

International Best Practices regarding Eco-design in the Construction Sector

The construction process itself causes significant impacts on the environment, mainly related to waste generation, climate change, air pollution and consumption of natural resources. It is estimated that the construction sector consumes 16% of global freshwater resources and 30-40% of global energy and accounts for up to half of all the extracted raw materials by weight. It further produces 40- 50% of the waste in landfills and is responsible for 20-30% of greenhouse gas emissions.

More specifically, construction projects impact on their environment directly or indirectly throughout their entire lifecycle, as well as throughout the lifecycle of the materials and components used to construct them via a series of interconnected human activities and natural processes. These impacts can be local, such as the generation of construction waste, or global, such as climate change, and can be resulted from all the phases of a construction project, i.e. the extraction and transportation of construction materials, the construction, operation and maintenance of the building, as well as the demolition after its end of life

As the environmental impacts of the construction sector become more apparent, due to the increased construction activity, sustainable development and eco-design lead the way to reduce the impact at the source and create a healthier construction model. In the framework of the SUSCON project, a report on international best practices regarding eco-design in the construction sector was conducted. The fundamental principles that were examined in terms of eco-design were:

- Optimization of site selection
- Appropriate selection of building materials and use of environmentally preferable products
- Optimization of energy use

- Protection and conservation of water resources
- Enhancement of indoor environmental quality
- Optimization of operational and maintenance practices

The report also includes information on the most important tools for environmental impact assessment. The tools are categorized in two groups, those based on criteria system, such as BREEAM, GBTool, LEED and EcoProfile, and those based on life-cycle assessment methodology, including Bees, BEAT, ATHENA and TEAM.