

Role and Importance of Architects in Enhancing Landscape Design in Cities

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ABSTRACT

The paper discusses the crucial role and importance of architects in integrating landscape design into urban spaces. It explores how architects collaborate with other stakeholders to create attractive and functional landscapes that enhance the overall quality of city life. Additionally, it touches upon architects' advocacy for public spaces and green amenities in city development policies and their use of technology to optimize the interaction between built and natural environments. The paper also emphasizes how architects drive the growing popularity of landscape design in urban settings through visionary design, collaborative efforts, advocacy for green spaces, and expert use of technology. It emphasizes the importance of architects' contributions to developing sustainable, resilient, and aesthetically pleasing landscape design that promotes the harmonious coexistence of built and natural environments.

1. Introduction

1.1 Context of the Study:

Landscape architecture represents a multidisciplinary field that encompasses the planning, design, and management of outdoor spaces, both natural and built. Landscape architecture theory is therefore depending on the practice of landscape design and its neighboring disciplines. It is tempting to say that there is no separate or independent theory of landscape design, it is only leaning on other disciplines' theories, and indeed this viewpoint has been taken in the discussion, most prominently. (Jorgenson, 2003) Landscape designers work to enhance the functionality, aesthetics, and sustainability of various types of landscapes, including urban areas, parks, residential areas, campuses, and more. The ultimate goal of landscape architecture is to create visually appealing environments that are also functional, ecologically sound, and socially beneficial. Therefore, landscape architects' work is critical to the creation of sustainable communities and cities. They achieve this by collaborating with other professionals such as architects, urban planners, environmentalists, and engineers to design spaces that are not only aesthetically pleasing but also environmentally friendly and socially

responsible.

1.2 History of Landscape Design:

Landscape and landscape design has a rich history dating back to ancient times when gardens and outdoor spaces were an integral part of palaces, temples, and communities. The concept of landscape was first articulated in the early 19th century by Alexander von Humboldt, who defined it as the distinct character of a particular earth region, encompassing more than just the sum of its parts. This concept was further elaborated by German biogeographer Carl Troll in 1939. This definition aligns with the concepts developed by Finnish geographer Johannes Gabriel Granö, who integrated natural and cultural elements, encompassing the perception of landscapes through vision as well as other human senses. According to Carl Sauer's classic definition, cultural landscapes are shaped by a cultural group from a natural landscape. These landscapes bear the imprint of human activities and can be rural, recreational, or urban. (Lital, 2010) In the 19th century, landscape design became a distinct profession in response to the industrial revolution and the need for thoughtful design of public and private outdoor spaces. "Frederick Law Olmsted", (Desmond, 2014) known as the father of landscape design, designed many

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famous landscapes, including Central Park in New York City. "Andrew Jackson Downing", (Twombly, 1998) another influential figure, emphasized the integration of architecture and landscape design in his book "A Treatise on the Theory and Practice of Landscape Gardening." (Downing, 1855) To professionalize the field of landscape design, the American Society of Landscape Architects (ASLA) was founded in 1899. Universities established landscape architecture programs, with Harvard University offering the first-degree program in the late 19th century. According to the European Landscape Convention of 2000, landscape refers to an area perceived by people whose character is shaped by the interplay of natural and human factors.

1.3 Objectives of the study:

1.3.1 Broader Objectives:

The broader objective of this study is to examine the role of architects in enhancing landscape design in cities.

1.3.2 Specific Objectives:

- To find out what is the role of architects in landscape design.
- To explore the importance of landscape design for environmental sustainability in a city.
- To know how architects can contribute to the research and innovation sector in landscape design.
- To know what contribution architects can make to urban and rural development through landscape design.
- To know the contribution of architects to increasing demand for landscape design in cities through architectural education and professional practice.

1.4 Limitation of the Study:

Here are some potential limitations of the study:

- Studies may lack a long-term assessment to identify challenges and counter measures to landscape design, which may delay a successful policy formulation.
- In a rapidly developing country context, the study may not fully account for future changes in technology, policy, or societal attitudes toward landscape design.
- The study might not deeply delve into the social and economic factors influencing landscape design efforts, such as income disparities, access to resources, and differential benefits among various demographic groups.

2. Case Study:

2.1 Enhancing the Environmental Quality of Cities Using Landscape Transformation Projects:

Cities are the most important residential spaces where comfortable living facilities and extensive employment opportunities are provided for inhabitants. Due to these characteristics, the preference for urban spaces leads to immigration and urban sprawl. Urban transformation projects have become prominent in rehabilitating and

restoring these urban spaces. Urban transformation projects in Turkey were usually conducted in slum areas, historical quarters, and quiescent urban spaces for conservation, improvement, and development purposes since the 1950s. In the present study, the effects of the urban transformation project implemented in Zağnos Valley in Trabzon Province, Turkey, on landscape quality were determined with a survey study. Study findings demonstrate that the rate of green spaces increased after the transformation project by enhancing environmental quality and recreational opportunities. As a result, it was proved that the study area became more attractive than it was before, based on quantitative user preferences. (Güneroğlu & Bekar, 2019)

2.2 Landscape design and planning of historic centers in contemporary Greek cities:

Within the rapidly changing urban space of contemporary cities, historic centers, monumental complexes or isolated monuments are undergoing radical transformations in their environmental context. The impacts of these changes relate to the location of the historic elements in the urban issue, economic growth, and prosperity, the use of space - indoor and outdoor -, scale and landscape character, environmental issues, as well as the way they are perceived by the everyday users and tourists. In contrast to the absolute preservation approaches and methods that have been applied in several cases during the last decades, often producing 'sterilized' spaces by implementing a museum-like strategy in their management, planning, and landscape design, it is argued that the emergent conflicts would be best managed if seen as opportunities for creating new and contemporary urban environments, flexible enough to absorb the current or future changes generated by the modern way of living. In this context, flexibility, reversibility and innovation in landscape design and planning are crucial, as they affect not only the historic centers and monuments themselves, but the quality of urban space and everyday living within it as well. (Tratsela & Kozyraki, 2013)

2.3 Landscape forms in the architecture of waste management facilities in cities:

Architectural objects and engineering structures that imitate nature – in a literal or in an imaginary way – are based on patterns found in the natural landscape. In cities, artificial landscapes have become an important element of innovative ecological concepts, aiming at the restoration of an urban environment. Three types of artificiality of nature were assigned to them, namely: continuing nature, imitating nature, and suggesting nature. Architects of artificial landscapes, looking for new ideas, find inspiration in real-life models of nature and how they transform them, creating innovative solutions for industrial facilities in the urban environment. Designing artificial landscapes refers both to the idea of building a "second nature" as well as to

create “artifacts”. “Second nature” as an artificial form of landscape imitating a model, should fulfill the same functions as the natural landscape, but it should also constitute a new formal interpretation of the model (“artifact”), which will reflect the creative possibilities of the architect. (Wowrzeczka, 2019)

2.4 The role of landscape architecture in rural development:

Development of the countryside consisting of rural settlements and landscapes stands for an integrated trans-disciplinary issue. To make rural development efficient, it is important to encourage and support sustainability concerning both, economic and environmental aspects. Regarding environmental sustainability, important roles are played by landscape architecture. Within the urban area, the emphasis should be put especially on public and semi-public space design to enhance social interaction and community life. Besides economic productivity of the open agricultural land surrounding rural settlements, the social utilization of these areas should be also considered and improved. Relevant tools for restoration and further smart and sustainable development of rural spaces are provided by landscape architecture. They consist of improving the green infrastructure of rural spaces. (Tóth et al., 2013)

2.5 The role of landscape design in Smart Cities:

Smart cities are an interdisciplinary definition of modern cities. There is little academic research on this phenomenon in urban design and planning. Smart cities are similar to intelligent, creative, sustainable, or livable cities and refer to smart urban management and development via technology and infrastructure. Factors affecting smartness include technology, people, communities, economy, governance, planning, and infrastructure. There is little information and research on urban design principles and tools in creating smart cities. It's important to clarify the role of urban design, planning, and landscape design in smart cities. The aim is to overview the concept from an urban design perspective to find and highlight important touch points and their role in smart cities' creation for sustainable development and efficient urban growth. Landscape design and landscape urbanism are evolving to address contemporary urban challenges such as environmentally responsive building design, resource efficiency, and sustainable city planning. These fields aim to find innovative and sustainable solutions for the built environment while balancing ecological and economic aspects. To sum up, the “smart city” concept and “green” and “sustainable” concepts in landscape design are used for smart city development. The tools that are used in landscape design to create and develop smart city are based on sustainable materials, ICTs, smart technologies, natural resources, etc. Therefore, the landscape design role in the smart city concept and its creation is towards more sustainable cities by improving citizens' living

environment. (Mozuriunaite, 2018)

3. Methodology of The Study:

The methodology for the study titled “Role of architects in enhancing landscape design in cities” involves a systematic approach that analyzes the challenges related to enhancing landscape design in cities is giving below:

3.1 Study Types

In this study, data has been collected from Primary and Secondary sources and analyzed that data to fulfill the objectives of this study.



Figure 1: Methodological Framework For Data Collection And Analysis.

3.2 Primary & Secondary Data Collection

Information has been gathered through Key Informant Interview (KII), and various Secondary sources like articles, and websites. Key informant interview were conducted with architects only, where 53 architects participating. The survey was conducted online through Google Forms and data was collected from selected architects who were involved or experienced in landscape design.

3.3 Data Analysis

In this study, data will be analyzed after getting data from the Primary and Secondary data to fulfill the objectives of the study. In terms of data analysis, qualitative analysis has been done.

4. Findings

4.1 Role of Architects in Greening and Landscape Design:

Landscape design today offers a wide range of opportunities for professionals. Landscape architects work with a variety of principles, including spatial relationships, scale, balance, unity, and sustainability. They consider environmental factors, cultural context, and social dynamics when designing outdoor spaces. Landscape architects are responsible for a wide variety of projects, including the development and preservation of open spaces,

recreation areas, wildlife refuges, zoos, parks, golf courses, and transportation systems. They also work for different types of organizations, such as real estate development companies starting new projects or municipalities building airports or parks. They are often involved in the development of a site from its conception. Plantation is one of the main components of landscape design. Just as people in our cities compete to cut down trees to meet their various needs, an architect can work together with environmentalists to restore the natural environment to the city through his eco-friendly design. In this study, some renowned architects in Bangladesh were asked to know what problems they face when planting new trees in their respective projects, the results of which are given in the Figure 2.

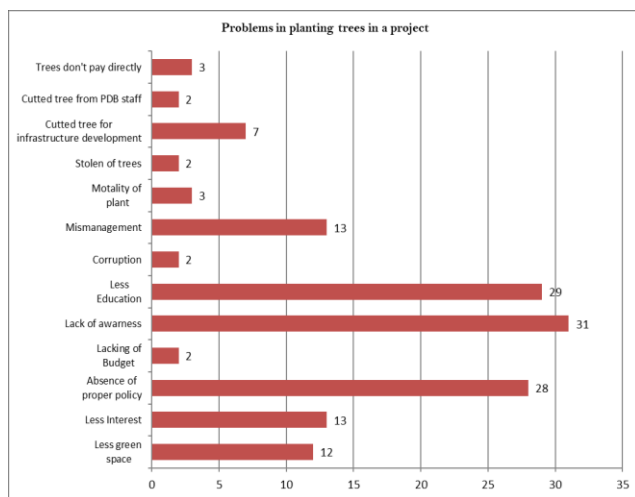


Figure 2: Problems in planting trees in a project area

Landscape design professionals from Bangladesh, comprising 53 esteemed architects, actively participated in this comprehensive survey. The findings underscore the pivotal role of architects in raising public awareness regarding tree preservation. Architects can elevate such awareness by engaging their clients in meaningful discussions about their projects. Furthermore, it is incumbent upon architects to conduct workshops aimed at educating stakeholders on tree planting techniques, optimal planting locations, suitable tree species for specific projects, and overall knowledge enhancement for all involved parties, including project owners. Landscape designers must have a high level of professionalism, and expertise, and be adept at using formal language to ensure their work is clear, concise, and error-free. They often collaborate with other professionals to create cohesive and sustainable designs.

4.1.1 Role of Architects in Environmental Sustainability:

Contemporary Architecture and landscape design strongly emphasizes the integration of environmental

sustainability and ecological restoration practices into its design principles. The primary objective of designers is to create spaces that are not only visually appealing but also environmentally responsible. Achieving this requires a deep understanding of ecological systems, materials science, and sustainable design principles, which the designers must incorporate into their designs. These spaces must be functional, aesthetically pleasing, and sustainable, all while promoting ecological balance. In short, contemporary landscape architecture is a multifaceted field that demands a high level of expertise from its practitioners.

4.1.2 Technology and Innovation:

The field of landscape design has transformed in recent years, largely due to the introduction of new technologies such as Computer-Aided Design (CAD), Geographic Information Systems (GIS), etc. These advances have significantly affected the practice of landscape design, enabling professionals to create more sustainable designs that incorporate green infrastructure and native plant species. As a result, contemporary landscape design has evolved to reflect a greater emphasis on environmentally conscious design practices.

4.1.3 Global Perspective:

Landscape design is a widely practiced profession that has a global impact on environmental challenges. Design principles and approaches utilized in different regions are influenced by varying cultural and climatic contexts. As such, professionals in this field must be knowledgeable and adaptable to a diverse range of conditions. By applying their expertise, they can create sustainable and aesthetically pleasing landscape designs that address local and global environmental issues.

4.1.4 Role of Architects in Education, Research and Innovation:

Architects play a critical role in advancing education, research, and innovation in landscape design. Their unique perspective, blending the built environment with natural landscapes, fosters holistic and integrated approaches to design. Architects contribute to designing and updating curricula that integrate landscape architecture with architectural principles, sustainability, and urban planning. According to the survey, many architects teach courses in design studios, theory, history, and technical skills, providing students with a comprehensive understanding of both architecture and landscape design. Architects also mentor students on capstone projects, design studios, and research theses, guiding them through the complexities of integrating built and natural environments. By offering workshops, seminars, and continuous professional development courses, architects help practitioners keep their skills current and expand their knowledge. Architects work with educators from other fields such as urban planning, civil engineering, and environmental science to provide a comprehensive education that prepares students for real-world challenges.

Architects also involve Innovative Research Projects.

They conduct research on sustainable design practices that reduce environmental impact and enhance ecological resilience. They explore new materials, construction methods, and design strategies that promote sustainability. Architects are also involving any research on the integration of green spaces within urban environments is a key focus. Architects study how public parks, green roofs, and urban gardens contribute to the well-being of urban residents and the overall ecosystem. Architects engage in research that focuses on restoring and rehabilitating degraded landscapes. They develop methods for reintroducing native species, improving soil health, and managing water resources.

The integration of IoT (Internet of Things) technology allows for efficient monitoring and management of landscapes. Architects design systems that collect data on soil moisture, temperature, and

plant health, optimizing maintenance and resource use. Architects design green infrastructure solutions such as bio-swales, rain gardens, and green roofs. These innovations manage storm water, reduce urban heat islands, and enhance biodiversity. The use of sustainable, locally sourced materials in landscape projects is a priority. Architects research and implement materials that have minimal environmental impact and are suitable for various climates and conditions.

5. Importance of Architects for Landscape Design in Bangladesh:

5.1 Master plan, Layout plan, Site Development and Design:

Landscape designers are professionals who analyze and plan the layout of outdoor spaces. They consider a wide range of factors such as topography, climate, soil conditions, and existing vegetation to design the arrangement of structures, pathways, and green spaces. Their goal is to optimize both the functionality and aesthetics of the landscape. With their extensive knowledge of landscape design, these architects can create outdoor spaces that are both beautiful and functional. They use their expertise to develop layouts that are tailored to the specific needs of the client, while also taking into account the environmental impact of their designs. From the initial planning stages to

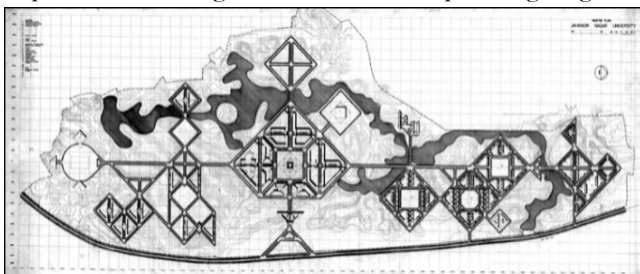


Figure 3: Master Plan of Jahangir Nagar University 1967-70 by Ar. Muzharul Islam

the final implementation, landscape architects are involved in every aspect of the process to ensure that the result meets the highest standards of quality.

5.2 Economic Development:

Outdoor spaces that are thoughtfully designed and well maintained can contribute significantly to the economic vitality of an individual project, area or a region. Such spaces are known to attract investments, tourism, and businesses, thereby enhancing the overall growth of the local economy. The availability of vibrant public areas, waterfronts, and green corridors also tends to increase the value of the surrounding properties, leading to an upswing in the real estate market. Additionally, these spaces create new job opportunities in the tourism, recreation, and hospitality sectors, ultimately resulting in an overall positive impact on the regional economy.

5.3 Planting & Greeneries Design:

The selection and arrangement of plants is a crucial element of landscape design. Architects carefully assess various factors such as climate, soil quality, and maintenance requirements to create sustainable and aesthetically appealing plant arrangements integrated with other professionals. This process demands a thorough understanding of the principles of horticulture, as well as the ability to apply these principles to meet the specific design objectives of the project. The resulting plant arrangements must not only blend harmoniously with the built environment but also enhance the overall visual impact of the landscape. Therefore, the role of architects in selecting and arranging plants cannot be overstated in creating sustainable, functional, and visually appealing outdoor spaces.

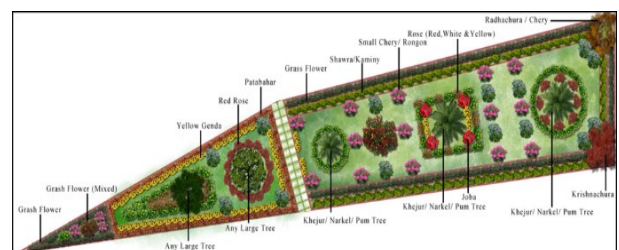


Figure 4: Plantation layout design by Ar. Md. Mahamudur Rahman Papon (2020-21)

5.4 Environmental Sustainability:

Architects place a significant emphasis on incorporating sustainable practices into their design processes. This often entails the utilization of native plants, implementation of water-efficient irrigation systems, and creation of spaces that foster biodiversity and ecosystem health. By integrating these elements into their designs, architects can promote built environment and reduce the negative impact

of human activities on the natural world.

5.5 Urban Landscape Design:

Within urban environments, architects play a crucial role in the design of public spaces, streetscapes, parks, etc. Their objective is to create built environments and save existing environmental elements that support the well-being of the community, promote pedestrian-friendly areas, and encourage sustainable urban development. By implementing their expertise, architects strive to develop urban landscapes design that are aesthetically pleasing, functional, and in harmony with the surrounding environment. Their strategic approach to design ensures that public spaces are not only beautiful but also promote social interaction, enhance urban biodiversity, and improve the overall quality of life for city dwellers.

5.6 Recreational Space Design:

The creation of recreational spaces, such as parks and playgrounds, is a fundamental aspect of landscape design. This requires a careful consideration of the community's needs, adherence to safety standards, and the development of areas that promote physical activities and social interaction. The process of designing these spaces requires expertise and professionalism, as it involves balancing various factors to create an environment that is functional, attractive, and sustainable. By engaging in this process, architects can contribute to the creation of vibrant, healthy communities that enhance the quality of life for residents and visitors alike.

5.7 Historical Space Preservation:

Architects play a crucial role in the preservation and restoration of historic landscapes. Their duties may include the rehabilitation of gardens, parks, and other outdoor areas that hold significant historical value. As such, landscape designers must be knowledgeable about the historical context of the site and use their expertise to create a design that is both functional and aesthetically pleasing. By carefully considering the site's history and cultural importance, architects can ensure that these outdoor spaces are preserved for future generations to enjoy.

5.8 Collaboration with Other Disciplines:

Architects collaborate closely with other professionals to ensure a comprehensive and integrated approach to designing projects. This multi-disciplinary approach enables architects to incorporate diverse perspectives and skill sets, resulting in more effective and efficient design solutions. By working in tandem with these professionals, architects can better understand the site's physical characteristics and environmental conditions, as well as the project's design objectives and constraints. This collaborative effort facilitates the creation of thoughtful,

sustainable designs that meet the needs of clients while also considering the broader social, economic, and environmental implications of the project.

5.9 Community Engagement:

Engaging with the community constitutes an indispensable aspect of numerous landscape architecture projects. The involvement of stakeholders, residents, and users allows architects to incorporate their feedback and ensure that the design is aligned with the needs and preferences of the community. By soliciting the input of various stakeholders, architects can incorporate diverse perspectives into the design process, which can ultimately result in a more comprehensive and effective design.

5.10 Health and Well-Being:

Access to well-designed outdoor spaces can have a positive impact on both physical and mental health. Green spaces, in particular, have been found to promote physical activity, reduce stress, and contribute to overall well-being. Architects play a critical role in designing parks, gardens, and therapeutic landscapes that not only beautify the urban environment but also address health disparities by contributing to public health initiatives.

5.11 Policy and political decision-making for landscaping:

Infrastructure project financing depends on political decisions at various levels. Architecture projects are influenced by budget, grants, and public-private partnerships. Climate change policies affect landscape design practices, and landscape designers advocate for resilient design and green infrastructure. They contribute to global projects related to environmental conservation, sustainable urbanization, and disaster resilience, collaborating with NGOs, governments, and international organizations.

5.12 Climate Change Mitigation and Adaptation:

The ongoing political discourse surrounding policies aimed at curtailing climate change, including but not limited to the reduction of carbon emissions, incentives for renewable energy, and the development of adaptation strategies, has significant implications for landscape architecture practice. In this regard, landscape architects have a unique and pertinent role to play in advocating for the adoption of resilient design approaches and green infrastructure investments as effective measures to address the impacts of climate change.

6. Recommendations:

Here are some recommendations on how architects can effectively contribute to landscape design:

Integration of Natural and Built Environments: Architects should adopt a holistic approach, ensuring that buildings and landscapes are seamlessly integrated. This includes considering the ecological, social, and cultural aspects of the environment. Incorporate green roofs, vertical gardens, and green walls to enhance biodiversity and reduce urban heat islands.

Sustainable Design Practices: Use sustainable and locally sourced materials to reduce the environmental impact. Design landscapes that incorporate rain gardens, permeable pavements, and efficient irrigation systems to manage stormwater and reduce flooding.

Public Spaces and Community Engagement: Design public spaces that are inclusive and accessible to all, promoting social interaction and community well-being. Engage with local communities to understand their needs and preferences, ensuring that the landscape design reflects the identity and culture of the area.

Adaptive and Resilient Landscapes: Create landscapes that are adaptable to changing climate conditions, incorporating drought-resistant plants and resilient infrastructure. Design multi-functional spaces that can be used for various activities and events, ensuring that they remain relevant and useful over time.

Technological Integration: Utilize advanced technologies such as GIS (Geographic Information Systems) and BIM (Building Information Modeling) for precise planning and management. Implement renewable energy sources, smart lighting, and waste management systems within the landscape.

Aesthetic and Cultural Considerations: Integrate art installations, sculptures, and other aesthetic elements that reflect the cultural heritage and identity of the community. Design landscapes that offer visual and sensory appeal throughout the year, considering seasonal changes in plants and natural elements.

Educational and Recreational Opportunities: Create educational and interactive spaces such as botanical gardens, nature trails, and outdoor classrooms to promote environmental awareness and education. Design recreational areas such as playgrounds, sports fields, and walking trails that encourage physical activity and outdoor engagement.

Health and Well-being: Incorporate elements like water features, quiet zones, and sensory gardens that enhance mental health and well-being. Plant trees and shrubs that improve air quality and provide shade, creating

a healthier urban environment.

Collaboration with Other Disciplines: Work closely with landscape architects, urban planners, environmental scientists, and other professionals to create cohesive and sustainable urban landscapes. Advocate for policies and regulations that support sustainable landscape design and urban development.

Long-term Maintenance and Management: Sustainable Maintenance: Design landscapes with maintenance in mind, using low-maintenance plants and materials that reduce the need for extensive upkeep. Develop comprehensive management plans that ensure the long-term health and viability of the landscape.

7. Conclusion

In conclusion, landscape design is a discipline that aims to achieve a harmonious balance between the natural and built environments. The role of architects is paramount in shaping the future of communities and cities, as they are responsible for creating sustainable, functional, and aesthetically pleasing outdoor spaces of their projects that meet the needs of the people who use them. Architects employ a combination of artistic and technical skills to design outdoor spaces that are not only visually appealing, but also sustainable, resilient, and practical. Their work contributes significantly to the overall well-being of communities and the health of the natural and built environment.

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