

# Mankind's Tendency Toward Sustainability: Future Of Renewable Energies And Smart Materials In The Built Architectural Environments

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**ABSTRACT-** *The growth of the society has constantly improved human material livelihood quality, simultaneously, human environmental-protective awareness has been frequently improved, and the idea of energy saving and environment protection has gone into many features of human life. People have initiated to know that natural resource is restricted, and the human being cannot take from the nature endlessly. Everyone should make great efforts to make the compatibility between human and nature. And the landscape design is the connector between them without failure. City comprises the town square design with hundreds of thousand square meters and the green space design with tenth of thousand square meters, and if the energy crisis of landscape design cannot be responded better, it will cause large of energy wastes. The problem how to create a real green landscape has been the problematic issue that people more and more observed. The election of materials in the construction process of landscape design has turned into the very important notion to make green landscape undeniably.*

**Keywords:** compatibility, Environmental protection, Energy saving

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## 1. MAIN PROBLEMATIC ISSUES PREVALENT IN THE LANDSCAPE DESIGN AT PRESENT

### 1.1 *The profligacy of design standard causes redundant wastes*

The importance of the landscape on the usual meaning is the base of human existence, but not only the attractive landscape, and it's human livelihood area, so it must be in harmony with the basic request and definite cultural demand of public entertainment, and its chance is chiefly to make public opening space for the leisure activities, not the environmental glorification concept. The contemporary landscape design is not engaged in creating concrete things or building specific picture any more, and it must create the new association between human and entire environment, and cause the existence of public space and communication space. Therefore, in the procedure of landscape design, more workability must be considered, and a large amount of granites, marbles, stainless steels, glass curtains, super lamps, import ducts and other luxurious landscape materials are not applied in the landscape design to compensate so-called urban light points, because it not only throws off the natural beauty and melodious beauty contained in Iran Traditional park, but also causes a type of situation emulating each other and intermixing with culture. And it not only squanders restricted natural resources, but doesn't reach to expected effects for the design. The park landscape is a combination with numerous functions of society, nature and arts, which should not satisfy the social functions of ecosystem, environmental-protection, leisure and urban glorification, but also is in harmony with the natural rule of botany, and embody the tradition and individual style on the arts at the same time. So we should not give emphasis to the materials such as sumptuous and elegant materials, but consider the cost and workability of the landscape and its impact on the environment, and reduce insignificant burdens to the natural resource [2,4].

### 1.2 *The complexity of simple design*

The complexity of simple design is the natural problem happening in contemporary landscape design. In the procedure of landscape design, though few resources can attain impacts, but intricate demonstration is often used to cause wastes with diverse forms. For example, the road greenish in some residential areas can approve simple design technique such as planting sidewalk trees to obtain good effects. But in many sumptuous residential areas, many redundant decorations are supplemented to induce wastes of resources. The peripheral Iranian cypresses along-side the gardens in Esfahan and the popular tree street on the Valiasr Street, Tehran, are good examples of simple design. The simplicity can sometimes represent status and the modesty in the concept. So there is not compulsory to follow so-called "light point", and more external decoration looks unstable. Vast grounds distort the proportion of greenbelt, which

demolishes the entire balance of the landscape and cause indispensable wastes of natural resource [3,5].

### ***1.3 The unsteadiness of imperfect green shadow***

The imperfect green shade and unnecessary squares are other troubles in the design of current landscape. The trees planted currently cannot create green shadow, and many greenbelts are occupied by various appearances, which make the region of greenbelts more condensed. Many seascapes use concretes to make pool underneath and shores, which blocks the land atmosphere and cannot circulate the natural system satisfactorily. Facing these difficulties existing in the landscape design, designers struggle to look for methods to unravel these problems. In the exploring procedure, the design path and design concept are progressively shaped to fit Iranian situation [9].

## **2. THE FUNDAMENTAL CONCEPTS TO RESOLVE THE PROBLEMS IN THE PROSEDURE OF DEBATE**

### ***2.1 The application of the sustainable development design view in the landscape design***

The environment and energy crisis is serious in Iran which is in the path of industrialization, and this situation is emerging in the urbanization course. The environment and the energy are a pair of inconsistencies that cannot be achieved together for the developing countries due to the reason that development should use up huge energies and devastate environment, so we can not pursue the same old catastrophic road in the procedure of the development, and we must summarize profit and loss and discover our own development method from developed countries. This kind of new development propensity should induce a kind of new design concept, i.e. the design concept of sustainable development. The design view of sustainable development is to preserve ecology and generate human existence environment of sustainable development, which cannot accomplish the human requirements to the environment, but also cannot take the ruined environment as the expense and consider the advantages of offspring, and it is the primary mission of 21st century environmental landscape design. The concept of sustainable development proposes the ethic compulsion and social obligations supposed by the landscape designers. The landscape designer's responsibility is to put the landscape, construction and basic foundation into the successively development and great system integrated by all artificial stuffs and natural things to think over problems, which can efficiently watch over great wastes and uneven occupation caused by this kind of behavior. The efficient employment and economy in order to the resources are modern landscape designer's duty, and we must understand this task. With the more worsening of environment and energy crisis, the notion of sustainable development has been a kind of utilization method to handle the triangle among environment, healthy and development, and been the middle of importance of modern landscape and architecture research. The idea of sustainable development makes designer and proprietor reevaluate the sensibleness of the design from the eye of morality and landscape consumption, which alters the organization method in the conventional design and supports the design of subtraction in the design procedure, even only quits the main content of ethic relation between human and virtual world. The applications of revival materials and the elongation of lifecycle of materials through protection can decrease the amount of requests of materials. The materials which lose effectiveness can be simply segregated and disassembled, which cannot impact the constant use of the materials that can perform effectively [4,5].

### ***2.2 The implementation of smart ecological design in the landscape design***

The ecology is a type of science about the interaction between human and nature. The western environment and energy crisis urged the contemporary ecology to the historical step, but the ecology concept of Iran has not gone into general view, and the ecology is identical with green, even it had been a disguise of the tree replantation which gravely demolishes the ecology for a time. The ecology is the essential issue of the landscape ecological arrangement, and the design of landscape district should pursue the ecological principle. The contemporary landscape design understands the landscape district as a part of natural environmental system, seriously and sensibly uses natural resource, diminishes the devastation to the ecosystem to defend natural resource, and diminishes the invasion of landscape discrit to the nature to the least level and consequently maintain the unity of natural system, and sets up local ecological space related to the principle of ecology. The criterion of ecological design is accustomed to follow natural atmosphere and comply natural living environment. The sustainable development of the landscape is the final goal of ecological arrangement. In the design of society environment, the ecological design is represented in displaying nature, deteriorating building, supporting the compatible status between human and reproduction. Therefore, when we execute smart environment design, we should support to create natural environment and biology more interactive [4,8].

### **3. THE APPLICATION OF ENERGY EFFICIENT AND ENVIRONMENT-PROTECTIVE SMART MATERIALS IN FUTURE OF LANDSCAPE DESIGN**

#### ***3.1 The initiation of environmental-protective and energy efficient smart materials***

In front of so many problems, the landscape designers are surveying their own development ways in frequent practices and seeking for the methods to resolve problems. From patio design to plaza design, from greenbelt plan to municipal arrangement, the environment-protective and energy efficient smart materials have gone into every part of landscape design and been performing important functions, and the materials have become into the significant correction and assortment to encounter the challenge of ecological environment crisis and consider human behaviors for contemporary human society, that is to say, we should alter the greedy even destructive development mode that takes environment destruction as cost, make economy and society and environment grow compatibly, and make landscape design walk up the path of good motion. We should not only protect surrounding ecological environment, but also recycle energies and decrease the solid second handed which seriously ruins the environment. We should frequently distinguish that the environment safety is the basis and base of social development, and we should employ environment-protective and energy efficient smart materials in landscape design, change old vision of energy, which can not only save restricted natural resources and profit children, but save environment and generate good environment for our existence. In the time that the scientific technology alters quickly, many technical research consequences about materials of landscape have been utilized in landscape design, which has brought tangible benefits for us. Some human thoughts in previous times has become into realism and been implementing irreplaceable functions in real life [1,8].

#### ***3.2 The utilizations of three sorts of environmental-protective and energy efficient smart materials in the landscape design***

##### ***3.2.1 SF synthetic material***

The SF synthetic material is a type of new high power artificial material which takes old plastic and worthless coal powder as chief raw materials to be treated through technical machining handicraft and activator. The nature of SF synthetic material is the nonuse of wood, which can shield environment and resolve the problem of defective wood when the natural forest is sheltered. In many types of landscape design, we can see that great numbers of woods are utilized to make park chair, flowerbox frame, tree pool and other fundamental foundations in the earth project, which can causes not only pointless wastes of forest resource, but also some inevitable defectives such as easy burning, short-term life and repeated replacing. Therefore, the wood resource will be exploited continually, but SF synthetic material will profitably resolve this problem, and it is combined by second-handed through undamaging disposal, and it can not only decrease the damage of cast second-handed off to the environment, but also substitute woods to be the significant materials in landscape design. Its anti-destructive and anti-insect capabilities can make it not only includes the benefit that woods don't have, but also guarantee that its life cycle is longer than woods and its maintaining charge is fewer than woodwork. With the arrival of smart energy efficient and environment-protective material, SF synthetic material, it will be broadly accepted in many projects such as architecture, urban design, road and city construction, and it will add a gorgeous landscape line for our life and convey healthy and nontoxic environment to us [1,6].

##### ***3.2.2 New smart color technology: titanium white***

Great numbers of color brick will be applied to cover earth or create flower pool in landscape design, and many production paths of color will generate much pollution and ruin the environment. Therefore, it is the main problem to remove the pollution of color in the production course for constructing environment-protective landscape. The titanium oxide is a type of best possible white color, and because of its extremely chemical durability and excellent color performance, it is broadly used in different areas of national economy such as ceramic, synthetic, tablets, cosmetic. It proposes based for good landscape design and adds beautiful characteristic for the urban landscape [1,6].

##### ***3.2.3 Modified Lava***

Apart from general characteristics of ordinary stone materials, the Modified lava includes its own particular style and strange function. The Modified lava can defend against flowering and climate, cover well, absorb sound and lessen noise to enhance hearing environment. It is easy and simple and avoids giddy to enhance the vision environment. It can soak up water, resist slide and impede heat to enhance the feeling environment. Its special "breath" function can prepare the air moisture to enhance the environment. Its different special benefits can make the new style that modern human follows initial simplicity and nature and supports green environment-protection. Because of its rigid stone nature, the Modified lava can create super thin flagstone material. Its color and shine is brilliant and pure, and its look is luxury and calmness,

so it is widely used in assorted external wall decorations, city road and earth covering in residential area and it can propose fundamental materials for environment-protective landscape [1, 6].

#### **4. CONCLUSION**

Presently, the fast urbanization path in Iran has made the inner-city environment construction face severe challenge. The landscape is the significant part of the urban ecology, and it has significant function to improve the function and vigorous development of the urban ecology. The incidence of new term always presents the incidences of new problem, new thought, new discussion and argument, and the landscape design is indicating this quality since it went into Iran for almost ten years. It makes conventional theory which takes the flavor as the base give place to the practical ecological design which integrates professional knowledge and social requirements with natural system. The ecological design is one very essential aspect to come to a decision whether the landscape design and environment quality are prosperous, and the effective path to generate the landscape with improved environment, quality and safety. And the energy efficient and environmental smart materials can execute important functions in the development. The practical functions of energy efficient and environmental smart materials will be frequently perfected in future development procedure and serve for actual green environment-protective landscape. We can predict that the energy efficient and environmental smart materials must replace current materials and perform exceptional function in the landscape design.

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