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Strengthening Landscape Image in Residential Compounds

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Abstract

Residential compounds are not limited to residential activity only, but other human activities exist through the work of the proper landscape design for the spaces between the buildings, and some of them link the buildings and those activities. The landscape design varies from one residential compound to another depending on the nature of the surrounding environment, the type of user, the required activity, and the general character of the area.

This paper aims to decide and clear monitoring of the set of needs and humanity within the residential communities through a toolset of a check list from earlier projects implemented and currently used at the international and local levels.

Three approaches (theoretical, analytical, and applied) were implemented. First, the components affecting the landscape add to reviewing the principles of landscape design. Some examples of landscape design in residential communities in (Dubai) were analyzed using the comparative analytical approach. Finally, the applied approach used on the landscape design of existing residential communities in Cairo to measure the success of their designs and that they are temporally compatible (suitable for all ages and groups), spatially (best use of the entire space), and sustainable (preserving the environment and using appropriate environmental elements) To get the best landscape image in residential compounds.

Keywords: Landscape Design; Sustainable; Image; Residential Compounds; User Needs.

تنسيق المواقع لتعزيز الصورة البصرية في المجمعات السكنية

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الملخص

لا تقتصر المجمعات السكنية على النشاط السكني فقط، بل توجد أنشطة انسانية أخرى يمكن استخدامها وذلك من خلال عمل التصميم الجيد لتنسيق المواقع والمناسبات للصورة البصرية الطبيعية للمساحات البيئية والفراغات العمرانية بين المباني وتكون متصلة مع تلك الأنشطة. يختلف تصميم تنسيق المواقع من مجمع سكني إلى آخر بحسب طبيعة البيئة المحيطة ونوع احتياج المستخدم والنشاط المطلوب والطابع العام للمنطقة.

يهدف هذا البحث إلى تحديد ورصد واضح لمجموعة الاحتياجات الإنسانية داخل المجمعات السكنية تحققها العناصر التصميمية لتصميم تنسيق المواقع القائمة على تحليل مجموعة من المشاريع السابقة التي تم تنفيذها والتي تستخدم حالياً على المستويين الدولي والمحلي.

تم تطبيق ثلاثة مناهج في البحث (نظرية وتحليلية وتطبيقية)، بداية تمت دراسة المكونات الرئيسية المؤثرة على تصميم تنسيق المواقع والصورة البصرية الطبيعية. ثم تحليل بعض الأمثلة لتصميم تنسيق المواقع في المجمعات السكنية في (دبي) وعمل تحليل مقارنة وتطبيقي على تصميم تنسيق المواقع والصورة البصرية الطبيعية للمجمعات السكنية الحالية في القاهرة لقياس نجاح تصاميمها وأنها متوافقة زمنياً تتناسب مع جميع الأعمار والمجموعات، ومكانياً كأفضل استخدام للمساحة الكاملة ومستدامة تحقق الحفاظ على البيئة واستخدام العناصر البيئية المناسبة للحصول على أفضل صورة بصرية للمناظر الطبيعية في المجمعات السكنية.

الكلمات المفتاحية: تصميم تنسيق مواقع - المجمعات السكنية- الاسنادامة-تصميم تنسيق المواقع-الصورة البصرية- احتياجات المستخدم

Introduction:

In recent times, landscape design has transcended its origins as a purely aesthetic practice focused on gardens and parks. It has matured into a critical facet of comprehensive spatial design for all building types. This evolution recognizes that effective landscape design is tailored to the specific function of the building, the user demographics, the local context, and the potential environmental ramifications.

This research explores how applying specific landscape design principles, such as incorporating green spaces, creating walkable pathways, and utilizing natural elements, influences residential compounds. It aims to assess the combined effects of these design choices on the compound's physical environment (e.g., air quality, noise reduction) and the overall well-being of residents (e.g., stress reduction, social interaction).

Real estate developers are increasingly recognizing the value of landscape design in residential projects. This recognition manifests in the incorporation of innovative and aesthetically pleasing elements that enhance the overall appeal of properties. This strategic emphasis stems from the understanding that well-designed landscapes can significantly increase property values, with estimates suggesting potential boosts of up to 20%. Consequently, for developers, landscape design represents an investment with substantial economic benefits, translating into higher returns on their projects.

However, achieving successful landscape design for residential areas goes beyond mere aesthetics. It necessitates a thorough understanding and consideration of user needs. This research delves into this crucial aspect. It commences by establishing a comprehensive definition of landscape design specific to residential areas, encompassing its core principles, constituent elements, and individual components. Subsequently, the research will analyze landscape design for a residential compound in Dubai, aiming to identify the key factors that influence the design process in this context.

Influence the insights gathered from the theoretical foundation and the in-depth case analysis, the research culminates in a comparative examination of multiple landscape designs for residential compounds within Cairo. This comparative analysis will assess the degree to which these designs incorporate the established principles of landscape design for residential areas. Ultimately, the research will evaluate the success of these designs in fulfilling user needs, promoting environmental responsibility, and fostering sustainable practices, Fig, 1.

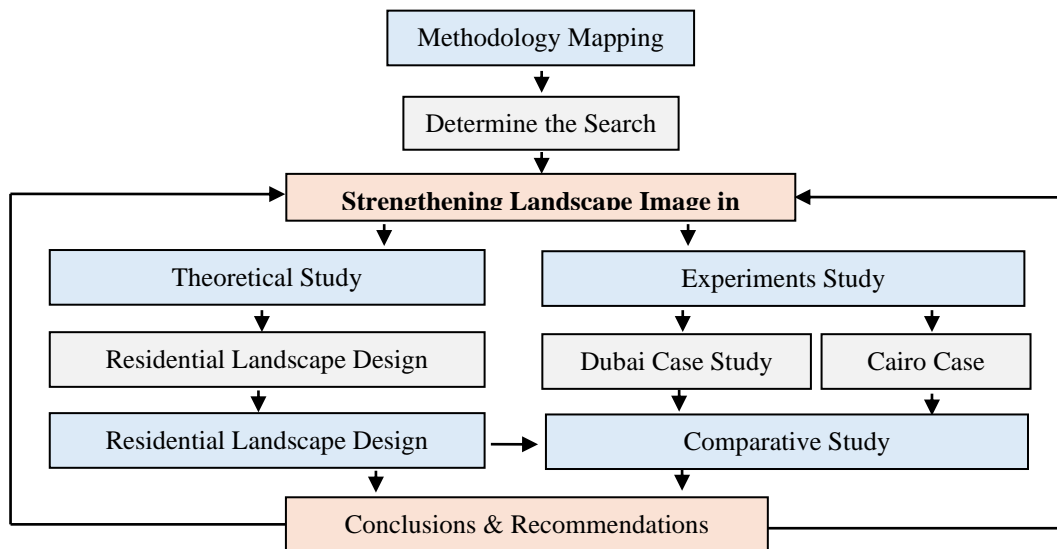


Figure (1): Methodology. Source: Author

1. Residential Landscape Design:

Residential landscape design is a subfield of landscape design concerned with the development of aesthetically satisfying and functional outdoor spaces for dwellings. It distinguishes itself from the broader field by its focus on establishing spaces that directly serve the needs of residents. (American Society of Landscape Architects ,2024)

1.1 Residential Landscape Design definition:

“Residential landscape design is the process of creating aesthetically pleasing and functional outdoor spaces for residence. It included analysis, planning, and design of these exterior living areas. (Smith, K. et al., 2019)

Contemporary landscape design incorporates a diverse array of elements to achieve both functionality and beauty in outdoor living spaces. Professional landscape designers provide a comprehensive scope of planning and design services that serve a variety of client needs. Engaging the services of such a professional facilitates the development of special design solutions while minimizing the risk of costly errors and unnecessary confusion. (Association of Professional Landscape Designers, 2024) A well-executed residential landscape design can significantly enhance not only the enjoyment of a property but also its usable square footage. Over precise planning and professional installation, outdoor living areas can become a sound investment. Research suggests that thoughtfully designed outdoor spaces can increase a home's value by up to twenty percent. (National Gardening Association, 2024)

Whether vision involves a wildlife haven, an engaging children’s play area, functional and exciting outdoor rooms, or simply a peaceful and shaded nook for quiet contemplation, a professional landscape designer can help transform garden dreams into reality. Throughout the design process, they will remain mindful of practical considerations such as budget constraints, site analysis, and the selection of suitable plant materials. (Motloch, J. L. ,2000)

1.2 Values of Residential Landscape Design

Residential landscape design extends beyond simple aesthetics, offering a multiplicity of benefits as detailed below: (Helfand et al., 2000) (Hussain et al., 2014).

1.2.1 Aesthetic value

Residential landscape design contributes to aesthetic value by engaging multiple senses. Visually, creative landscaping can enhance the beauty of a home and property, while strategically concealing unwanted features. Furthermore, sounds like whispering leaves, birdsong, or trickling water from a fountain add audio appeal to the environment. Additionally, odorous flowers, the scent of freshly cut grass, and even the taste of homegrown fruits can stimulate the sensory and sensory senses, respectively. The aesthetic experience extends to the touchable domain as well. Imagine the calming sensation of cool grass beneath your feet or the gentle caress of a spring breeze while relaxing under the shade of a majestic oak.

1.2.2 Economic value

A well-designed landscape can contribute to a property's overall economic value. Studies have shown that aesthetically pleasing landscaping can increase a home's resale value by 6 to 20 percent. However, it is important to accept that the landscape itself remains a secondary contributing to a real estate's worth, with the primary value residing in the structure itself. The fundamental function of landscaping is positioned in its ability to enhance the aesthetic appeal of a property, thereby indirectly increasing its economic value.

More than aesthetics, thoughtful landscaping can provide additional benefits. Strategic positioning of trees and shrubs can serve to buffer seasonal temperature fluctuations, potentially leading to reduced energy consumption. Additionally, well-designed landscaping can act as a noise barrier, improving the comfort and enjoyment of outdoor living spaces

1.2.3 Functional value

Landscaping expands its value beyond aesthetics by providing functional benefits that enhance real estate usage. The strategic placement of trees, shrubs, turfgrass, and constructed elements can significantly increase the usability of an outdoor space. Well-designed landscapes can create sub-tropical with desirable sun and shade exposure, supply to various activities and preferences. Moreover, the integration of sun decks, pools, or decks can foster a sense of place and encourage outdoor living.

Furthermore, landscaping can serve as a solution to mitigate existing challenges and reduce future maintenance needs. For example, employing ground cover on steep lean can not only reduce the weight of regular yard care but also play a crucial role in preventing corrosion on such lean.

1.2.4 Environmental value

The landscape not only has functional worth, but it can enhance the environment too. Through careful landscaping, temperatures can be buffered in the summer and winter. Glare and wind can be reduced, and water can be used more efficiently. Plants in the landscape also help clean the air of dust and some pollutants. Your landscape also provides a habitat for all kinds of wildlife.

1.3 Residential Landscape Design Elements

In general, to design any Landscape for any exterior space you should be using Softscape & Hardscape vocabulary. These elements may differ due to function, user needs and nature environment. But when designing a landscape for residential spaces, the Softscape and Hardscape elements will be defined to meet design requirements demand user needs as in the diagram. (de Chapman, G. H. ,2022)

1.3.1 Softscape elements

Softscape relates to the living components of a landscape, including plants, trees, palms, shrubs, ground covers, grasses, climbers, succulents, aromatic plants, medicinal plants, and annuals. The integration of Softscape elements acts as an

essential role in enhancing the aesthetic appeal, ecological balance, and overall well-being of outdoor spaces. (Beatley, 2011).

1.3.2 Hardscape Elements

Hardscape refers to the non-living or structural components of a landscape, including pavements, walls, fences, decks, and other manufactured elements. (VanDerZanden et al., 2010)

- **Paving Materials:** can be categorized into two primary groups: natural materials and manufactured materials. (Galabada et al., 2020)
- **Site Furniture:** are a key element in landscape design, the service to improve the function, comfort, and aesthetics of outdoor spaces. These furnishings include a diversity of elements that meet the user's needs, such as benches, garbage containers, dog waste stations, bicycle racks, children's play equipment, and outdoor fitness equipment. (University of Michigan, 2018).
- **Lighting:** performs an essential role in enhancing the aesthetics, functionality, and safety of outdoor spaces. A key part efficient landscape lighting design involves conducting a lux level study sufficient illumination throughout the designated area. Each lighting ingredient has a specific functional purpose. For staircase, may use step lights, walker walkways may be illuminated by pole lights and bollards. Landscape lighting design includes a diverse range of fixtures for example: Street lighting poles, Pedestrian lighting poles, Bollards, Palm trees & trees up lights, Stair & recessed wall lighting and Underwater lighting. (Zheng et al., 2018)
- **Signage:** acting as a key function in outdoor spaces by delivering information, direction, and identity. These signs can be classified into various key types like: Main Entry, Pedestrian directional, Vehicular directional, Parking, Regulatory, Identification and Residential number signages. (Transport Canberra and City Services, 2018)
- **Water Features:** The inclusion of water features, like lakes, fountains, waterfalls, and streams, into landscape design acts a notable role in raising the aesthetic appeal, atmosphere, and overall relaxation potential of outdoor spaces. (Jauslin, 2010).
- **Shade Structure:** Landscape shade structures form essential elements within a design scheme, present respite from the sun's intense heat and foster comfortable outdoor spaces for diverse activities. These structures can adapt to a variety of uses, including specific areas for children's play, outdoor fitness equipment, relaxation seating, and meditative pursuits. (Streich et al., 2003)
- **Security Gates & Fences:** Security gates and fences are integral components of landscape design, fulfilling a multifaceted role. They serve to enhance privacy and security, define property boundaries, and complement the overall aesthetics. Security gates and fences can be designed to harmonize with the architectural style of the main building, fostering visual coherence and enhancing the overall aesthetic appeal of the outdoor space. (Felix, & Elhefnawi, 2020)

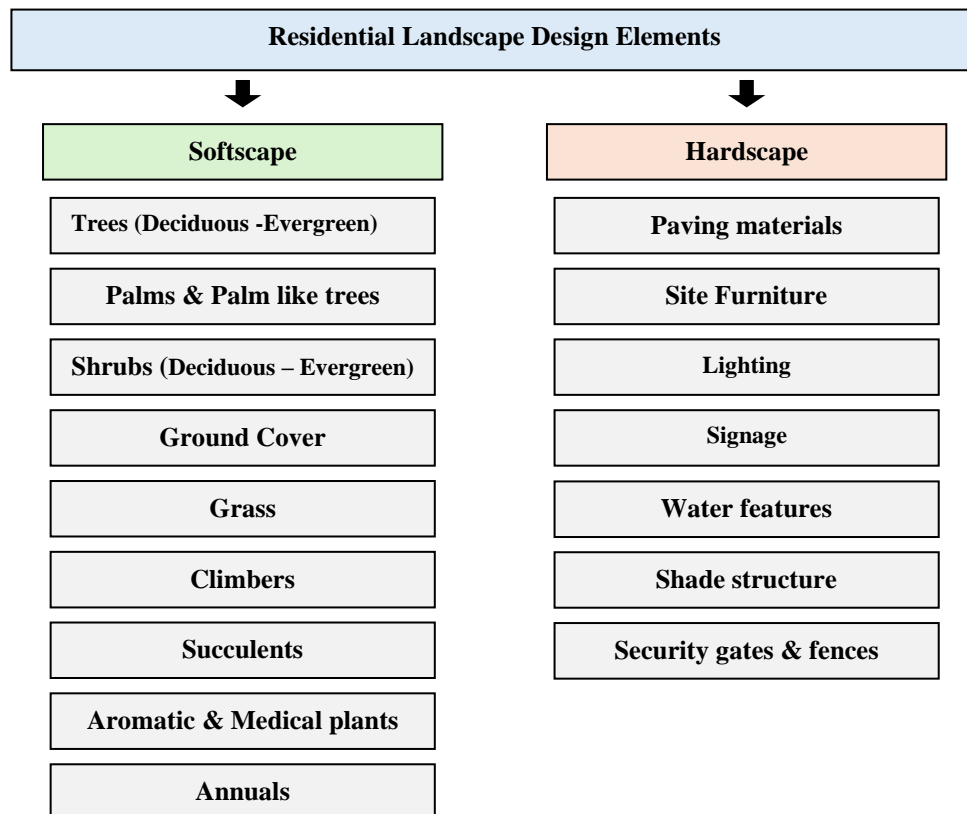


Figure (2) Residential Landscape Design Elements. Source: Author

2. Residential Landscape Compound Design Examples

To design a successful landscape for residential compound we will review and analyze examples in Dubai to compare it with case studies in Cairo.

2.1 DUBAI-EMAAR Properties- The Greens & Views Residential Compound

The Greens Dubai, a residential development by Emaar Properties, was completed in 2002. The project occupies a prime location within Dubai, positioned near Emaar's Emirates Living communities, including The Springs, Emirates Hills, and The Meadows, see Figure 3,4. Additionally, The Greens enjoys convenient access to major hubs such as Dubai Marina, Dubai Internet City, and Jumeirah Lakes Towers.

Emirates Living encompasses a collection of 8,659 residential units spread across a vast area of 1100 acres with 69% Green areas and open spaces. (Emaar Community management.,2024)

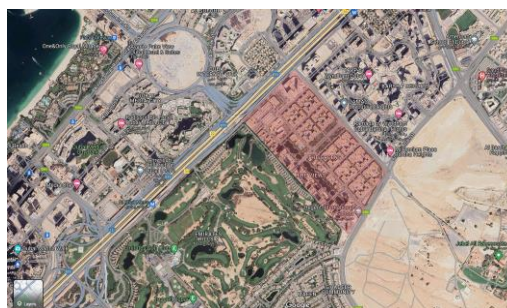


Figure (3) The Greens Residential compound location. Source: Google Earth

Landscape design within this residential compound uses the extensive open green areas and lakes. Capitalizing on these natural assets, the designer has incorporated a

concept that caters to a diverse range of resident needs. This approach goes beyond simply allowing residents to enjoy nature; it focuses on integrating nature with opportunities for various human activities.

The design prioritizes user comfort, employing curved lines that harmonize with the lake's form. Additionally, a dedicated jogging track provides residents with the possibility to exercise at any time. For families, a safe children's playground and an outdoor fitness area are included. The landscape design uses a combination of softscape (plantings) and hardscape (non-living) elements, see Figure 4:13.



Figure (4) Softscape design elements. Source: Author, 2023

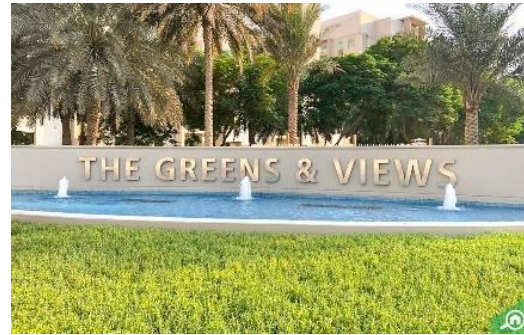


Figure (5) Main Entry sign. Source: Author, 2023



Figure (6) Fences elements. Source: Author, 2023



Figure (7) Lakes and Fountain water features. Source: Author, 2023



Figure (8) Interlock paving with mark sign. Source: Author, 2023



Figure (9) Pedestrian poles & bollards lighting. Source: Author, 2023



Figure (10) Site furniture, seating benches Source: Author, 2023



Figure (11) Site furniture, dog waste station. Source: Author, 2023



Figure (12) Site furniture, kids' playground equipment & shade structure. Source: Author, 2023



Figure (13) Site furniture, outdoor gym area Source: Author, 2023

2.2 Residential Landscape Compounds Design in Cairo, Egypt

Landscape Design field is considered recently in Egypt, as it appeared from about 20 years ago. Finding that few working companies only in that field, the most involved company is Sites International, which was founded by Dr. Maher Stino, who is interested in all kinds of landscaping, including residential areas, parks, universities, and others.

In this part of the study, we will analyze and evaluate the landscape design of different residential compounds in Cairo, Egypt. The analyzing will consider the theoretical principles of landscape design, adding to the greens Dubai project elements. By comparing landscape elements to the Egyptian case studies, aiming to assess the effectiveness of applying these design principles within a local example.

2.2.1. Cairo festival city-Oriana villas compound

Developed by Al-Futtaim Group Real Estate, the Oriana Villas Project is placed in New Cairo, Egypt. The project includes a total area of 900 acres with 65% Green area and open spaces and holds a central location bordered by Ring Road, S. Teseen Road, and Taha Hussein Road (Cairo Festival City,2024), see Figure 14, 15



Figure (14) Oriana Villas Compound location. Source: Google Earth



Figure (15) Oriana Villas Compound master plan. Source: Cairo festival City website. available at: <https://www.cairofestivalcity.com/live/villas/oriana-residence/>

The Oriana Villas project prioritizes a central landscape axis aspect a main entrance spine with integrated water features. This spine reveals into wide green areas culminating in a central lake decorated with numerous fountains. These elements create a visually fascinating scene for residents, see Figure 16, 17.

Further, the design prioritizes quiet and relaxation for residents by incorporating the soothing sounds of water. This strategy is achieved by strategically placing all recreational activities within the compound's Clubhouse, ensuring a separation between active areas and zones designated for peace and quiet. The landscape design employs a combination of softscape and hardscape elements to achieve its aesthetic and functional goals, see Figure 18:26.



Figure (16,17) Main Entrance path landscape design. Source: Dr. Maher Stino sketch, Sites International company, 2015.



Figure (18) Main Entrance Path. Source: Cairo festival City website.



Figure (19) Lake & Fountain water features with softscape Source: Cairo festival City website



Figure (20) Lake water feature. Source: Cairo festival City website.



Figure (21) Softscape elements. Source: Cairo festival City website.



Figure (22) Site furniture, seats benches with softscape. Source: Cairo festival City website.



Figure (23) Main Entrance Sign. Source: Cairo festival City website.



Figure (24) Granite paving with shade structure. Source: Cairo festival City website.



Figure (25) Waterfall water feature. Source: Cairo festival City website.



Figure (26) Palms & Trees up light lighting. Source: Cairo festival City website

2.2.2. Hyde Park compound

Developed by Hyde Park Properties for Development, Hyde Park fills a central location within New Cairo, Egypt. The compound covers an outstanding 700 acres, with a generous allocation of 440 acres, 63% dedicated to green areas and open spaces (Hyde Park Development, 2024), see Figure 27, 28.



Figure (27) Hyde Park Compound Location. Source: Google Earth



Figure (28) Hyde Park Compound Master Plan. Source: Hyde Park development. Available at: <https://www.hydeparkdevelopments.com>

The landscape design within Hyde Park prioritizes the establishment of unique relaxation spaces throughout the extensive open green areas. Curved lines are a notable design feature, nurture a sense of quiet for residents, see Figure 30, 31. Moreover, the design meets the needs of younger residents by integrating a dedicated children's playground. The overall landscape design utilizes a mix of softscape and hardscape elements to accomplish aesthetic and functional objective, see Figure 29:41.



Figure (29) Hyde Park Compound Landscape design. Source: Dr. Maher Stino sketch, Sites International company, 2012.



Figure (30) Landscape design for Residential space. Source: Dr. Maher Stino sketch, Sites International company, 2012.



Figure (30) Landscape design for Residential space. Source: Sites International. Cairo Festival Project
<https://www.sitesint.com/projects/cairo-festival-city/>



Figure (30) Landscape design for Residential space. Source: Sites International. Cairo Festival Project
<https://www.sitesint.com/projects/cairo-festival-city/>



Figure (33) Site furniture, Kids playground equipment's. Source: Author, 2023



Figure (34) Site furniture seat benches with softscape. Source: Author, 2023



Figure (35) Water channel water feature. Source: Author, 2023



Figure (36) Granite paving. Source: Author, 2023



Figure (37) Interlock paving with softscape. Source: Author, 2023



Figure (38) Fountain water feature. Source: Author, 2023



Figure (39) Site furniture shade structure. Source: Author, 2023



Figure (40) Pedestrian lighting bollard with softscape. Source: Author, 2023



Figure (41) Pedestrian directional signage. Source: Author, 2023

3. Comparison and Apply Residential Landscape Design Components on Residential Compounds

Comparative analysis will be taken to evaluate the residential landscape design elements across all three compounds (Oriana Villas and Hyde Park) aside with (the Greens & Views) compound, Dubi. The analysis will focus on how effectively the landscape designs cater to the diverse activities and needs of residents, see Table 1.

Table 1: Comparison and Apply Residential Landscape Design Components on Residential Compounds.

Residential Compound Name		The Greens & Views	Cairo Festival City- Oriana Villas	Hyde Park- Zone1		
General Information	Location	UAE-Dubai	Egypt-New Cairo	Egypt-New Cairo		
	Total Area	1100 acres	900 acres	700 acres		
	Landscape Area %	69%	65%	63%		
	Developer	EMAAR Properties	Al-Futtaim Group Real Estate	Hyde Park Properties for Development		
	Landscape Consultant	SWA - Dallas	Sites International Co. - Egypt	Sites International Co. - Egypt		
Landscape Design Elements	Softscape	Trees	√	√	√	
		Palms	√	√	√	
		Shrubs	√	√	√	
		Ground Covers	√	√	√	
		Grass	√	√	√	
	Hardscape	Paving Material	Interlock	√	√	√
			Marble	√	√	√
			Granite	√	√	√
			Rubber	-	-	-

Residential Compound Name			The Greens & Views	Cairo Festival City- Oriana Villas	Hyde Park- Zone1	
			Sand	√	√	√
		Site Furniture	Benches	√	√	√
			Litter Bins	√	√	√
			Dog Waste Station	√	-	√
			Bike Racks	√	-	√
			Kids Playground equipment's	√	-	√
			Fitness Outdoor equipment's	√	-	√
			Lighting	Street pole Lighting	√	√
		Pedestrian Pole Lighting		√	√	√
		Bollard Lighting		√	√	√
		Palm & Tree Up Light Lighting		√	√	√
		Stairs & Recessed wall Lighting		√	√	√
		Under Water Lighting		√	√	√
		Signage	Main Entry Sign	√	√	√
			Pedestrian Directional Sign	√	√	√
			Vehicular Directional Sign	√	√	√
			Parking Sign	√	√	√
			Regulation sign	√	√	√
			ID Sign	√	√	√
			Residential Number Sign	√	√	√
		Water Features	Lakes	√	√	-
			Waterfall	-	√	-
			Fountain	√	√	√
		Shade Structure	Tensile Tents	√	√	√
			Pergola	-	-	√
		Security Gates & Fences	Gates	√	√	√
			Fences	√	√	√

From the comparative analysis for all four Residential landscape design, we realize that these all used almost Softscape & Hardscape elements in their design, but each

one have a unique character design to show with the landscape that makes them very interested and attractive to live in with sustainable environment.

From all the above, we find that the research achieved the goal of reaching that Cairo city in Egypt is have a great successful experience in residential compound landscape designs. Evidenced by the presence of major real estate and developers' companies investing in Egypt last 15 years which put the country in the World map to invest in the real state field.

4. Conclusion and Recommendations:

The research argues the successful landscape design for residential compounds goes beyond not only aesthetics. It should fulfill user needs, promote environmental responsibility, and foster sustainable practices through innovative design choices.

4.1 Conclusion

Key Considerations for Successful Residential Landscape Design:

1. **Holistic Approach:** Integrate all design principles and elements (e.g., walkways, water features, planting choices) to create a visually appealing environment that complements the overall design style.
2. **Environmental Sensitivity:** Conduct a thorough site analysis to understand the surrounding natural features (land, contours, climate). Design with these factors in mind to ensure a sustainable and suitable landscape.
3. **User-Centric Design:** Prioritize understanding the residents' needs - both functional (e.g., recreation areas) and psychological (e.g., stress reduction) - and incorporate these into the design process.
4. **Enhanced Value:** Utilize innovative design elements and functional spaces that are compatible with the local environment. This can contribute to higher property values and enhance the overall living experience.
5. **Examples of Successful Design in Cairo:** By highlight residential compounds in the research as Cairo Festival City-Oriana Villas and Hyde Park- Zone1 in Cairo that successfully implemented these design principles and international standards the following were concluded:
 - **Innovation and Sustainability:** Encourage continuous development of innovative landscape elements that prioritize environmental preservation and sustainability.
 - **Functional and Aesthetic Balance:** Promote the use of landscape design elements that serve both a functional purpose and enhance the visual appeal of the compound.
 - **Expanding Functional Spaces:** Encourage the incorporation of new functional spaces like dog parks, BBQ areas, and event spaces in residential compounds of all sizes.
 - **Inclusive Design:** Advocate for applying these principles to all residential compounds, regardless of size, while tailoring the design to user needs and environmental context.

4. 2. Recommendations

1. Continuous development and innovation in landscape design elements for residential compounds while preserving the environment and its sustainability.
2. Appropriate landscape design elements should be used for residential compounds, both functionally and visually.
3. There are already some residential compounds in Cairo that have added some innovative functional spaces to their landscape design, but they are still under design, such as:
 - Dog parks
 - BBQ areas.
 - Relaxation areas
 - Study spaces.
 - Walking paths
 - Bicycle paths.
 - Event spaces for birthdays and other celebrations.
4. When designing a residential compound, it is important to consider the inclusion of shopping malls, commercial areas, and office buildings for rent to generate revenue that can be used to keep the landscape within the compound.
5. Attention should not be limited to the design of landscape for large residential compounds only, but rather to all gated communities of all sizes, in line with the functional needs of the users and the nature of the environment.

By implementing these recommendations, landscape design within residential compounds can move beyond aesthetics and create vibrant, sustainable spaces that enhance the lives of residents.

Acknowledgment:

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