



ECO-CONSTRUCTION PRINCIPLES — THE BEST MODERN SOLUTION FOR MORTGAGE FREE HABITAT



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Abstract

The research covers main aspects of the eco-construction principles, European and Latvian related legislative background. It represents few affordable eco-construction habitat examples as an alternative for the conventional construction standards.

The aim of the research is to analyse the consumer market, values, potential behavior of the customers and to foster the spreading of eco-construction business ideas and to find the best or better solution for the housing problem, providing Latvian, Baltic States citizens and other interested parties the confidence to believe in the better future with the less resource consumption, financial, tax, mortgage and other construction and maintenance habitation burdens. In addition, the author of the research describes the core advantages of the "green" and/or "passive" houses from economic and social perspectives.

What is "Eco-house"?

"Eco-house" = "Autonomous building" = "Net-zero-energy building".

We all know what the "Building" is, first of all it is needed to identify what "Green" means. "Green" = Green+Sustainable+High Performance.

A net-zero-energy building is one that produces as much energy as it consumes on an annual basis.

"Eco-house" is a "Sustainable Building" which is the practice of creating structures using resources that are environmentally responsible and energy-efficient.

Research Scope and Questions

The extensive research scope contribute business decision-making which covers 6 different areas: business, finance, individual development, scientific engineering, social and environmental, whilst it addresses 3 research questions:

Business and finance related.

Can Eco-construction Business be successful and competitive on the current Latvian real-estate market?

Individual development and scientific engineering related.

How is it possible to gain knowledge, to build and to sell autonomous private eco-house in the most efficient way, at affordable for the average customer prices, in the current and future market environment?

Social and environmental related.

How is it possible to introduce, to develop and to popularize an eco-friendly habitat and lifestyle ideas to the society, and to improve the living standards and conditions of the future generations, reducing any negative impacts on the environment?

Authors identified the target market of eco-construction products and to reveal the business initiation success and opportunities on the Latvian and Baltic real estate market. The results of the research will answer 2 main questions - "What is important for the consumers when buying, building house?" and "What are the eco-construction business perspectives in the current real estate market?"

Methodology

Authors took into consideration, interpret and summarize equally secondary data (theoretical) and primary (empirical) information resources.

Secondary research is generated by: private housing eco-construction key concepts, definitions and statistical data; publicly available eco-construction publications as well as books, journals, reports and trend reviews and other data available on eco-construction related enterprises web-sites, social networks; overview of the most authoritative global eco-construction organizations; eco-village benefits, projects and global eco-construction network development for sustainable habitat; example of a green building - dome house and straw house designs, their main benefits.

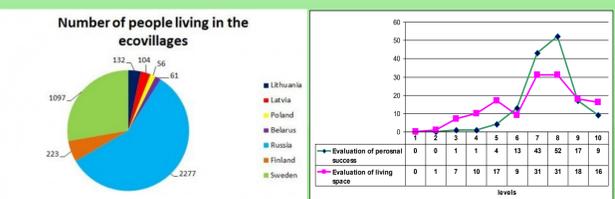
Primary research constitutes of combination of qualitative and quantitative methods: Internet based survey (140 samples); interview with the eco-construction experienced expert; Research authors' professional 5 years observations, experience and fact based assumptions of possible future market development scenarios, obstacles and construction technological improvements and innovative approaches on a local market.

Authors believe and claim that the improvement and constant change in individual living conditions and introducing eco-house construction idea concepts to the market may bring overall positive social effect as well as the financial health to the population.

"Eco-house" is an „opportunity" to use our resources more efficiently, while creating healthier and more energy-efficient homes. Although there is no magic formula, success comes in the form of leaving a lighter footprint on the environment through conservation of resources, while at the same time balancing energy-efficient, cost-effective, low-maintenance products for our construction needs.

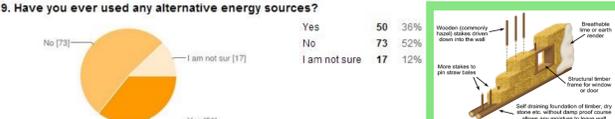
Conclusions and Highlights

- Eco-construction principles allows to reduce housing maintenance costs up to "0" or close to it. Therefore saving on the habitat maintenance or utility bills (heating, electricity, conditioning, lightening, etc.) citizens could easily cover their mortgage loan payments. In other words, mortgage payments could be completely covered by the reduction of utility bills.
- Example: If for the conventional house mortgage payments are 300 EUR/Month and utility bills are 300 EUR/Month, by using eco-construction principles we could save around 300 EUR/Month, which is the same as mortgage payments.
- Affordable for the average customer/ household eco-house price of equivalent of 100 square meters area is around 70 000 EUR. This house price is affordable for the majority of the respondents and based on their net income answers.
- Unfortunately there is still a myth in majority of the society that green technologies always cost more. While many green materials and technologies do cost more, it has been demonstrated that many green strategies and technologies actually cost the same and some even cost less than traditional "not-so-green" technologies.
- Eco-construction authorities and organizations play a crucial role in green building ideas development and promotion. These authorities incorporate the latest topics and findings, create trends, standards, laws, etc., but what they mainly do is influencing the global real-estate market trends which support "eco" and eliminate "ego" construction models. Green building is taking hold around the world, despite the global economic downturn. Around the world, green building is accelerating as it becomes viewed as a long-term business opportunity.
- Authors found out that there is a direct positive correlation levels between two factors, personal success and living space. Mainly based on the 1st coefficient calculations the authors considers that level of personal self-appraisal is dependent on the place where people live and otherwise there is an influence of a living space on an individual self-assessment.
- Based on the external survey results author are concerned that the idea of living "green", and affordability of eco-houses will positively affect the inhabitants' marital status as well as decision to have children or to have more children, what is very important for Latvia. The Eco-house idea is an efficient resource of investment into the future life, including family and children prosperity.
- Authors are glad to observe that the majority consisting of 99 or (71% of respondents) care about environmental issues. However, it is still sad that there is such a part of the society 22% who are not sure or even worse there are those who even do not care at all what future generations will see of the current natural beauties. It is important to rise an awareness of the society to preserve natural resources, because doing that as it was seen from the theoretical part of the research we can count on preserving humans intellectual as well as physical health, positive life attitude, better future social development, financial stability, friendly environment, better self- assessment, better living conditions, tastier food, etc.
- Case study has shown that there are some differences between Latvian and European target market for the Eco-village residences. The main difference is Latvian and European families' income. For example, the average income per month in Germany is 3695 euro, but in Latvia is 950 euro. However, the social benefits of Eco-village in Latvia and Europe are the same. When people are spending time in their families they are less stressed and have less outside things occupying their attention, they are more relaxed and careful with children.
- After the provided research the authors a happy to confirm that it is possible to form a viable, successful and competitive private housing eco-construction business as well as to reduce the overall mortgage burden of the local population.



Number of Baltic Sea Region inhabitants living in the ecovillages

There is a direct positive correlation levels between two factors, personal success and living space.



Wooden (concrete) floor slabs are placed down into the wall. Structural timber frame for window or door. More slabs to get other levels. Self draining foundation of timber, sty concrete, thermal break and concrete allows any moisture to leave wall.

Recommendations.

The process of the research has revealed that the green-building and eco-village themes are well treated by the foreign organisations. However, local government do not pay enough attention to promote eco-friendly lifestyle and do not support enough green building ideas. Latvian government and other construction organizations have to take over abroad experience and to form the legislation system based on international experience that was mentioned in the conducted research.

There is a big demand for eco-friendly lifestyle and eco-construction projects, the local business has to introduce more smart and efficient eco-friendly ideas and will be able to make more money.

There might be stated that such new founded eco-construction companies may face different business related risks they should be aware of. Such risks are changes in project scope and requirements; insufficient skilled staff and/ or design errors and omissions; inadequately defined roles and responsibilities; etc. To avoid risky situations there should be clearly defined risk policy.



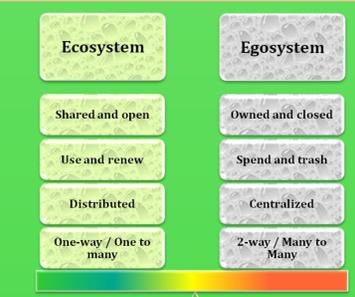
Geodesic home exterior. Credit: C & R Enterprises

10 most valuable theses in favour of autonomous eco-house:

- Eco-house prime costs are less than the conventional house available on the market.
- Eco house raw materials are natural and have positive effect on human's health.
- Eco-house is autonomous and independent, absence of public utility costs.
- Eco-house utilities are private, can be bought, sold or improved if necessary.
- Eco-house average building time is much less than conventional construction.
- Eco-house foundation on the spiral piles is much more reliable and sustainable.
- Eco-house is environmentally friendly, uses solar, wind, geothermal and water energy.
- Eco-house is resistant to bad weather, internal, external planning is energy efficient.
- Eco-house has automation of many life sustaining functions (stable internal climate).
- Eco-house is an asset from the business and economy point of view. It needs just little maintenance. It brings profits and more competitive for selling and renting purposes.

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EGO VS ECO

Ego and pride have led to a dangerous level of hubris in the world which is endangering the irreplaceable ecosystem upon which we all depend.

Eco must overcome ego, if mankind wants to survive and flourish, but it will be an epic battle for each and every one individually. Eco triumph means freedom for humanity, and good health for the planet. Eco-construction based principles that are mentioned in the current research amplify the chance "eco" to conquest "ego" society model.

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