

## Energy-Saving Methods and Principles of Energy-Efficient Concept Design in the Northern Hemisphere

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**Abstract :** Nowadays, architectural development is getting faster and faster. Nevertheless, modern architecture often does not meet all the points, which could help our planet to get better. As we know, people are spending an enormous amount of energy every day of their lives. Because of the uncontrolled energy usage, people have to increase energy production. As energy production process demands a lot of fuel sources, it courses a lot of problems such as climate changes, environment pollution, animals' distinction, and lack of energy sources also. Nevertheless, nowadays humanity has all the opportunities to change this situation. Architecture is one of the most popular fields where it is possible to apply new methods of saving energy or even creating it. Nowadays we have kinds of buildings, which can meet new willing. One of them is energy effective buildings, which can save or even produce energy, combining several energy-saving principles. The main aim of this research is to provide information that helps to apply energy-saving methods while designing an environment-friendly building. The research methodology requires gathering relevant information from literature, building guidelines documents and previous research works in order to analyze it and sum up into a material that can be applied to energy-efficient building design. To mark results it should be noted that the usage of all the energy-saving methods applied to a design project of building results in ultra-low energy buildings that require little energy for space heating or cooling. As a conclusion it can be stated that developing methods of passive house design can decrease the need of energy production, which is an important issue that has to be solved in order to save planet sources and decrease environment pollution.

**Keywords :** accumulation, energy-efficient building, storage, superinsulation, passive house

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