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Energy Efficient Plant Design Approaches: Case Study of the Sample Building of the Energy Efficiency Training Facilities

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Abstract : Nowadays, due to the growing problems of energy supply and the drastic reduction of natural non-renewable resources, the development of new applications in the energy sector and steps towards greater efficiency in energy consumption are required. Since buildings account for a large share of energy consumption, increasing the structural density of buildings causes an increase in energy consumption. This increase in energy consumption means that energy efficiency approaches to building design and the integration of new systems using emerging technologies become necessary in order to curb this consumption. As new systems for productive usage of generated energy are developed, buildings that require less energy to operate, with rational use of resources, need to be developed. One solution for reducing the energy requirements of buildings is through landscape planning, design and application. Requirements such as heating, cooling and lighting can be met with lower energy consumption through planting design, which can help to achieve more efficient and rational use of resources. Within this context, rather than a planting design which considers only the ecological and aesthetic features of plants, these considerations should also extend to spatial organization whereby the relationship between the site and open spaces in the context of climatic elements and planting designs are taken into account. In this way, the planting design can serve an additional purpose. In this study, a landscape design which takes into consideration location, local climate morphology and solar angle will be illustrated on a sample building project.

Keywords : energy efficiency, landscape design, plant design, xeriscape landscape
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