

Understanding the Traditional Saudi Built Environment: The Phenomenon of Dynamic Core Concept and Forms

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Abstract

This study examines the traditional Saudi built environment and culture to uncover its rich architecture and to propose a new way of thinking about how to comprehend and value the past while also rebalancing the Kingdom's future architectural identity. In that sense, the primary objective of this study is to examine the Core Concepts and Forms of traditional architecture, as well as their cultural connotations, in three regions of Saudi Arabia: the central, eastern, and western regions. Non-participant observation, ethnographic, and descriptive approaches were used in the study, which was based on a multi-dimensional comparative observational model. It was determined that the traditional Saudi built environment relied on forty Core Concepts and Forms that were divided into four categories: constant, semi-constant, semi-flexible, and flexible core forms to regulate the production process and maintain its continuity over centuries.

Keywords

Najd, Jeddah, Saudi Arabia, Traditional Architecture, Core Forms, Built Environment, Culture, Integrative Order

1. Introduction

Despite the impact of globalization and its consequent effects of modernity on Saudi society, Saudis have maintained a significant interest in their local culture and have attempted to adapt elements of the local culture into new architectural design [1]. Resistance to change has been evident throughout history, as it seems that culture always finds ways to adapt and survive. However, adopting and including some of the traditional concepts in the contemporary designs of Saudi Arabia are a natural result of long-standing core concepts which worked for centuries to regulate the people's actions and interactions in their built environments. This is, in fact, what this study in its initial form tries to present. It concentrated on exploring and identifying the core concepts that can demonstrate how some socio-cultural aspects in the urban, building, and architectural element levels are firmly attached to the people's daily practice and contributed to their moral development that was inherited and accumulated over time. The Core Concepts and Forms highlighted that physical forms are not the only way to necessarily express culture; rather, culture is witnessed in the spatial use of spaces and conceptual format for guiding peoples' decisions¹.

Traditional architecture contains the main Core Concepts and Forms that became deeply embedded within the built environment, evolved over many centuries, and were inherited by successive generations of local community residents. The Core Concepts and Forms were considered so culturally crucial for the traditional communities $(Urf s)^2$ that they resulted in the practice, generation, and regeneration of the built environment at the urban, building, and architectural element levels, which served to reproduce in built form the meanings that inhabitants associated with them. They worked as socio-cultural (and sometimes environmental and technical) regulators to pass down what was known and learned from one generation to another, evolving continuously over time. This study focused on uncovering some of these Core Concepts and Forms.

In the current environment, there is a need to provide urban planners, architects, designers, developers, government officials, and even students (future urban planners, architects, etc. in the Kingdom) in Saudi Arabia with resources that can reveal the apparent ambiguity of their local traditions and local architecture, resources that can help these groups rediscover and then regenerate the inherited values that distinguished Saudi society. This study also initially tried to highlight how examining and understanding the past can contribute to the present and future of Saudi Arabian architectural identity, not only at the physical level, but also in the way that people interact and express their values through their living within the surrounding built environment—not only understanding the built environment around them, but actually learning to *appreciate and savor the built environment and the embedded meanings* encoded within the built environment that is shared by the community now, as well as with inhabitants centuries in the past.

Accordingly, traditional architecture—once understood—should be taught and learned and appreciated and savored and should be a beloved and integral part of the curriculum of Saudi local architectural schools so that local communities can absorb, generate, and regenerate the Core Concepts and Forms that have been present in the region for centuries through local architects.

¹The term Core Concepts and Forms here means the abstract concepts, elements, forms, and physical objects that gave a built environment its characteristics and identity that inhabitants developed over centuries.

²The local traditions, or "*Urf's*" which are a mix of people's interpretations of the religious sources and are the long-standing habits and traditions in the region. Where *Urf* "conveys the implemented rules of the people of a particular time" see [2] [3].

Despite the above early focus of study, this study is about discussing the hidden meanings and relationships that governed the traditional architecture in Saudi Arabia. It is about how local people developed a "hidden order" to govern, organize, and lead the generation (and regeneration) processes in the built environment at the spatial and physical levels. One may consider the core concepts as the "engine tools" of the hidden order. These core concepts embodied the decision-making process of generating forms, physical and spatial representations, and the people's actions and reactions in the built environment.

2. The Process of Interpretation of the Built Form

Examining variant process of interpretation helped to identify several Core Concepts and Forms with different strengths that directly influenced the traditional Saudi built environment. These Core Concepts and Forms follow a specific process in generating forms while having some flexibility in generating the actual appearance of the physical forms. The Core Concepts and Forms, as clarified earlier, establish themselves with different spatial and physical features, as they have some flexibility, but at the same time, they follow a very definite and similar process in all situations. We argue that the spatial and physical flexibility produced a "hidden order" that allowed Saudi locals to shape their built environment within their geographical and environmental boundaries, as well as rearrange their internal spaces within their local settlements. This led to an extremely strong sense of place, as homes and neighborhoods and communities became interwoven like fabric and adjacent neighbors were typically direct or extended family members, not just someone who happened to purchase a piece of real estate for sale at a good price.

The findings show that each settlement possesses unique arrangements at the urban level: collectively, they produced similar spatial arrangements, similar hierarchical orders, and exhibit almost identical building layouts and architectural elements. This dynamic generative process in the integrative order allowed the people to interpret the order in slightly different ways, different but within clear limits that did not affect the innate characteristics of their *shared* Core Concepts and Forms.

It is critical to understand that the goal of this research is not to understand the shape of the physical form itself, but to understand the process that led to the form's emergence. The researcher's paper "*Discovering the Integrative Spatial and Physical Order in Traditional Arab Towns*" was a turning point in this study because it helped to examine the process of making, the physical production of the built form, as well as developing an understanding of the implicit meanings that justified the arrangements and visual shapes of the built environment [4]³. Therefore, the integrative order became the primary systematic analysis tool, which gave the ability to unveil the sophisticated hidden processes and relation-

³The researcher identified and elaborated on how the inhabitants of each Saudi Najdi built environment responded to the surrounding environmental conditions, as well as how the inhabitants accommodated their various daily life needs by using and deploying the Core Concepts and Forms. See [4] for more details about the integrative order.

ships that composed the order and how it was deeply absorbed by local people that practiced it consciously and subconsciously (**Figure 1**). In fact, the Core Concepts and Forms are part of this network that enabled the integrative order to do its job, while most of the physical representations of the Core Forms are an interpretation of this network process. Therefore, any differences in the physical details in the Core Forms are merely the result of different processes of interpretations of the integrative order.

The importance of the integrative spatial and physical order to the traditional built environment was that it produced and reproduced the hierarchical order of spaces and associated the built environment components in this spatial order to organize and produce a homogenize built form (Figure 2). Also, the order worked as the mechanism for how local people engaged with the built environment placemaking process and enabled them to use spaces carefully without



Figure 1. The dynamic core forms within the traditional integrative spatial and physical order. Source: [7].



Figure 2. The hierarchical order of spaces within a traditional urban fabric. Source: Developed from [8].

interfering with the cultural settings. The spatial order here, then, is meant to control and regulate how local people arrange their built environment components and reproduce their inherited cultural values, natural environment aspects, and building know-how to satisfy their functional and social needs and demands.

The purpose of the integrative order is not to force specific types of physical forms and shapes into existence, but to control the processes that lead to the emergence of the form. The emerging form, accordingly, becomes a generative process influenced by the socio-cultural values that local people practice. While the integrative order has the flexibility to provide for particular needs and particular circumstances in specific locations, its collective actions and innate characteristics prevent extreme individual actions and interests. This justifies the findings that some forms share the same function and location but have some differences in shape and appearance [5].

Understanding the integrative spatial and physical order was critical to understanding the underlying processes of producing the spatial and physical elements in the traditional built environment. However, seeing the integrative order as the holistic mechanism for regulating the processes of producing the built form enabled the discovery of the Core Concepts and Forms. This is because the integrative order is based on the "*Urf's*" (local traditions), and those traditions were unwritten and inherited by local people over centuries and the inhabitants mostly represented those traditions spatially and physically through the Core Concepts and Forms [2] [6]. In fact, searching for the Core Forms led to the discovery of the integrative spatial and physical order because those Core Concepts and Forms do not work individually. Integration and synergy of the Core Concepts and Forms at different levels is always observed. As a result of this network of Core Concepts and Forms that composes the integrative order, there is an understanding of the relationship between the three levels in the traditional built environment. There exists a kind of hierarchy of strength in the Core Concepts and Forms starting from the changeable Core Forms at the level of architectural elements to more consistent Core Forms at the urban level. However, the changeable Core Forms always follow the conditions of the stronger ones and respond to their circumstances as the stronger one's tie with socio-cultural values of the people.

3. The Traditional Core Concepts and Forms

This study examined the Core Concepts and Forms at the urban, building, and architectural element levels and argues that the Core Concepts and Forms are connected and integrated among the different levels, contained and influenced by stronger and flexible ones, which led to dividing the Core Concepts and Forms into four types: constant core forms, semi-constant core forms, semi-flexible core forms, and flexible core forms. Redefinition of the Core Forms is essentially accomplished by examining the horizontal and vertical relationships developed in the methodology. Horizontal in the sense is that each level in the traditional built environment has its interrelated Core Forms. The vertical relationship shows the role and position of the Core Forms at each level and how they influence each other (**Figure 3**). In other words, the Core Forms, even though examined according to their levels (urban, building, and architectural element), are not independent of each other in the integrative order, and each Core Form plays a role within the holistic mechanism of the order, which in the end contributes to the harmony of the traditional built environment.

The goal was to examine each level (urban, building, architectural element) in-depth to understand its connectivity and how well the level integrates with the integrative spatial and physical order that governed its process of producing the Core Forms. This approach helped identify several embedded mechanisms between these levels and how the mechanisms interconnect to produce a homogenized built form. It also revealed that each level contains a "specific task" that local people adopted to generate certain forms within the traditional built environment without any contradiction with the holistic integrative order. Because of the inherent characteristics of the three levels, each level was able to work



Figure 3. The multi-dimensional comparative observational model.

independently through its in-depth process of generating forms. In most cases, the integrative order directed the Core Forms at the building and architectural element levels to respect those at the urban level in order to generate a coherent built form.

The "specific task" of each level means the way a level is using its embedded mechanisms within the integrative spatial and physical order to support its form production, and to what extent these processes of production in a specific level are influenced by or are influencing the generation of forms at other levels. Examining these horizontal and vertical relationships among the three levels *led to identifying four types of Core Forms in the traditional Saudi built environment: constant, semi-constant, semi-flexible, and flexible Core Forms.*

Identifying these four types of Core Forms was essential to redefining the Core Forms in the traditional built environment. The sophisticated relationships among these Core Forms were significant to the study in order to identify their role at each level, how each level influences the Core Forms at other levels, and how they as a whole are governed and supported by the integrative order to produce a harmonious built environment. This means that the aim to redefine the traditional Core Forms is not limited to the specific levels of analysis, but rather encompasses the redefinition of the entire process that shaped the traditional built environment.

4. Constant Core Concepts and Forms

The constant Core Concepts and Forms found in the traditional built environment are the ones that represented by the legislative convictions and the socio-cultural values of inhabitants. This made them resistant to change over time as they reached the proper formats that supported the community's religious beliefs, needs, and preferences. This is not to say that those core concepts did not influence the other Core Forms at other levels, but rather that the built environment generated and developed the constant type specifically to accommodate broader agreed upon shared beliefs, values and preferences. The importance of the constant Core Forms is that they helped categorize other types of Core Forms under this type (the constant). The categorization objective is to help in understanding how the Core Forms work within the integrative order and how the four Core Forms types interact collectively without affecting the integrity of the integrative order.

These Core Forms are constant because the local cultural settings strongly reproduce them. As discussed earlier, changes in values are usually slow compared to changes in physical objects. This gave an indication that these Core Forms tend to be conceptual and spatial (more abstract) and strongly connected with implicit meanings. Typically, the Core Forms are represented in the built environment through the way inhabitants produce and use the space and the physical form. This, in fact, helped to identify among these Core Forms the ones that direct and control the way people arrange and use the built environment, distinguishing them from the other Core Forms that express and represent the visual appearance. The constant Core Forms work as broad rules and regulations to allow other Core Forms to work smoothly within the integrative order.

After understanding the hierarchy of the Core Concepts and Forms types (Figure 1), the constant Core Forms were found to be more related to the urban level and less to the building level and are sometimes found at the architectural element level (in the process of generating the elements). This is because the architectural element is entirely physical and produced to serve specific functional and visual purposes. This is not to say that all Core Forms at the urban level are constant, but the majorities are. This helped the researcher to reach the conclusion that each level is dominated by certain types of Core Forms, but at the same time, the level has other less dominant types that usually play important roles in achieving the balance between the three levels in the traditional built environment [9].

This is observed when the guest retreat (*Khawa*), the segregation between male and female (privacy), and the activities of the family in the courtyard. Each of these produced physical components that inhabitants of the traditional home environment broadly shared. Although their physical appearances were slightly different from one house to another, or from region to another, they usually produced spaces and architectural elements that supported the constant Core Concepts and Forms. For example, the integrative order arranged the relationships between these complex Core Forms by placing the courtyard in the middle (core). The placement here is essential for the family and protected it from the eyes of guests and outside passersby. The entrance threshold was developed for this reason: to allow guests to freely enter the *Khawa* space without interfering with the courtyard's privacy [10] [11]. This, in fact, helped the researcher identify that the integrative order arranged outdoor walkways and spaces to prevent any possibility for visual corridors to inner spaces of the house by regulating the placement of house doorways within the built environment.

This supports the researcher's finding that the Core Concepts and Forms within the integrative order work in two directions: the first is to independently serve the purposes of the Core Forms, and the second is to combine with other Core Forms to produce a holistic and harmonious built environment. For example, the location of the main public spaces is not as important as the arrangement of public streets and spaces in a way that does not conflict with the private pathways and spaces. In fact, this influenced the entire urban structure of traditional settlements, arranging their spaces with clear thresholds and hidden boundaries in order to respect the social structure. The following are examples of the most important constant Core Concepts and Forms.

4.1. Constant Core Concepts and Forms—Urban Level

The social structure and clustering of people. The social structure is based on blood-related clans and families. Usually, blood-related families founded a new settlement (e.g., Sudus and Alkhabra in central region). Later, when the settlement grows, new families can move into the settlement and create their own private neighborhood (e.g., old Riyadh, Ad-Diriya in central, Al-Hofuf in eastern, and historical Jeddah in western regions). In general, the social structure allows a kind of urban hierarchy, starting with the entire settlement at the top of the hierarchy. The settlement is typically divided into several private neighborhoods (*hellas, harat, or fereef*) occupied by one or more blood-related families. Each neighborhood contains several smaller urban masses composed of a cluster of houses occupied by the most related families (brothers or close cousins). This social structure maintained the hierarchy of the urban characteristics and preserved the resident's social homogeneity over centuries.

The principle of neighbor purchase priority "Alshuf"a": This core concept is considered one of the five religious and social "legal" principle related core concepts [12]. Purchase priority provided neighbors with the right to stop other neighbors from selling their houses to strangers by having the priority right to buy the house [13]. This principle contributed to the maintenance of social homogeneity within private neighborhoods over centuries and prevented intruders and strangers from breaking the local social solidarity and its urban representations.

The principle of easement right "Haq Alirtifaq": Is the right to pass through another's property as well as to reach one's own property through another person's property [14]. This principle is also among the five religious and social principles, and it is mainly employed as a device that allows for the division of private houses and buildings into smaller parts and gives the inner parts the right of access [15]. This core concept allowed the inner spaces and physical elements to be more dynamic and more functional.

The principle of "no harm": This religious and social principle has been practiced as "right control" among the neighbors [16]. It is an important principle in Islamic law, not only in urban and architectural activities but as a general right control principle [17] [18]. It was a crucial integral mechanism in the decision-making process that enabled local people to judge and resolve construction activities and incidents that may arise between neighbors.

The principle of reviving the land "Alahyaa": This principle is also one of the basic principles that contributed to the emergence and formation of the settlements in Islamic civilization [19]. The principle holds that God owns the land and anyone that is able to revive "dead land" will eventually control it. Most of the urban activities in the traditional settlement followed this principle as the land itself has no value, but what is on the land is what is essential [20]. This principle causes everyone to occupy the land they need and that fits their requirements, which makes the whole built environment efficient and sustainable.

Visual corridor. Typically, this core concept is found in the private and semi-private outdoor spaces that usually govern many of the architectural elements, especially the main house doorway and its internal threshold inside the house. The development of the threshold prevents any visual contact with the family's spaces in the courtyard. Most of the main doors of houses do not face each other, which helps to prevent any possible visual contact with the inner

spaces of the house [21]. The concept of door setback is one of the tools used by inhabitants to achieve the required level of privacy and to control and regulate the relationship between the outdoor and indoor spaces in the neighborhoods. Many architectural solutions developed to support this core concept, such as the *Tarma* in central region, a small wooden or mud box on the top of a house door gate which allows women to see the outdoor spaces without others seeing the women.

The decision-making processes: The incremental process of decision-making and people's participation in managing and controlling the traditional built environment is one of the central core concepts by which the integrative spatial and physical order maintained its existence and effectiveness (Figure 4). This study observed that the decision-making process comprises three social circles: the first social circle is the macro circle, in which all residents of a settlement share the decisions and control the main public spaces and buildings and decide upon any proposed expansion of the settlement. The meso circle comprises the residents of the private neighborhoods (*hellas*/*harat*), while the individual circle is comprised of house residents at the micro level. Typically, the macro and meso decision-making processes influence the micro circle.

4.2. Constant Core Concepts and Forms—Building Level

Social status: Collective societies like the inhabitants of the traditional towns somewhat discourage individual status. However, people express themselves and their status through their house size, their doorways, and through the richness of their guest space. This core concept created a balance between collective identity and self-expression.

The principle of "first built has the right and priority": Whoever builds first decides the level of growth of the urban tissue in one way or another. This is because this principle is very effective in determining the placement of urban and architectural elements within the built environment. It is among the five religious





and social principles identified that heavily influence the built environment [22]. Typically, this study found the arrangement of building masses according to this principle in addition to the process of land reviving and easement right.

Accessibility and privacy: One of the main core concepts in the traditional environment is privacy and most of the urban and architectural solutions developed to maintain it. At the house level, the challenge of allowing the guest to enter the house without interfering with the family spaces generated many solutions in the house layout and its architectural elements (e.g., the three parts of the house). The relationship between the guest space, entrance threshold, and family courtyard developed to allow each element to function independently, while at the same time maintaining the family's privacy. This is because the entrance threshold worked as a transitional space between outdoor and indoor spaces to regulate the requirement for privacy.

Hospitality: The layout of each house in the traditional community reflects the desire of inhabitants to provide hospitality while maintaining privacy. As discussed earlier, a house's guest space is strongly connected with the outdoor spaces of its *hella*. The entrance threshold existence allowed for the guest space to be as an extension of the neighborhood while being part of the house. Usually, the main door of the house opens all daytime for guests, which makes the entrance threshold function as the device that maintains the privacy of the family spaces.

Climate and natural environment: Traditional Saudi built environments were very responsive to the local climate. There was a "climate culture" that directed the formation of the built environment and the way people used it [23]. For example, climatic conditions drove the development of the mosque spaces. Also, the hot desert climate, for example, motivated the high mud external solid walls that characterized the external walls of Najdi (central) and Al-Hofuf (eastern) region houses. These high solid walls provided the required shade for external streets. This core concept contributed to the emergence and refinement of many urban, building, and architectural elements. This central concept was extremely prevalent in other regions, inspiring locals to create and differentiate façade textures according to their geographic location. These distinctions were evident in Jeddah, where the façade incorporated a *roshan* element with protected perforated wood to address privacy concerns (**Figure 5**).

4.3. Constant Core Concept and Forms—Architectural Element Level

The principle of "unity within diversity": This principle is a general core concept that characterized the whole traditional built environment at all levels, it can be seen more clearly in the process of producing buildings and architectural forms. In fact, the traditional societies tended to unify their built forms due to the strong impact of the integrative order. However, the flexibility of the mechanisms in the order enabled the society to diversify the forms and shapes in response to differing conditions, locations and building sizes.



Figure 5. Climate and environmental concerns influencing the texture of façade walls.

Efficiency and sustainability: Most inhabitants of the traditional settlements lived with limited resources. Consequently, utilizing these resources efficiently in order to sustain themselves was one of the constant concerns of the locals. This, in fact, is not only seen in how the inhabitants of the settlements managed their resources, it also can be seen in how inhabitants across the settlements used other core concepts at different levels and modified them to fit their particular needs and circumstances. As a result, this principle contributed to the simplification of the built environment and made all the components of the built environment supports each other.

The Constant Core Concepts and Forms are "form generators" because they worked as a hub for the social structure and directed the built environment to respect the main cultural settings. They functioned as mechanisms for the community to allow it to shape a homogenized built form. Also, they established a systematic order for how they approached the concept of placemaking by first focusing on the organization and connectivity aspects of the urban masses, as well as by avoiding the conflict between what is necessary to generate a coherent built form and what is needed by a specific group of people within the built environment. Understanding the differences between these two layers of engagements supports our assertion for why these constant core concepts were necessary tools for the integrative spatial and physical order to establish embedded mechanisms that were employed as well as how they operated to support other Core Concepts and Forms.

5. Semi-Constant Core Concepts and Forms

The Semi-constant Core Concepts and Forms tend to serve more as guiding principles for interpreting the spatial and physical products and, typically, are strongly connected with the Constant Core Concepts. This is because they represent the development of urban and architectural solutions for maintaining a harmonious environment. However, they still reflect the implicit cultural connotation that the integrative order employed to maintain its role. The Semi-constant Core Forms function as the transition between the abstract concepts and the physical forms. This type also composed the solutions and produced different ways to help inhabitants interpret the constant core concepts and transform them, to some extent, into physical representations.

The physical interpretation of the Constant Core Concepts mainly passed through a repetitive trial and error process over the span of centuries. Local communities reached proper solutions to express their shared and unchanging beliefs, values, and morals through the process of physical configuration found in the traditional settlements. Indeed, usually these solutions take more time to regenerate as they are exposed to slower changes, less development, fewer new ideas, and absorb fewer new technologies. In fact, the purpose of the semi-constant core concepts is to allow some flexibility in the physical representations of the constant concepts. For example, Alshuf a as a constant concept helped people to maintain the solidarity of their private neighborhoods and prevent strangers from breaking the homogeneity of the social structure by giving the adjacent neighbors a priority to purchase the neighboring houses. At the same time, Alshuf a allowed adjacent neighborhoods to reach an optimum size by selling some of the houses in the case of a shrinking in the number of residents due to death or migration. Consequently, this led to the development of the neighborhood as one mass to allow this inner flexibility.

The objective of the Semi-constant Core Concepts is to activate the Constant Core Concepts and make them workable. This type developed the solutions that enabled the Constant Core Concepts. They are vehicles that allowed people to practice their values and beliefs in the built environment and gave them the flexibility to arrange and rearrange their built environment according to their needs without affecting the holistic integrative order. For example, a cul-de-sac is a spatial tool to enable clustering within a private neighborhood to preserve the privacy and solidarity of a small group of people. This spatial and physical device usually emerges due to deep social interactions and needs. In many cases, selling part of a house or dividing a house due to patrimony led to the emergence of new cul-de-sacs as a result of the easement right principle.

As explained earlier, the mechanisms of the Semi-constant Core Concepts in the hierarchical order of spaces emerged to ensure a smooth transition between the public and the private domains. This led to the development of several urban mass patterns and ensured that each mass is different. This also allowed the local community to interpret their individual processes differently by using different Semi-constant Core Concept mechanisms that met their physical needs. This results in urban masses that, although they may have different spatial organizations and different forms, when viewed holistically, clearly the urban masses produced similar spatial hierarchies. The following are some of the semi-constant Core Concepts and Forms.

5.1. Semi-Constant Core Concepts and Forms—Urban Level

Compacted and dynamic urban masses: This core concept characterizes most

Arabic and Islamic traditional towns. It was necessary to allow people to create their private neighborhoods, each of which was one compacted building mass, as well as allow the whole settlement to be one mass divided by several walkways. This, in fact, parallels our earlier discussion regarding the decision-making process where the whole settlement is made up of smaller masses (private neighborhoods). The small masses are themselves made up of still smaller segments to allow accessibility to the houses or cluster of houses. This can indicate where the most private spaces are located within a large, private neighborhood mass. The compacted urban and building masses support the core concept of inner flexibility within the urban mass which allowed for the expansion and contraction of neighborhoods without any need to demolish and rebuild. It also allowed for housing division by activating the four religious and social principles of priority, easement right, no harm, and reviving the land in a smooth way.

The public urban elements: One of the main Semi-constant Core Concepts is public urban elements which represent the central space of most settlements. People started forming each settlement by first producing their private houses, and then producing the public urban elements. The settlement's center is typically composed of a *juma'a* mosque, a *souq*, and a public plaza, and these elements formed later. These elements generated when the settlement expanded, and any new neighborhoods typically formed in the settlement over time. This happened in most of the traditional towns.

The private hella (central), hara (western), or Fereej (eastern) (neighborhood cluster): The urban layout of the traditional towns defines the neighborhoods very clearly and connects them to the main public space. This connection is not direct and led to the emerging network of street types and thresholds. Usually, blood-related families or clans occupied the private hellas, hara, or fereej and were considered a private place that is not generally open to outsiders. The residents considered inner outdoor spaces in the hellas, harat, or fereej to be semi-private spaces for the residents within each cluster of houses. Although the physical boundaries between these spaces mostly do not exist, the hidden boundaries (a series of thresholds) are known and identified by the settlement's residents. This encoding process of the built environment guided locals to respect the privacy of inner outdoor spaces in each neighborhood.

The hierarchical order of spaces: implicitly, the entire urban structure of the traditional Saudi built environment is governed by the hierarchical order of spaces that represents an essential core concept that arranges the layout of the traditional environment (**Figure 2**) [8]. The hierarchical order of spaces developed to protect the social structure and represents the shared beliefs, values, culture, and lifestyle of inhabitants. In general, the desire for clustering in private *hellas* contributed to the hierarchy of spaces and walkways to ensure that the preservation of privacy of the inner outdoor spaces in private neighborhoods from the public realm. The physical forms of the walkways and the open spaces emerged as the result of people's interaction with their built environment and the incremental decisions they took to produce that environment. This process

also influenced building arrangements in such a way that usually the buildings were arranged to generate irregular walkways and open spaces to increase the effectiveness and depth of the hierarchical order.

Thresholds: The arrangement and organization of the hierarchical order of spaces separates public and private spaces with physical or hidden boundaries (thresholds) known by local peoples. These thresholds (semi-public/private) play a significant role in regulating outdoor activities and achieved the required level of privacy [24]. They worked as hidden codes known by residents. This is because the arrangement of the hierarchy of space is such that everyone in the settlement knew the location of the primary thresholds of private neighborhoods as well as the inner thresholds that defined the boundaries between the housing clusters within the neighborhood. This coding and decoding process enabled locals to know, appreciate, and understand the importance of their hierarchal order of space.

Flexibility of urban and building forms: This principle deals with the internal dynamic mechanism that allowed people to shape and reshape their buildings and their immediate surrounding outdoor spaces. It is a principle associated partially with the division and joining of houses due to the *Alshuf a* principle. It is also responsible for regulating the extension of building elements over streets (e.g., *mujabab, sabat*) (**Figure 11**) [25]. In general, this principle is a continuous process that enabled locals to modify their settings to accommodate their religious, social and economic needs.

5.2. Semi-Constant Core Concepts and Forms—Building Level

Compact organic housing mass. The traditional built environment emerged as an incremental organic development that usually created one big mass divided by walkways. Each house has its own boundary that usually developed to respect the privacy and the right for sun and air among neighboring houses. This semi-constant core concept supports the diversity of the building mass by allowing inhabitants to generate their own mass as long they are not harming the surrounding masses. Also, the dynamic process of the easement right principles, and the "first build have the right and priority" principle allowed houses to expand and divide, which led the neighborhood masses to expand and contract accordingly. It created a kind of resilience-built structure (**Figure 6**).

Flexible interpretation of the physical appearance. Specific problems need specific solutions for determining final physical appearance. Because of the right of who built first, the principle of "no harm" and the other religious and social principles, typically the final physical appearance and components are decided incrementally according to the circumstances of the site. This principle played a vital role in making the various traditional built environments look similar (because of the rooted integrative order) but not identical in terms of architectural elements and forms.

Building know-how: Construction techniques and materials contributed heavily to the formation of the traditional built environment. This core concept can



Figure 6. Organic formation and reformation of the traditional urban fabric.

be considered "partially" semi-constant when the inhabitants' knowledge of construction techniques, material usage, and crafts that were developed over centuries is recognized. The sustained knowledge of construction techniques, material usage, and crafts maintained the continuous appearance of the built form and helped residents activate their incremental micro-decisions without any need for outside help. Also, it is a "full" Semi-constant Core Form when we see the influence of the physical building materials and techniques on the formation of the architectural elements.

5.3. Semi-Constant Core Concepts and Forms—Architectural Element Level

The principle of Inclusiveness: As a basic principle, most of the smaller components and elements were enclosed by larger elements similar to the previous discussion related to the *Khawa* and the courtyard. This interpretive principle exists at all the towns levels but is mostly observed at the building and architectural element levels. The principle of inclusiveness worked as a process of organizing and ranking spaces and architectural elements based on how they are integrated to produce a harmonized built environment.

Simplicity: In general, the traditional built environment is simple in form to some degree and tend to be efficient. This visual simplicity, in particular, is one of the key strengths and sources of inner beauty (building within) of the traditional built environment. This visual simplicity is due to the limited use of architectural elements that worked effectively to satisfy the needs of the inhabitants. Simple spaces and abstract solid walls worked well with the narrow streets with optimum open spaces to generate simple, livable built environments. This principle worked in parallel with the concept of efficiency and sustainability as they both deal directly with available resources and the way people lived and viewed the world.

The Refining process: Most of the spatial and building forms pass through a long process of refining until they reach the optimum usages and shapes. This is not to say that traditional communities do not inherit previous urban and architectural legacies, but rather that even though they inherited some forms, know-

ledge, and experiences they usually put them under the process of repeated trial and error and refined them over time according to the new location, new ideas, and new technologies that may have been discovered or introduced.

As noted, the Semi-constant Core Concepts and Forms helped to activate the Constant Core Forms. They usually did not specify specific physical solutions; instead, they set the principles that people used and interpreted to generate different spatial and physical solutions for different situations. They are semi-constant because they follow the changes that may occur in the interpretation process of the constant Core Concepts and Forms.

6. Semi-Flexible Core Concepts and Forms

The aforementioned two types of Core Concepts and Forms were essential to understanding how the integrative spatial and physical order is based on core principles, their interpretations, and how they are used over time in a "proper way" to generate spatial and physical order. Inhabitants used these two types of Core Concepts and Forms to consciously and subconsciously maintain and regenerate the identity of traditional built environments and worked as the mechanisms that enabled people to represent their cultural settings and respect the local natural environment. These mechanisms are almost fixed rules with flexible physical interpretations and played an operational role that worked as processes with definite goals and directions, which enabled the integrative order to maintain its continuity over time even if the appearances or the ways of construction of architectural elements had changed.

The Semi-flexible Core Forms relate to the physical urban, building and architectural element levels that define the characteristics of the traditional Saudi built environment. These Core Forms developed over centuries and contained both direct and indirect interpretations of the Constant and Semi-constant Core Concepts and Forms. They reflect the cultural, climatic and technological parameters from a physical perspective. The Semi-flexible Core Forms are mainly responsible for the visual identity that the spatial configurations and the morphological characteristics of the traditional built environment reflect. This type is flexible as it usually accommodates different situations and finds spatial and physical solutions to different circumstances and geographical limitations.

The Semi-flexible Core Forms represent the process of generating similar, but not identical, spatial and physical forms. This enhanced the spatial and physical diversity and enabled many individuals in the traditional communities to personalize and express themselves through diverse architectural elements. While the Semi-flexible Core Forms can diversify the built forms, they still follow the principles that generated and controlled the Constant and Semi-constant Core Concepts and Forms, which makes the flexibility and diversity limited (contained) by the principles of these core concepts (constant and semi-constant). Limitation here is not a defect of the settlements but rather an important feature or strength as the limitation helped increase the homogeneity of the settlements which, in turn, yielded certain individual and communal benefits.

In this type of Core Concept and Form, the different mechanisms focus on the in-depth actions found at the micro-level. It is more focused and involved with the decisions of individuals. The community's shared beliefs, values, morals, and decisions typically controlled these individual decisions. This means that these mechanisms control specific components generated by individuals at the urban, building, and architectural element levels. They give individuals and groups the flexibility to interpret, spatially and physically, the Constant and Semi-constant Core Concepts to develop the proper urban and architectural solutions for inhabitants. Consequently, in this Semi-constant type, a form's appearance may look similar in different locations or may have slight or significant differences, but overall the essence still follows the same process. This makes the final physical appearance emerge as an interpretation of the same Constant and Semi-constant Core Concepts. The interpretation of spatial and physical forms according to Semi-flexible Core Forms always depended on the context, material availability, building techniques, and most importantly, the group and individual needs of a specific location within the built environment.

Most of the Semi-flexible Core Forms are components with certain use and visual characteristics. Those elements which only serve visual purposes are part of the Flexible Core Forms which is discussed later. The example of the courtyard as an essential component used broadly by inhabitants in the traditional houses also explains this. However, the different locations of the courtyard inside the house in the central and eastern regions have led local people to develop a set of elements inside their houses to ensure maximum privacy for the family space, elements such as the *Dehreez* (entrance threshold), *Alrewaq, Furaj*, high walls, parapet walls, etc. These elements appear in different manners from one house to another and when there is a privacy conflict possibility between two adjacent neighbors, these elements are more evident. As a result, they are semi-flexible as they are not mandatory and are only employed in a site when circumstances require them. Because the semi-flexibility, in Jeddah, the courtyard does not exist and replaced by staircase to connect with the upper family spaces while maintaining and sharing other elements.

The final shapes of the components resulted from the Semi-flexible Core Forms are mainly dependent on individual needs and site circumstances. However, the concept of the courtyard, for example, as a component remained as a Core Form with a high level of presence in the built environment and continued its presence whatever elements people used to identify their courtyards visually. In this case, most of the Semi-flexible Core Forms are in urban and building components which are the direct result of the interpretation of the Constant and Semi-constant Core Concepts, while the Semi-flexible Core Forms are mainly visual and technical translations of Constant and Semi-constant Core Forms. The following are some important examples of the Semi-flexible Core Concepts and Forms.

6.1. Semi-Flexible Core Concepts and Forms—Urban Level

Emergence of open spaces and walkways: All open spaces and walkways emerged as a result of the growth of building masses (which mainly depend on the principle of "first built has the right and priority"). They grow gradually and take different forms according to the people's construction actions and decisions by following the main principles that governed the organization of the built environment. It is almost impossible to find two identical open spaces or walkways. Usually the final form of the open spaces or walkways is not known until completion of construction of the building. However, the need and position of the walkways is known from the beginning because of the easement right and the location of open spaces is mainly known prior to the end of construction because most of the *barahas* are located on the intersections of the main walkways. This makes open spaces and walkway directions known, but their physical appearance reflects the final building mass.

Private urban elements: Urban elements that usually appear in private neighborhoods and that are typically attached to buildings (houses) are "semi-private urban elements." These elements, such as *Meshraq* and *Mujabab* in central region resulted to serve different needs, but local people used them to complement each other. The *Meshraq* is a place for elders to sit and enjoy the sunrise, while the *Mujabab* is a bridge room connecting two houses and created a covered, shaded area in external walkways. In many cases, the *Meshraq* element is located underneath the *Mujabab* element to benefit and enjoy the shade cast from the *Mujabab* element. In general, the final shapes of the *Meshraq* and *Mujabab* are different from one place to another. Simialr core concept appears in other regions with different local naming to the urban elements (e.g., *Dakka* is an eastern local naming for *Meshraq*).

6.2. Semi-Flexible Core Concepts and Forms—Building Level

The four parts of the mosque: People use the mosque as a religious and social place five times every day. A mosque strongly connects with its surrounding residential areas and reflects its surrounding social and climatic culture [26]. The spatial and physical arrangement of the mosque comprises four spaces to meet the climatic conditions of Najd (central region). The *Almisbah* is a covered praying space used mostly for summer midday prayers (*Dhuher* and *Asir*). The *Almisbah* usually opens to a courtyard called the *Alsaraha*. Believers use the *Alsaraha* for prayer in the late afternoon (*Maghreb*) or nighttime (*Isha*) in the summertime. However, in wintertime worshippers use the *Alsaraha* for midday prayers, and the *Almisbah* for late afternoon and nighttime prayers. In some cases, people use the roof (*Assateh*) for the same purpose in the summer, to experience a cool breeze, while in the winter they use the *Alkhalwa* (basement hall) for morning (*Fajer*), afternoon and nighttime prayers (**Figure 7**) [27]. Usually, other regions share similar mosque components with different space names, size, and form.



Figure 7. Typical mosque components in the traditional central region-built environment.

The three parts of the house. Almost every house in the traditional built environment consists of three main parts. One part is for guests, called Kahwa (guest space), and is usually located in the front of the house. The guest space connects the entrance threshold and outdoor spaces adjacent to the house. The second part of the house is intended for family use and this is where the open to sky courtyard space is located (Batn Alhawai) or the staircase in western region. The third part is the back of the house where the animal zone and utilities of the house are located. The development of the spatial order of the house makes every part of the house independent and function without any impact on the other two parts. The guest part functions freely without affecting the privacy of the family courtyard, while the animal and utility part functions without impacting the rest of the house [28]. Developing two transitional thresholds to separate the three parts achieves this internal spatial order. One threshold works as the entrance hallway (entrance threshold), while the second threshold is located between the family section and the back of the house (e.g., arcade hallway in central and eastern region). The entrance threshold is always present while the existence of the second one depends on the building's size and the internal spatial arrangement of the house and each region socio-cultural needs [24].

6.3. Semi-Flexible Core Concepts and Forms—Architectural Element Level

Al-Khawa (*central and eastern*), *Maq'ad* (*western*) (*guest space*): This semi-flexible core form incorporates the concept of hospitality. The guest section in the traditional Saudi home environment is the front part of the house, where the family reflects its social status and wealth. The *Khawa* space is usually rich with gypsum ornamentation and visually developed to put the *Wejar* (coffee fireplace) and

Kamar (gypsum ornamented shelves in the corner of the *Wejar*) near the front wall of the *Khawa* space to attract guests' eyes when they enter the space (**Figure 8**). The location and connectivity of *Khawa* space with the outdoor spaces played a major role in the spatial order of internal spaces as it spatially organized the inside of the house. This is observed on central and eastern region while western region is called *Maq'ad* and has similarities with different reconfigurations [29].

Batn Alhawai (family courtyard): The family courtyard is a major component in the traditional house (especially in central and eastern regions). It reflects the value of the family's privacy while at the same time it serves a climatic need. It worked to direct the traditional built environment inward rather than outward, which influenced the whole outdoor appearance of walkways and open spaces by making them look solid with the rare appearance of an opening to the outside. The family courtyard plays a major role in regulating the accessibility of inner spaces within the house (**Figure 9**). It connects the guest section with the back of the house, and it disconnects the family's multi-purpose inner rooms (*Dars*) from the guest section of the house. Therefore, it is a space that usually provides access to the family's multi-purpose inner rooms, the major activity space for the family.









Transitional hallways (*internal thresholds*): Internal thresholds are spaces in the front of the house and in rare cases generate between the courtyard and the back part of the house. They are essential elements that make major components inside the house, such as guest and family places, function properly. Their main function is to control the accessibility of the house and maintain family privacy. This space in many cases contains a *Dakka* (mud seating bench) similar to the *Meshraq* or *Kahwa* element for temporary and quick meetings (**Figure 10**).

Al-Meshraq (in central), Dakka (in eastern region), and Kahwa (in Western region) (outdoor social bench): This core form represents the concept of outdoor social gathering, which characterized the traditional society. It is an urban element located in external walkways, but some houses have similar elements placed inside their private houses called *Dakka*. The size, form, and shape of the *Meshraq* or *Kahwa* element depend on its location.

Al-Mujabab, Sabat, Saqefah (bridge room connecting two houses): The concept of these elements supports families that need to expand their houses. It is a room expanded over a walkway below to provide more inner space for family members (Figure 11). As discussed earlier, the traditional houses were developed to accommodate extended families and usually a father and mother lived with their sons (or married sons) in the same house. *Mujabab, Sabat, or Saqefah* serve as part of the process of providing flexibility where a family can expand their house by buying part of a neighboring house or by producing a *Mujabab*,



Figure 10. Typical entrance core form topology in the traditional built environment.



Figure 11. Similar architectural element of (Mujabab, Sabat) different implementation.

Sabat, Saqefah elements or it can divide their house into smaller houses according to the family's size and condition. This component has strong visual and environmental impact on the external appearance of the traditional built environment. The element also serves as a physical threshold that expresses change in street type or domain.

The abovementioned Core Forms developed to help groups and individuals regenerate their built environment within the frame of the integrative spatial and physical order. They are a manifestation of people's understanding of the different mechanisms found in the integrative order. In this way, each Semi-flexible Core Form is a cumulative act performed by the other Core Forms types that influenced its final shape. Therefore, they are not a spontaneous product of individuals, but rather a product that expresses deep understanding and long experience of trial and error of the different mechanisms and constraints found in the macro and micro decision-making processes in the built environment.

7. Flexible Core Concepts and Forms

The ranking of the Core Forms types and how the integrative spatial and physical order governs them was part of our objective in this research. To understand how and why the traditional Saudi built environment is homogeneous and serves its socio-cultural, environmental, and technological purposes, certain Flexible Core Forms developed to support people's actions and decisions to accommodate their direct views and interpretation of the holistic integrative order. This study defines the Flexible Core Forms as components or elements that developed over time to help the Constant, Semi-constant and Semi-flexible Core Concepts and Forms achieve their goals. They contributed heavily in defining the final shape and appearance of the traditional built environment because they present the external physical, visual, and technical elements.

In this type of Core Concepts and Forms, there is a strong connection between the different mechanisms found and the semi-flexible Core Forms because they justify how the urban and architectural components look visually and why they took their specific shapes. Therefore, the flexible Core Forms provide more space for individuals to inject their actions and decisions. This type allows people to personalize their spaces by employing the flexible visual and technical elements. Having said that, they represent the final shape of the Core Forms in the traditional Saudi built environment. This means that they are the product of long-standing processes that refined their forms and shapes to make them integral elements used by local people for known purposes and locations. Flexibility here, means the way that individuals accommodate these Core Forms to achieve their personal needs. In this way, what this type produces is flexible as it gave individuals the ability to express their social image in their private properties without affecting the consistency of the holistic integrative order.

This flexibility is explained by looking at how the main doorway of the house is an element that expresses the social status of the house's owner. The doorway is an essential element in any building; however, door size, form, and ornamentation are situational and vary greatly from one house to the next. These differences are highly associated with the social status of the house's owner, who uses the door to express the family's social image. It is a flexible individual act, but at the same time, the constant, semi-constant and semi-flexible Core Concepts and Forms within the integrative order govern this act. The followings are some of the main Flexible Core Concepts and Forms of the traditional settlements.

7.1. Flexible Core Concepts and Forms—Building Level

Multi-use spaces (inner spaces of the house): Most of the spaces in the traditional houses are multi-use spaces, even the most important spaces such as the guest space (*Khawa*). While the *Khawa* is mainly used to accommodate guests, in many cases, the guests may sleep there and the space can also be used as an office for trade. Inhabitants use the inner family rooms for sitting, gathering and working in the daytime and for sleeping at night. They mostly use the courtyard and roof deck for omen and family gathering and for sleeping in the summertime. The concept of multi-use is very generic and makes the spaces very efficient to fit the different needs for extended families to live in small houses. This concept in fact contributed to the growth of the compacted urban masses and helped to control the size of the building mass over time.

7.2. Flexible Core Concepts and Forms—Architectural Element Level

Doorway: This core form represents a deep need for the family to convey their status to the community [30]. Most of the flexible core forms work as nonverbal communication tools to inform others about something. In this case, inhabitants use the doorway as the address for the family (by employing unique ornamentation), as well as impacting the visual appearance of the outdoor spaces that are mainly constructed using high solid mud walls with few openings. This makes the doorways contribute heavily to the visual quality of the built environment. Inhabitants used doorways to differentiate between neighborhoods, in terms of how they compare aesthetically from one neighborhood to another.

Tarma (central), Agasi (eastern), and Roshan (western): This study finds that the need for privacy and the need to keep women away from the sight of strangers is one of the main principles in the traditional built environment. One of the devices used to achieve this goal is the *Tarma* in central region, which is a mud or wooden small box used by women to connect unseen with the outdoor spaces. This concept parallels the social function of the *Roshan* (in the historic town of Jeddah), and *Agasi* (in Al-Hofuf) (**Figure 12**). The differences observed in *Tarma* is that it's smaller in scale but without any environmental role such as the *Agasi* and *Roshan*.

Symbolic visual element: The traditional built environment appreciated ornamentation, especially gypsum ornamentation in the guest spaces. In general, traditional inhabitants used ornamentation to reflect social image [31]. The triangle on facade (in central), Gypsum flora on interior and exterior walls (in eastern), and perforated wood on windows (in western) as a symbolic form is considered by this study to be a core form because it is the visual symbol of the traditional built environment and is used as a generic form for many facade details and ornamentation (**Figure 13**).

The concept of shade and shadow: This core concept is not a physical element by itself, but it is a concept that generates forms and orients building masses. Many elements in the traditional Saudi built environment respond to this principle, such as the high solid mud walls, which form the main pathways while also



Figure 12. The different privacy control architectural elements in the Saudi built environment.



Figure 13. Variety of symbolic visual element across the traditional Saudi regions.

creating shade to cool the pathways. The *Mujababl Sabat*, the *Meshraql Dakka*, the orientation of the main street and pathways, and the building forms and masses mainly developed to respond to the natural environmental conditions in addition to their socio-cultural responses.

The selected Flexible Core Forms are not only building and architectural principles and elements in and of themselves, but they are also principles and elements that influence or contain other architectural elements. The aforementioned Core Forms generate many visual, technical and environmental details that contributed to shaping the urban, building and architectural element components. Flexible Core Forms represent the end product of the traditional Saudi built environment. They are associated with physical appearances, but they also represent basic architectural, technical and environmental solutions. In general, the Flexible Core Forms enable the expression of the individual's visual desires, but within the framework of the holistic integrative order.

8. Conclusions

The purpose of this study is to expand the understanding of and debate about the relationship between culture and architecture. The aim was to explore a new way of looking at Saudi Arabia's traditional architecture in a cultural context and to explain the concepts effectively embedded within the traditional built environment of three regions. These concepts can be the foundation for providing academicians, researchers, architects, designers and the general public with a new level of understanding of and a different vision for the traditional Saudi built environment, opening their minds to different ways to think about contemporary and future architecture in Saudi Arabia that honors the Kingdom's rich architectural heritage.

The study observed and classified "Forty Core Concepts and Forms" into four categories: constant, semi-constant, semi-flexible, and flexible core forms. These Core Concepts and Forms are the tools used by the integrative spatial and physical order to control the production process in the traditional Saudi built environment and ensure its continuity over time and across centuries. Although the traditional built environment has been segmented into three levels of analysis: urban, building, and architectural element, the objective was not to exclusively classify the Core Forms according to these levels, but rather to show the complexity of the traditional built environment by identifying the network of main principles that governed the production of the urban and architectural components. This led to a focus on how inhabitants used the integrative order as an operational holistic order to form a homogenized built environment across the regions. What is fascinating is that while this order is unwritten, it is an integral part of people's daily practice.

One of the primary challenges facing Saudi Arabia's contemporary and future built environment is reengaging citizens in the decision-making process and enabling them to express their collective interests through their living spaces. The integrative order and its fundamental concepts can assist the Saudi Arabian people in reproducing their cultural characteristics and positively responding to the natural environment and construction know-how. This is because the integrative order communicated that physical elements and spaces must coexist and should correspond to human needs and desires. The scale of the contemporary built environment, the diversity of its inhabitants' values, interests, and visions, and the rapid advancement of building technology contrast sharply with the traditional built environment. However, there is an opportunity to create a set of "integrative regulations and concepts" to assist Saudi citizens to engage with their future built environment.

In that sense, the ranking and hierarchy of the Core Forms developed in this chapter are intended to assist not only professionals, but also the general public, in determining which Core Forms are appropriate for contemporary life. This is because the differences in social needs and requirements associated with modern lifestyles cast doubt on which Core Forms should be retained and which should be modified to achieve certain cultural values in the contemporary built environment. By refining the organizational aspect of the Core Concepts and Forms hierarchy, the study reduces the complexity of understanding a specific Core Form. This is accomplished by understanding each Core Form through its embedded cultural concepts and ranking them (in terms of strength) according to their effect on specific cultural phenomena. As a result, developing a set of adaptable "integrative regulations and concepts" based on the findings of this research can assist the Saudis in determining the sufficiency of these Core Concepts and Forms and their ability to engage effectively with the existing built environment.

Understanding the embedded processes of a particular Core Form may persuade the Saudis to shift their focus away from the form itself (as is currently the case), as they will recognize that forms typically undergo a number of stages before reaching their final shape. These stages are critical to comprehend because they demonstrate the viability of retaining, modifying, or adjusting to a new Core Form to meet current needs. Thus, practitioners and planners can use traditional Core Forms as a starting point for refinement, ensuring that any new outcome retains the same embedded processes as the original traditional Core Form but with a more developed physical result. This maintains the essence (the embedded processes) while the envelope (physical form) shifts and changes in response to how society accepts and adapts to the new. In this case, Saudi Arabia's architectural identity will not be fixed in time but will evolve and adapt to social, environmental, and technological changes while retaining its unique cultural concepts.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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