

RATIONAL USE OF PLANTS IN BUILDING INTERIORS FOR THERMAL COMFORT : QUALITATIVE AND QUANTITATIVE ANALYSIS



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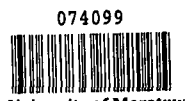
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ABSTRACT

Plants have increasingly become an integral part of the interior design of building in recent times. This is due to prevailing fashion and also in an attempt to produce an environment in which people feel psychologically comfortable. And it is also an attempt to be in touch with the nature. This research study aims to find how thermally comfortable environments could be achieved by using indoor plants and find how the different characteristics of plants, such as the color, leaf size, height and even the number of plants affect the internal thermal environment. The research was done in a model situation where all the factors were constant and only the types of plants were changed. Readings related to the indoor air temperature and the indoor relative humidity at different positions inside the house were taken at every one-hour through a full day.

The readings obtained with the plants were compared with readings obtained without plants involving the same indoor environment. The different readings found with different plants reveal that indoor plants directly contribute to its surrounding environment. The experiment further revealed that the indoor air temperature and indoor relative humidity the main variables related to human thermal comfort in building interiors vary with the use of plants. The observation shows green color plants, tall plant and more number of plants as variables, which affect the indoor air temperature. The colored plants effectively reduce air temperature only during the nighttime. The large leaf plants do not reduce the air temperature much effectively and they have a potential to increase the indoor air temperature. The research observations show that the plants do increase the relative humidity but it does not vary with the color of the plant, plant height and number of plants as in the case of air temperature. So the use of indoor plants reduces the indoor air temperature but they are increase relative humidity. Thus plants do not change the indoor environment at condition to a significant comfortable level, but when coupled with psychological comfort the plants offer their effect on the indoor environment, which is quite considerable.



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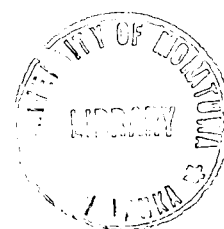
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