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Landscape Design- An Approach towards Sustainable Development Case Study of Institutional Campus

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Abstract—*Large scale building constructions condominiums are an outcome of contemporary urbanism. They constitute a major segment of the built spaces in today's cities. To effectively integrate the built environment with the open spaces is a singular design challenge for architects, landscape design to understand for community living involves a complex process as it is required to respond sensitively to micro and macro level impact, and accommodate a diverse user profile with respect to age, socio-economic status and socio-cultural background.*

Keywords: *Spaces, Environment, Landscape, Natural, Man-made*

1. INTRODUCTION

Landscape architecture begins with the natural terrain and enhances, re-create or alter existing landforms. Trees, Shrubs, Herbs, Ground covers, Climbers, lawns, water (Lakes, Ponds, and Cascades) and rocks are used to alter or create a pleasing natural setting. Some artificial devices such as decks, terraces, plazas, pavement, fences, gazebos and fountains are also used. Landscape and garden design must solve not only aesthetic but also technical and functional problems.

The objective of this paper is to study the different aspects which impact the landscape design process. To represent the above, this paper focuses on the case study of landscape design of Dr.D.Y.Patil Educational Complex, Akurdi, Pune.

2. ABOUT CAMPUS

A large and spacious campus, modern amenities and equipment, aesthetically pleasing yet modern architecture that gives an elegant look to the campus. It all started with the objective of developing a campus with a landscape design that would meet user-friendly design. Landscape design of the project is focus on simplicity and practicality. The campus design is divided onto three zones- education zone, hostel zone and sports zone. All the blocks of institutional buildings are surrounded by landscaped with short shrubs close to the fenestrations, which allows purified and oxidized air within the class rooms, leading to better indoor environmental quality.

A master plan is developed through the 'Design process' a step-by-step method that considered the environmental conditions, clients choice and the elements and principles of design.

The goal is to organise the natural and man-made features to get aesthetics, functional and environmentally sustainable landscape. The process begins with a site inventory and analysis of soil, drainage, climate, conditions and existing vegetation. List of clients need and desires are also considered.

Fig. 1: Birds eye view of campus

3. PRINCIPLES OF DESIGN

The principles of design such as unity, balance, rhythm, harmony and dominance is considered to achieve perfection to the visual effects.

4. SITE AND DESIGN PROGRAMM

Analysis of site is important to determine the environmental conditions for plant growth and the best use of the site. The selection of plant is done considering that will thrive in the existing soil. The study of existing vegetation is done which can provide clues to the Site dictates the design programme and process. Physical geometry of the site, accessibility,

surrounds, existing site conditions, topography, soli influence the design approach.

5. ZONNING AND PLANNING

In landscape design open spaces act as the primary zones. The landscape area is divided into student's plaza, gathering space, informal stage, Paved path ways. Value additions in the form of outdoor aesthetic water features, theme gardens are added to the landscape programme.

6. ENTRANCE

Entrance landscape of the campus is design in such a way that it will invites and welcomes the visitors

Fig. 2: Birds eye view of entrance gate

Fig. 3: View of entrance gate

7. MAIN CIRCLE

Fig. 4: View of main centre circle.

As soon as we entire to the campus we can see the beautifully design center circle with water fountain. This circle directs the route towards different colleges in the campus.

8. ARTIFICIALLY DESIGN POND

Fig. 5: Artificially design water pond.

Artificially design pond not only adds beauty **t**o the landscape but also channels air and creates breezes.

Fig. 6: Artificially design water fall.

Water fall and pond helps in providing the cool effect to the environment.

Fig. 7: Landscape elements.

Landscape element made with the natural granite and place near both side of the outdoor stage, which will balance the landscape design and enhance the beauty of the landscape.

9. PARKING

Fig. 8: Campus parking

Parking for entire campus is provided in the back and side margin of the building with broad canopy trees. This will help to keep campus pollution and noise free.

Fig. 9: Native spaces

There are different 103 native spaces are used in the campus to enhance the landscape design.

Fig. 10: Avenue trees

More native avenue trees are cultivated in landscape.

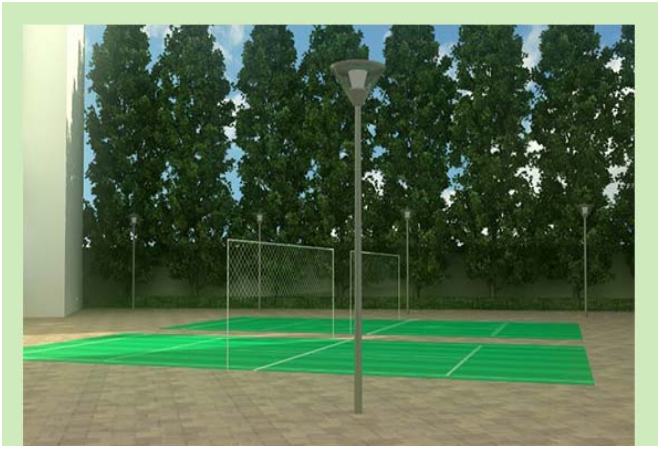

Fig. 11: Screening at the boundary

Role of screening in the campus

1. Cleaning the air
2. Modifying temperature extremes
3. Noise reduction
4. Affecting micro-climate

10. PLANT SELECTION:

The selection of the plant is done on the basis of its functional uses, its adaption to the site and amount of care they will need.

Fig. 12: Native plants

11. VALUE ADDITION TO THE PROJECT

Fig. 13: Model done by students

Technical campus enhance with the academic model created by students.

Fig. 14: Value addition

Landscape design plays a major role in the final manifestation of the design and realization of the project. In the campus landscaped spaces help to define circulation pathways effectively, promoting green spaces and vehicle-free zones and also act as visual and noise barriers. Accentuated with colour or texture add interest to the entire composition.

The variety of activities takes place in landscape area. The spaces are often separated through the use of plant beds, tress, planters, level changes and paved surfaces. Different features are use to define the spaces. Spaces can also be linked by visual features such as artificially Bamboo Bridge. Using hardscape features and repeating plants pulls, the eye around the landscape.

12. COMMERCIAL FEASIBILITY

Research shows that landscape features play a important role in the marketing of any condominium project.

13. MATERIAL SELECTION

PLANTING PLANS

A fundamental relationship is considered while selecting the species and positing the plantings. The kind of plant used to provide shades are considered on the basis of specific purpose. For example, large parking space for cars needs broad canopy trees .Plant selection is done further to finalizing the layout plans in terms of function and design intent. The plant list is compiled based on design and environmental concerns. Detailed planting plans indicate type, numbers and spacing. These are then prepared to facilitate procurement and execution.

14. SERVICE INTEGRATION:

Lighting and irrigation are the two essential services to be incorporated in landscape design. Traditional Rajasthan lamps are used for the entire campus to bind the campus landscape and create the harmony in the landscape design.

Fig. 15: Campus lighting

Lighting, apart from the providing special effect, plays an important role in condominiums as outdoor spaces are largely used. Ambient lighting and path lighting become critical for smooth functioning and for security reasons. Underwater lighting, special lighting and accent lighting also implemented.

Irrigation, designed for long-term maintance depends on scale, choice of plants, extent of ground cover. Sprinkler system, hose outlet, drip irrigation, are considered as a part of service integration.

Fig. 16: Student's plaza

Fig. 17: Student's plaza

Student's plaza is provided in different parts of the campus, so the students like applied arts and Architecture will use for outdoor sketching.

Fig. 18 Student's plaza

15. ENVIRONMENTAL IMPACT

The most obvious impact of micro climatic elements,such as temperature, amount of sun/shade, wind direction.

16. CONCLUSION

A sensitive methodology, which considers the context of the site, Architecture and landscape programme can guide the designer to an optimal solution to create a landmark project addressing the design triad function, aesthetics and structure.

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