
Green building tendencies and materials: Home for Modern Generation

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1 ABSTRACT

An object is modern tendencies and materials of green/sustainable design as new form of social, economical and individual life; examples of modern tendencies of green/sustainable design in Lithuania; conclusions, based on complex of green building, friendly eco-design, using of green building materials for getting specific benefits and eco-ethic.

Header 1

In international sustainable development not only eco-philosophy, bio-ethic, eco-law, eco/green design but ecological bussiness and ecological marketing worldwide formulate forms and markets of modern tendencies and materials of green/sustainable design as new form of social, economical and individual life. For business ecological approach, innovations and its applications in practice have become a competitive prerogative for modern business. The concept of green or such called sustainable building includes a variety of strategies and tendencies during the design, construction and process of building projects. As it briefed Jonathan Hanet Hethorn, Conie Ulasewicz, introducing their concept of sustainable design: “The power of design: it’s about thinking of the consumer in ways slightly different from what traditional design practices dictate. To create sustainable outcomes, we must start by critiquing the way we design and how our practices best serve consumers and meet their desires. Design has power to change our perception, action and mind-set. It is our responsibility as designers to shift our thinking and put our ideas into action in order to tap into this power”.¹

1.1 Header 2

We live in the world having many promotional facades. Logically majority of people believe that green design is oriented mostly to the promotion of products with specific environmental characteristics. In general green concept itself it is much more broader concept, which can be related with consumer goods, industrial goods, services, logistics, trends and tendencies of fashion design, innovations oriented to energy using products and the life style approach, health care, social services et cetera. As example - in July 2005 the EuP Directive or Ecodesign Directive was adopted. A major goal of the Directive was to improve energy efficiency of energy using products (EuPs) and efforts to reach the European targets for climate protection. The Directive aims at an overall reduction in a negative environmental impact of the products under consideration and harmonizing the European market for EuPs. The requirements are based upon an analysis of the environmental impact along the entire life cycle of the product. The main point is that all products and product groups depending on energy input – electricity and other energy sources like gas or oil – should be produced and used in the most economical ways.

The model of “green design” is relatively simple. Philosophically it could be briefed as: specific kind of phenomenology, the understandings the world through innovative experience, absolutely different approach to all human activities, day-to-day living in different social, cultural, environmental, industrial, architectural, educational, existential experiences. From hermetic collectivism – to individuals, from strange ideas – to movement, from movement – to product modification and from product – to changes to the production process, packaging changes etc. From social side and environmental side – green design gives efforts to make global community more cosy, and human life – more comfortable and both, national and global contexts – more

¹ Jonathan Hanet Hethorn, Conie Ulasewicz. Sustainable design.- New York, 2008, p.54.

responsible. Next step seems to be implementation of such called green marketing. There were used different terms as “Green marketing”, “Environmental marketing”, “Ecological marketing” et cetera.

At the beginning this phenomenon of green concept was defined as by The American Marketing Association (AMA) during holding the first workshop on "Ecological Marketing" in 1975. It had three main key components: 1) it is a subset of the overall marketing activity; 2) it examines both the positive and negative activities; and 3) a narrow range of environmental issues are examined. In 2007 Lithuanian Professor Dainora Grundey defined result of concept of sustainable/eco/green design, product eco-modifications and green marketing as follows: “complex which consists of all activities designed to generate and facilitate any exchanges intended to satisfy human needs or wants, such that the satisfaction of these needs and wants occurs, with minimal detrimental impact on the natural environment”². Our researchers Burinskienė and Rudzkienė accentuated negative impacts of human nature in context of typical human industrial and social activities as it follows: important point is, that for human consumption by its very nature is destructive to the natural environment in a certain territory³. This is may be one of the reasons why introducing or implementation of any eco-product nowadays has more or less naive, mostly promotional semantic nuance, for example: “ecological friendly product”, “ozone friendly”, “environmentally friendly” etc. But to be honest – this type of products “should be presented as “less environmentally harmful” rather than “environmentally friendly””⁴. According concept of Nancy Rottle and Ken Yocom, ecological design interventions constitute an integration of human needs and desires while supporting the health of natural systems: “Ecological design goes beyond what is “sustainable”, aiming not only to maintain status quo for future generations, but to improve upon the biological integrity of existing conditions. (...) Specifically, ecological design offers opportunities to enrich biodiversity, work with natural processes, stimulate natural systems to become self-maintaining, and regenerate resources for continued use by humans (...) sustainable urban design makes it possible for people to live in satisfying ways that also significantly reduce the human “ecological foot print” on the planet.”⁵

Header 3

The natural building material in the Baltic countries and Lithuania since the very beginning of human settlement has always been wood. Traditional houses were built of timber, the raw material coming from local pine or oak. There was one very authentic way and tradition of building, which existed till the Second World War (just to know: until Lithuania was occupied by Soviet Union in 1940. We have got our freedom and independence back in March, 1990, at the same time, as Albania). The most important tools in traditional building were the broad axe and the plane, both of which were handled by local craftsmen or by the homeowners themselves. According one my interview preparing paper, such broad axes were still used in South Lithuania, our forest region, till 1962⁶. Traditionally there were used authentic forms for preparing timbers for house. The point was: cutting old oak tree, keeping it not less than ten years in the water and after it drying oak wood during next ten years. It meant, that in the fact father was preparing house for his son at once he has got married and this son was born. Until the second half of the 20th century, wooden houses were the most popular structures in Lithuania. The remains of one of the oldest Lithuanian wooden houses were found at the bottom of Luokesai Lake. The wooden structures are thought to be from the VIIIth– IIIrd centuries BC (770–210 BC). The earliest

² Dainora Grundey. Eco-marketing and eco-labelling: does it ensure customer loyalty for eco-products in Lithuania? - Researching Customer Loyalty in Lithuania. - February, 2009.

³ Ibid.

⁴ Dainora Grundey. Eco-marketing and eco-labelling: does it ensure customer loyalty for eco-products in Lithuania? - Researching Customer Loyalty in Lithuania. - February, 2009.

⁵ Nancy Rottle, Ken Yocom. Ecological design. – Lausanne, Switzerland, 2010, p.5.

⁶ Interview with Mr. Vytautas Juočiūnas, 2012-03-14, Prienai district, South Lithuania..

defensive structures were also built of clay and wood. Until the late XIVth century, wooden castles served as reliable fortresses and played a decisive role in the fights of Lithuanians with the German Teutonic order. Written sources describing Lithuanian houses first appeared in the XVth and XVIth centuries. The Polish historian Jan Dlugosz described a Samogitian home as „built of logs and straw“ In 1500 Polish historian Maciej Miechowita (Mathias a Miechow, „De Sarmatia Asiana atque Europas Pistorii“) introduced similar style of Samogitian (Samogitia – Western region of Lithuania) houses. According to him, it was a structure in which the entire family lived and kept its belongings and which was made from long round horizontally laid logs and had a straw roof and one opening intended for the exit of smoke. Lithuanian historian Dionizas Poška described a Lithuanian farmstead with beautiful houses for guests and old Lithuanian wooden houses with a fireplace at the centre. Another Lithuanian historian Simonas Daukantas provided a description of a Lithuanian individual farm comprising a house, a granary, a bathhouse (sauna), and other structures.

In Lithuania even majority of the manor houses from the XVIIIth and XIXth centuries were constructed of timber. The small towns and villages and the suburbs of the industrial era were dominated by wooden architecture until World War II. As briefed Swedish researcher Hans Sandström, “There is (...) special sense for wood shared by people in the Baltic Sea region. Wooden furniture and tools, the smell of fresh logs or freshly scrubbed floorboards; these are memories that constitute a solid base for a common Baltic Sea identity. Rural folks have always lived in wooden houses; grandma’s kindness and wooden houses come together on an emotional level”⁷.

In such called Middle War period (1918 – 1940) traditional wood construction remained widely in use because it was the most economical form of building. As Lithuania was an agricultural country with most residents living in the countryside or small towns, later only the centres of major cities began to be dominated by stone buildings. After Lithuania was occupied by Soviet union in 1940, situation changed. Sovietic government used strategy focusing rural people move to newly established *kolkhozes* (collective farms) and Soviet farming settlements. Entire quarters of wooden houses were demolished in small towns and city suburbs, and concrete apartment blocks, giant administrative buildings and cultural clubs were built. Those were times when timber construction did not withstand the pressure of industrial construction and when, according promotional materials of this time of history of Lithuania, „comfortable and modern“ living in apartment blocks attracted most farm dwellers, who had to spend years on waiting lists to obtain an apartment.

After 1990 the introduction of new building materials and methods of construction has also made influence to old traditional wooden buildings. Often windows were changed into plastic ones, carved wooden doors substituted with solid armoured doors, and synthetic siding and insulation were used to cover buildings. This inexpensive low-quality construction resulted in the disappearance of many historical carved details. It was discovered only later that this new building technology led to mould and dry rot and that gaps in the plastic window frames let in more wind than the previous wood frame Windows. According old wisdom, new is the same old... The same happened in Lithuania 2000 - 2012. Together with economical development old fashioned green building tendencies became popular again in Lithuania. As today building wooden houses it is expensive form of building, it is not so common, as till the Second World war, but wood still is the most popular building material in our country. According crafts of ancestors and ancient natural ecological traditions, „wooden house breaths“. Wooden walls are almost ideal and healthy material for good isolating. Typicall wooden buildings were usually planted with gardens and orchards, full of flowers, vegetables, birds. As it is typicall for Lithuania that nation is willing to have own land, the same tendencies come back: owners who can afford have piece of own land out of the city, give efforts to establish typicall traditional

⁷ Hans Sandström. The wooden architecture in Baltic sea area. – Wooden heritage in Lithuania. Vilnius, 2010.

wooden or semi wooden houses, surrounded with garden and orchard. In these cases when it is too expensive built all house from wood, usually there are used wooden details of interior design.

Such traditional eco-materials as straw or clay are not used in nowadays any more, except preservation of old wooden architectural heritage, but forms of green building, exterior and interior design, as in such called “passive house”, won customers already, as ecological and comfortable for living way for increasing energy efficiency of buildings. Around nine Lithuanian companies and institutions involved in constructing, building materials, and real estate joined their endeavours to design and construct the first Lithuanian passive house in 2009. The idea of the building was quite simple. The main aim was designing and constructing a well-insulated and air-tight passive building to minimise heat losses through the walls and to ensure air conversion and a qualitative microclimate in the premises through a modern recuperative ventilation system. The exterior of a passive house practically did not differ from other detached houses. The only difference could be that it has no chimney on the roof or heaters inside. The house is very warm, economical, similar to scandinavian type of „silent house“ and functions without a traditional heating system. Fresh heated air is supplied to the premises thereby always producing a good microclimate in the building. Exterior walls are warm and it has no draughts. The passive house is warm in winter and the rooms stay cool and do not require additional air-cooling in summer (as it can be -35 in winter and +35 in summer in Lithuania). It is a house comfortable to live in every the season of the year. The Lithuanian passive house has minimalist architecture, with large south-oriented windows, using all opportunities of our local nordic climate⁸.

As in modern context green building materials and building tendencies offer specific benefits to the building owner and occupants: reduced maintenance/replacement costs over the life of building; energy conservation; improved occupant health and productivity; lower costs associated with changing space – it means design flexibility; increasing ethic and social responsibility as well. According to this aim, ecological programme for all European Union was established. In European Union all new buildings must be nearly zero energy buildings by 2020 and the buildings occupied by public authorities by 2018. This is how the Council of the European Union maximised the requirements of energy efficiency for buildings last year. It was announced that all Member States should draw up national plans to reduce energy costs of building up to zero and to increase the energy efficiency of buildings by energy from renewable sources in the construction sector. The Energy Performance of Buildings Directive (EPBD) should be amended respectively...The Government of the Republic of Lithuania by Decree No. 804 adopted the National Green procurement Implementation Programme 2007-2011 on August 29, 2007. The green procurement is defined, the aims and results, assessment criteria are established. For implementation of the National Green Procurement Implementation Programme, Minister of the Environment of the Republic of Lithuania by his Decree No. D1-697 (December 22, 2007) confirmed the list of different products, from eco-food till building materials, for which the environmental criteria in public procurement procedures had to be applied since 2008 and approved the environmental criteria for such products. Although the green product procurements cover for now only 5% of all public procurement, the implementation of environmental criteria is not a voluntary incentive. According to the National Green Procurement Implementation Programme, “green“ procurement had to reach the level of 10% of all public procurement till 2008, not less than 15% till 2009, not less than 20% till 2010 and finally not less than 25% till the end of 2011. Unfortunately, because of global economic crisis not all these plans were realized. But as wood processing – surface treatment and processing, avoiding gluing and lacquering – was oriented and regulated in governmental level, it made positive influence at least to the green building.

Green design tendencies made noticeable influence to architecture, building technologies, Social Entrepreneurialism and even fashion design in the XXI century. A new entrepreneurial revolution and economic trends growing in nowadays are pushing sustainable/green design

⁸ In: <http://www.veikme.lt>

forward. Green industries, ranging from those that provide products and services made in eco-friendly manners to those, that supply renewable energy, have grown into a multi-billion dollar market. As the science and practice of sustainability continue to evolve, let's hope, it will be green marketing of its concepts and products. One of the shortest and creative ideas of green design depends to representatives of New Functionalism. They accented, that: "The house is not a machine. Instead, it is a collection of systems, structures, aspirations and memories..."⁹

2 CONCLUSION

One of the reasons green building took off in the marketplace the way it did is that green building treated the house as a system, including residents. According to market research, the second most important driver for homeowners to buy green homes was improved indoor air quality, especially when children are in the house. Technology, being a market product, is also responsible for the present condition of the natural environment. One can find numerous examples showing both negative and positive influence of (new) technology on the environment. On the one hand, the present state of pollution is partly a result of technological innovations introduced in the past decades. On the other hand, new technology is a tool for the environment protection and rescue, i.e., a liquidation of damages caused by the past technologies. Therefore, environment-friendly products/processes should be offered in the market and supported by governments in national and global levels as well. Technologies are crucial, as it can enable a sustainable building/fashion/design system by making the right product, getting the right product to the right person, and adding beneficial functions to the product for the occupant and owner.

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