. Interesting are the series of seating furniture made from old woken beams, which remain as unused material after the execution of a contract. Just cut and graded according to functional needs, they become environmentally friendly furniture. This series is inspired by the large number of beams that were clustered and were the starting point for implementation of the design concept. Also it is limited edition (fig.1), (fig.2).

Another type of furniture bears similar feature is the Tube chair. Made from old pipes left after repairing of a building, witch has recently purchased from the designer's studio. Despite the large number of remaining tubes, he decided not to discard them and return them back into the building, but with a different form and function. The bar in the restaurant was designed and made from the first piece of pipe. Then follow the chair, bar chairs, tables, etc. (fig.3) (fig.4).

The Brooklyn studio – “Brave Space Design” also venture on sustainable eco-furniture in their work. Their concept is based on that furniture can keep people’s health – on the one who use them and those who produce them. What does this mean? According to them the work with standard furniture plates, witch contains formaldehyde and varnishes shorten life span. Not a good alternative in the presence of water-based lacquers for example. One of the favorite materials of the Brooklyn studio is the bamboo plywood, called “Plyboo”. It dominates over other materials with its qualities. It is more durable than most hardwood types. It is as strong as oak, beautiful like bamboo, with much better quality than plain plywood, lighter and most importantly – without emitting harmful emissions (fig.5)

In the impregnation of smooth surfaces of the furniture are used organic herbal oils, essential oils, seed oils, tree resins, wood and beeswax, natural pigments that do not emit any harmful volatile organic compounds. A varnish used are water based and without any toxic elements.

Paramount importance in sustainable furniture is the emphasis on life cycle and options for recycling or composting. Interesting about the designers from "Brave Space Design" is that they do not rely on it. They considered the furniture not have to be disposed of, but just to be reused by dismantling various transformations as most of them are built on a modular basis, which is the facility and during transportation.

This is a very good example of building a sustainable product design intended for residential interiors, well combined with the idea of a good functionality, aesthetic appearance, morphology and ergonomics in the performance of the products (fig.6)

These and many other similar examples and ideas should be the unifying position in which governments and industry to work together with the primary goal -

improving resilience in the life cycle of product design. Establishing the impact of the products over the environment and everyday lives of consumers, will help solving many environmental problems standing as inevitable questions facing modern society.



fig.1



fig.2



fig.3



fig.4



fig.5



fig.6

References:

1. Fiell, Ch., Fiell, P. (2007). Design now. Taschen, 2007.
2. McDonough, W., Braungart, M. (2002). Cradle to cradle. North point press. New York.
3. Moxon, S., (2012). Sustainability in interior design. Laurence king publishing. London.
4. Hudson, J. (2006). 1000 new designs and where to find them. Laurence King Publishing, 2006.
5. Fehrenbacher, J. (2005). „Phenomenal plyboo” in „Inhabitat“, 11.20.2005. <http://inhabitat.com/phenomenal-plyboo/> [21.09.2013].
6. <http://designaddicts.com.au/platform/2012/05/04/piet-hein-EEK-scrapwood-designs-in-its-next-life/> [18.04.2012].
7. <http://ec.europa.eu/environment/eussd/> [22.04.2012].