

Vertical Hierarchy of Urban Space and Place-Making

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Abstract: Open spaces are one of the most important elements that distinguish cities and make them vital places. Because of the overcrowding of cities and the increase in population density due to rapid urbanization, we need more open areas, parks, gathering places and paths to support the communities that make cities livable and vibrant, which necessitates thinking of new ways to create open public spaces within these urban spaces. Often the tendency to think of solutions according to one level only is the horizontal level, although our cities are multi-dimensional places where people spend their time in different levels within the city as well as its multi-storey buildings. This research aims to introduce the most important concepts of urban spaces, their most important planning characteristics, types, the reasons for their scarcity, and the environmental and social problems that our cities have become, and to clarify the need to create urban spaces that meet the environmental, social, psychological and health requirements of the city and its inhabitants by exploiting the third dimension, and reviewing the most important material vocabulary. And the sense of the vertical urban spaces that the research seeks to clarify, as well as the definition of the concept of the hierarchy of vertical urban spaces and their role in making the urban place while preserving social communication and its role in meeting the requirements of the inhabitants.

Keywords: Hierarchy, Planning, Open Spaces

1. Introduction

Open spaces, wherever they are found, are one of the most important elements that distinguish cities and make them lively and vital places. It is the key to city planning, as it has specific standards found within the general planning of the modern city, and it is one of the important elements that cannot be dispensed with in any urban gathering. The purpose of the existence of these spaces in cities is not only to achieve openness, but to have a great impact on the visual formation of it, It is also considered a center for social, religious, cultural, commercial and military activities. Because of the change in population numbers that exceeds what was previously calculated in terms of population for the target year or when crossing the target stage due to rapid urbanization and due to unexamined urban plans, there is a deficit in these spaces and they are unable to meet the requirements of the population and the goal for which it was found. Because the floor is crowded, we need to re-imagine the building and the "intersections" of the people and experiences that make the city vibrant in a way that includes the third dimension. Although this idea may challenge traditional thinking, it is more achievable than it appeared a decade ago. And it seems at times that the higher we go up, the greater the interest in architectural details and the less interest in urban aspects. We need to look for open spaces in a vertical direction so that we can congregate and enjoy the city, parks and public spaces - beyond street level.

The general research problem is represented in the lack of sufficient knowledge on how to form an urban space at different levels to fill the deficiency in the system of urban spaces due to the ill-considered expansion and encroachment on urban spaces. As for the research problem, it is represented that vertical construction in our cities is characterized by repetition and monotony and the absence of innovation and distinction in how open spaces and buildings are distributed. This leads to the creation of unexploited spaces and negative spaces, and consequently the failure of these spaces to achieve the desired benefit. In addition to the lack of a clear concept of hierarchy in urban spaces in multi-storey vertical housing.

The research hypothesizes

the vertical hierarchy of spaces can be "alternative" social spaces, as they can form part of a broader infrastructure of multi-level open space and seek to regenerate the loss of open space within urban complexes. And to achieve the goal of the research, which is to clarify how public, semi-public, semi-private and private spaces are integrated into vertical buildings, and how to place them appropriately in a hierarchy of open spaces that support the basic spaces on land or in their absence and their creation in the sky. And then come out with indications and conclusions for the research.

Hierarchy, space and location

We, as researchers, must distinguish between the concepts of place and space, as each of them has its own meanings that differ according to the nature of the research. The term “space” represents the physical container for activities and things, while the term “place” represents a specific part of space that satisfies the physiological and psychological needs of people while evoking meaningful and memorable messages of a particular culture, climate and geography. (Al-Kodmany, 2018, p. 154)

As for “hierarchy” it describes the engineering arrangements that may build, bind, and enable certain forms of movement and interaction, while place refers to the ways in which these spaces acquire a stable and continuous social meaning in the context of social and functional interaction. Space is the opportunity, and place is (reality) or (concept)). The distinction between these two narratives, one is geometric, mathematical, or physical, and the other is social and cultural. (Dourish, 2006, p. 1)

Hierarchy

It is an organizational structure in which the elements are arranged according to levels of importance in the form of a system, and it is a scheme for a set of independent but interconnected elements that include a unified whole that takes the form of a system in which people or things are placed on different levels or rows according to their importance. (CAMBRIDGE, 2008, p. 448)

The urban space hierarchy is concerned with the distribution of spaces within the city through the adoption of standards that are set by specialists in the field of urban and architectural planning, and the main goal of which is to distribute these spaces within the city in order to achieve the purpose for which it was found is the main strategy for providing privacy and social interaction between residents using components whether physical or non-physical, meeting the needs of human excellence and achieving high standards for them. (Abbaszadeh, 2015, p. 60)

space

It is a three-dimensional field in which things are placed and take a position and direction in which to perform a specific activity, and it is distinguished by that it is infinite, It is a stand-alone formation that takes its shape from the borders and lines surrounding it, and it is the container that contains all visible and tangible things and activities of various levels, and it is all this enormous void that surrounds us with the extension of our eyes and defined by two planes, the land and the sky and what is in between. This is in addition to that it is an independent model that possesses three dimensions with a fourth dimension that is not perceived by the eye that perceives through human interaction with the space formation that represents the symbolic expressive dimension of space, which represents a group of symbols working to stir emotions Which is an event used to express and convey meanings. (Ehsan, 2019, page 21)

place

A place is defined as an area of geometric or topographical dimensions governed by scales and volumes. But it is not limited to being geometric dimensions and volumes only, but it is a system of physical relations of tangible things as much as it is derived from mental abstraction or mental effort, and it is the medium in which the person lives influenced by it and influences it, and it is an integral part of his life, as the place is considered his present and his past In which he records his culture, his thinking and all his memories. It is the social entity that contains the summary of the interaction between man and his society, and from ancient times until the present the place has been the near visible paper on which man recorded his culture, art and thought. (Al-Sadoun, 2012, page 65)

Urban spaces

It is all kinds of spaces between buildings that are related to various humanitarian activities such as work, shopping, rest etc. It is defined as lands that do not contain buildings for various uses, contain greenery, water, and large lands and enjoy fresh air intended for public recreational activity, or that they include government parks. (Al-Razzaq, 2018, page 406). The meaning of various terms related to green or open space in urban areas is often confused with other terms in an urban landscape. To gain a comprehensive understanding of the definition of green open space, the relevant terminology must be clarified. Urban areas consist of the built environment and open spaces between buildings. Open space consists of two main categories: - (Mehhdi1, 2011, p. 7)

green space

It is an open space that to some extent contains some form of vegetation, whether natural or artificial. It covers the ground that is mainly composed of non-enclosed and permeable surfaces such as soil, grass, shrubs and trees which is called the smooth surface when comparing the hard (paved) surface. They are not only restricted to parks and urban parks, but can be privately or publicly managed.

Causes of erosion of horizontal urban space

It has been shown that the removal of open space has an impact on human behavior and is one of the causes of crime and sabotage at the general level, withdrawal, depression and disease at the private level and will have a direct consequence for

environments that do not support social networks or the psychological and physiological needs of individuals. Reaching new urban solutions in the wake of progressive privatization of space would produce alternative socio-spatial models that sought, in the first place, to help balance open spaces and buildings within the city, and in the second case, provide a forum to attract people again to engage in the open space. The erosion of urban space is due to several reasons, including: - (Pomeroy P. J., 2016, p. 1)

1- Socio-spatial factors: - Population growth and migration to cities have led to rapid urbanization and the adaptation of the city that was previously known through public open spaces with environments characterized by high-rise buildings and the gradual shift from a city of spaces to a city of things. The densification of city centers, the erosion of public spaces, and the birth of alternative social space frameworks are what matters to this research.

2- Industrial capitalism: the encroachment of the public sphere into the market square, which will soon be converted into real estate to meet the needs of larger sectors of people to live, work or shop. Empty spaces that previously provided environmental and social benefits will be filled with a solid core of energy-intensive elevators, stairs, service ducts and cranes to allow for larger residential, office or retail floor slabs.

3- Cultural and technological factors: - It has a great impact, as technological progress has allowed a greater amount of withdrawal to the convenience of personal mobile devices or the Internet as a means of social interaction - a technical mask of civility that assumes that our interaction in the virtual public space must be sufficient. While this may indicate an increase in individualism, Manuel Castell's research into the phenomenon of the network city may indicate a high level of interconnectedness with other world cities that the humble street and traditional city square cannot provide - the ability to connect people across borders and time zones through the 'Space flows "that must coexist with traditional" place spaces

6. The birth of alternative social spaces

The starting point was the public space and its degradation in the context of the traditional and modern city, the way people behave in the public space, and how both people and their places have adapted to external social, economic, spatial, cultural and technological influences over time. And to consider how the physically built environment adapts to such influences and, as a result, generated alternative social spaces that bear the characteristics of a public space. As we build up, the sense of social and spatial permeability is lost - as is the relationship with a street view. This made the high-rise building pattern of the modern city in the twentieth century at risk due to the lack of social space. If the traditional city embraces alternative social spaces on land, then there must be social spaces in the vertical direction in the modern city to help offset this loss, and provide a new platform for social interaction. The high-density residential project can also make the urban space a comfortable space that meets the needs of the population by respecting and studying the geographical and historical characteristics of the area in which it will be built, as exploiting the features of the earth's terrain from heights and slopes may lead to the production of a residential project with unique urban spaces and a variety of form and use that can be used. It addresses the redundancy and boredom in the architectural form of the high-density residential project, that poor planning using old and rigid planning methods in most cases, which are not in line with reality, leads to urban sprawl, congestion, pollution and excessive use of land, water and energy, which exacerbates the state of climate change. . (Pomeroy P. J., 2016, p. 3)

The need for vertical urban space

Poor planning and management have exacerbated the challenges associated with urbanization, leading to a lack of efficient and well-connected public spaces, including streets, parks and waterways. This has led to increased levels of overcrowding and the emergence of a more expensive and complex urban infrastructure. (Sustainable, 2014, p.11)

If the population is to increase at the rate predicted by demographers, due to statistics and from their migration to inner city centers, the density will increase. This would lead to a potential loss of open space that is much needed for health, recreational and comfort purposes for civil society. It is therefore important that the open space element be restored, even if not on the ground in the vertical direction. If planning policy guidelines support the development of mixed use which is traditionally defined as floor buildings with open space for recreation and is calculated through two-dimensional land use studies, then we should likewise account for it in three dimensions, mixed use of tall buildings as a piece of vertically settled city with a similar proportion. From the open spaces in the sky. Like open recreational spaces for mixed-use development, these lofts can serve as the link that brings disparate mixed uses together to create community centers. These will then act as a destination, transition node, and entertainment facility. (Jason Pomeroy, 2007, p. 5)

Vertical hierarchy

It is a type of urban densification that is generally applied to a wide variety of building types and elevations, from low to high-rise, depending on the location. Mixed-use high-rise buildings are also increasingly preferred over office towers, especially if built near mass transit hubs, which results in increased activity at those intersections and the creation of vibrant urban centers. Other innovations in tall architecture around the world epitomize the problems and shortcomings in the way designers approach the city, as well as their achievements. Sky gardens and soaring open courtyards became a

common feature of office towers. By raising the ground level and opening the interior spaces with semi-public spaces, they changed the spatial character of the type of tower. (Chris Abel, 2010, p. 23)

Vertical urban spaces (or upper above ground level)

The idea of upper courtyards is not a strange phenomenon, as the ancient gardens of Babylon were recorded as a series of planted terraces supported on stone arches 23 meters above the ground and mechanically irrigated by the Euphrates River as one of the Seven Wonders of the World to provide high-level views from the raised terraces. The Forresec Social Condensers at Le Corbusier in Marseille and Berlin also contained an element of open recreational space for the comfort, health and well-being of the occupants of his unit. This shows the need for the upper courtyards as a viable alternative space within a high-rise development as an accompaniment rather than as an alternative to the traditional street and square. Using multi-storey buildings, loft corridors, and tall buildings as historical precedents to demonstrate how the elimination of public space is compensated by the incorporation of semi-public spaces, the transformation of urban primacy from the metaphorical public space of the yard to the private will illustrate an iconic object of tall rise (Jason Pomeroy, *The Sky Court - A Viable Civic Space for the 21st Century* ?, 2007, p. 16)

Malls and commercial centers are among the most prominent landmarks in contemporary cities, and one of the strongest attractions for their residents. The mall instead of the agora, where contrast appears as a useful concept for understanding the mall as a kind of (semi) newly emerging public space, supporting old and new practices of public life. It is typical of a state where the street, the mall, and the park merge. It can be seen as a model for public space in cities. These interior spaces appear on the map as part of the Continuing Matrix of Urban Public Spaces, and they have traditionally been interpreted as extensions of outdoor public spaces. (Cauter, 2008, p. 103)

Definition of vertical urban space

They are alternative social spaces created as a means of rejuvenating the loss of open space within the modern city. Creating more hybrid building shapes and styles that balance open spaces within high density development is a phenomenon increasingly recognized in Asian cities, and it has begun to redefine tall building within the city. It includes: - (Pomeroy P. J., 2016, p. 1)

- 1- Skycourts
- 2- skygardens / roof gardens
- 2- Sky way / sky bridge

It is of social, economic, environmental and spatial importance in urban patterns. They are "alternative" social spaces that are part of a large, multi-level, open space infrastructure that compensates for the loss of open space within urban agglomerations. These semi-public spaces can be integrated into tall structures and placed appropriately in a hierarchy that supports the primary pictorial spaces on the ground or in the absence of them and their construction in the sky as the classification of tall buildings cannot reach the threshold necessary for expansion in the third dimension unless they have sky playgrounds. And auxiliary systems required (such as deployment of an underground train network, parking structures, flyovers and other technical facilities) to maintain an increase in occupancy or pedestrian flow. Without this infrastructure the combined city would run the risk of throttling access. The improvement of traffic flow facilitation of pedestrian movement in heights is closely related in the classification of tall buildings as they are in horizontal urban areas. (Pomeroy P. J., 2016, p. 1)

6. Types of urban vertical spaces

Skycourts الساحة او الفناء العلوي

It is an increasingly important component of the architectural vocabulary in high-density buildings and serves as a means of reducing density. Skycourt can be tentatively defined in terms of their spatial formation and how they can reduce the perceived density of a tall building, or high-density development, by breaking the mass and potential monotony of repetitive floor slabs from the juxtaposition of mass and void. They have the ability to evoke the human scale and traditional street ratio by presenting themselves within high-density urban dwellings and high-rise buildings as open or closed indoor spaces that balance metaphorical space (semi-public) within a solid (private) and bear its properties. These spaces are characterized by the following features: - (Pomeroy P. J., 2016, p. 16)

1- Personality: Skycourts, depending on its location, provides an opportunity for unforgettable panoramic views that can serve as a lingering iconic reminder of its place within the cityscape. It is the space that can meet the social and cultural events of civil society, traditions and past times to evoke his personality over time.

2- Continuity and enclosure: continuity provides an opportunity for space to be used by social groups as an external room for social interaction - lower levels help in supporting and identifying public spaces on the ground and addressing the

current urban formation, such as changes in the level or connection of transport exchange, the middle level tends towards the internal environments of interaction Social, higher levels are looking for appreciated views.

3- Ease of movement: its ability to connect different forms of movement allows it to become vertical corridors in the sky - a semi-public and highly integrated transitional space that provides opportunities for more local and global connectivity with other buildings and transportation networks, and then rooting the sky courts in a network of open spaces within Urban fabric

4- Clarity: their location and shape within the high building must take into account the lines of sight to ensure maximum clarity in order to provide greater spatial awareness among occupiers and visitors, promote ease of movement through the tall building and beyond, as well as place visual signals on the space of social interaction And co-existence.

5- Adaptability: Sky yards are often constrained by the footprint of tall buildings and the dominant force that regulates function and use. This could be a limiting factor in terms of adaptability and future use, and puts skycourt in the realm of privatized or semi-public space that bears the characteristics of the public domain.

6- Diversity: High-rise buildings that comprise sky plazas tend to remain monolithic tall buildings that lack the diversity and mix of use that might suggest the potential for it to be a heterogeneous vertical city. But as indoor population densities increase and population increases, the transition towards mixed-use living, work, and performance environments may become more and more common, revitalizing SkySpaces as new semi-public environments for social interaction and movement.

7- Quality of public space: Consideration should be given to the establishment of a vertical land ratio system that divides an open recreational space into a built area for the use of civil society completely, and that open space is a prerequisite for urban developments based on foundations. This could be a legislative part of the planning process, which will see the coexistence of the (private) developer and the state (public) in providing a quasi-public space for the Heaven Court for civil society to own.

8- Green facades and surfaces: Adding green to urban design (the plan) provides the rationale, vision and detailed implementation strategy of an economically sound and environmentally sustainable urban design. Urban design encompasses all exterior elements from the skin of the building to the street, including roofs, facades, squares, landscapes, open spaces, hallways, walkways, sidewalks, alleys, and roads. It is defined as those elements that are exposed to the environment and that affect the environment. (ADDING GREEN TO URBAN DESIGN).

The carefully planned porosity of the constructed mass allows for fundamental mitigation of some of the challenges arising from severe stress due to high densities. The introduction of public open spaces, the addition of various types of public use, and the linking of public circulation routes into tall structures can allow life to flow effectively in the city through dense environments. (Hayano, 2014, p. 32)

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Skygardens/ roof garden

It is a form of green space above ground level and includes a platform garden, a rooftop garden, and decking over roads or canals. Based on the research studies, it can be concluded that the sky garden is also a form of green space for tall buildings. It is also known as a natural environment built on the roof of a building strong enough to support the load, and it may be an open or closed space, and it has become a term that often focuses on the aesthetic qualities of the preparation and attractiveness of the garden. One also usually finds a ratio of the open space to the built-up area in planning processes to achieve a vertical balance between the open space and the proportions of the built-up area inside the tall building. Sky gardens and green upper spaces have great importance and many advantages, including: - (CHAN, 2005, p. 7)

1. Address the environmental problems caused by civilized cities because the land suffers from a shortage of green spaces.

2. Organic treatment of tall buildings and garden development encourages vertical spreading of greening that adds green space without occupying additional space at ground level while land is scarcely made available in these densely populated areas.

3. It also provides spaces for outdoor recreation and provides accessible alternatives for those who do not live near traditional parks. Children are also better supervised, and people are more happy with their physical surroundings.

4. Green spaces such as roof gardens and green spaces decorate roads, canals, green spaces and building facades in many countries and cities with densely populated cities such as Sweden, Germany, Tokyo, Singapore, Malaysia and Hong Kong.

5. There are several economic benefits that include more usable space and an increase in property value.

6. Social benefits that include enhancing community interaction and facilitating recreational and recreational activities. To enable social communication between neighbors,

7. Aesthetic benefit that gives comfort and visual interest. It has also been found that contacting plants, water, and other natural elements, or even enjoying its calm and relaxed atmosphere can help calm anxiety, deal with life's stress, and feel away from the ground.

sky way or sky bridge

It is one of the principles for developing multi-use and multi-height buildings that give a new biological and social form and public space. Covered corridors between buildings began to appear in Minneapolis and are called sky ways, tall buildings were connected to the agora, and the tower was part of the city market. Post-war tall buildings became more active in the cityscape than an abstract idea. Which led to the continuous expansion of the airways system and to changing the basic traffic patterns for pedestrians in the city-center. ((MnDOT), 2020, p. 1)

Sky system components

The term "sky system" or the sky ways includes the following: (PLANNING, 2006, p. 3)

Meeting corridors.

- Node points in the convergence corridors, including, if possible, one central head node point for each block, generally at the point where there are multiple concourses where the corridors intersect.
- Bridges spanning the streets.

Some vertical access facilities connect the hallway corridors to public streets or other public property. Level sidewalks, allowing pedestrian traffic to move in a closed environment The purpose of this airway system was to divert pedestrians from the street with a minimum width, protected from adverse weather conditions and vehicle traffic. Air lanes system to significantly reduce pedestrian and vehicle disputes at street level, particularly during peak traffic, allowing for smoother flow of vehicle traffic and greater pedestrian safety.

sky way

The mixed-use and multi-height buildings give a new dynamic and social form The post-war skyscraper has become more than an abstract idea, to play an active role in the cityscape. The continuous expansion of the airway system has altered the basic traffic patterns for pedestrians in the downtown area, which leads to the distancing of people from the sidewalks and to the second floor in the air corridor system is a pedestrian system above ground. A closed air corridor system is cooled to temperatures similar to those maintained in the adjacent office and retail areas, and the term "closed" means protection from the weather, directly related to the comfort, safety and efficiency provided by pedestrians in the city center.

There were a few sky corridor constructed in the late 1960s. However, the concept of the air corridor was not fully realized. The main target of these airways was: - ((MnDOT), 2020, pp. 1-2)

- 1- Separation of pedestrian and vehicle traffic in densely built urban environments such as New York City via elevated walkways and street bridges.
- 2- Keeping people away from the sidewalks and onto the second floor in internal corridors.
- 3- The second goal of the sky bridges is to combine the upper open spaces to create larger spaces.
- 4- Sky corridor provide an environment to protect pedestrians from the vagaries of weather and traffic.
- 5-A matter of safety, modernity, ease or comfort.

linked towers

A form of connected vertical weaving which is a series of stoic towers linked at multiple levels and programmed to encompass public spaces at different levels in the buildings; which creates a relatively intimate space at the thresholds of the bridges between the structures, proposes an urban space by forming a Lshape in the scheme, and addresses safety / security issues / Exit of significance in taller and densely populated structures (MACLEOD, 2003, p. 131).

The aim of the suspended roads is to easily identify public areas, so that citizens are aware of the location of the airway path. Accordingly, the following conditions must be met: - (PLANNING, 2006, p. 4)

- 1- The system should have directional clarity and be easy to access, specific and continuous
- 2- The air corridor system shall functionally and visually assist in the unification and connection of public buildings and places and shall be of an urban character.

3- It will not be of uniform design throughout the system. But it will have a variety of floor-to-ceiling heights and contiguous spaces with a variety of design and activities.

4- You must have sufficient common elements. Directional clarity, continuity and identity **viereendeel** also provide the standard exterior design of the existing airway system.

vertical place making

The starting point for my vertical place making ideas comes from Qin Yang, as he describes the city as a place to meet people. In a vertical environment, it should not be any different from the horizontal environment, as people must gather in prominent places throughout the skyscraper, which leads to an explanation of the making of the place within the skyscraper as a world as the life of the city. When applied to a skyscraper place, the design defines what is a vertical urban space - the realm of formal activity and most importantly informal activity among people. The vertical urban space in the heights can become the primary organizational form of urban morphology within its framework (perhaps with morphological models taken from current cities as bases), to enliven a new spatial configuration or internal architectural system within the form of a skyscraper building. The historical patterns of traditional cities such as the street, the square, and the neighborhoods can be reinterpreted in another form, and then rebuilt in the form of a tall building to provide a new interior life, and then create a new structure. The skyscraper must respond to the need for a public space and a reinterpretation of the layout of the activities - and what is happening in the spaces between programs. These spaces are traditionally street - the majority of public spaces are located in the city - but the skyscraper could become a new transitional model for the center and could include a more open vertical transportation system. (Yeang, 2007, p.102)

General worlds and composition of places in the sky

In order to understand vertical space, the proven elements of horizontal construction must be analyzed and reinterpreted to the vertical. This is based on a clear discussion of the basic patterns and factors that create successful urban spaces as well as successful urban networks and communities. The goal will be to build a communications network that allows an urban area to thrive on a smaller scale within tall buildings while connected to the larger urban sphere, the challenge is to create new models for public life, where people can meet, interact and collaborate in the skyscraper. The main idea is to create and function the space between activities. In a skyscraper, this void is destroyed due to inefficiency, and minimized as much as possible, but these spaces are critical areas for creating public space and public life. For public life to thrive, it needs space and opportunity for formal and informal interactions. Therefore, the design of the new building requires a radical departure from the traditional design of this type of building. By revisiting the interiors of a skyscraper using an approach that requires creating a vertical view of the city, the floors of the built form can be further destroyed and reshaped as spaces are blurred and spatial programs are incorporated (Miller, Vertical Urbanism, 2013, p. 40)

One of the basic concepts of the fabrication of vertical urban space is to understand the difference between the image of tall buildings versus the experience within them. Placing vertical spaces is a way to define and enhance the experience indoors. This illustrates the difference between a city skyline with its character as an urban form - one is defined by the image, the percept, and the other is urban life. The tower is an important classification in the urban environment and has played an important role as a landmark in its context as well as its cultural and physical iconography. , Competition for height played a large role in defining and testing cities. However, when looking from the outside in, the interior models of the tower differ greatly from these urban targets. Elevators transport people to their destination, wherever they are. These are difficult to define as public places. Hence, the question is - how can tall buildings change to enable a greater world of public and social interaction - how do they create places in the sky? A tall building or tall buildings should be treated as urban areas - or a vertical neighborhood rather than as an urban plug-in, which is a standard classification that is only included in an urban fabric, the concept of place is a critical component of this urban horizontal interpretation of urban verticality. The question is how to define public spaces for modern skyscrapers, the possibilities to recreate existing styles from ground level to tall buildings, and the possibilities for new styles in a vertical context. (Miller, 2013, p. 38)

An urban space can be created through the presence of certain features that work together as an integrated system that has been extracted from the literature review and urban research that specialists and researchers have dealt with in this field that a number of features have emerged that characterize urban places and these researches assume that they create an impression on individuals towards these places and make them want to live and visit them. It also requires an understanding of the organization of the urban form and the experience of the city. And the goals for applying urbanization to the vertical system and how to develop a system that meets these space goals. Three curricula have been formulated: - (Sabry, 2018, page 42).

- The use of urban patterns translated into a vertical situation.
- nodes are stacked urban blocks
- Streets are vertical tracks

Urban Vertical Patterns

One possible method is through the use of horizontal urban patterns that are translated into a vertical state. Creating a place in urban form is not necessarily limited to a two-dimensional setting, hence it can be a tool in identifying new patterns of the vertical domain. The goal is to create a language of vertical place. Creating these spaces requires a methodology that allows for the orderly creation of both solid - programmed - and void - public space and blurring of the boundaries between the two. This method of translation requires that major components of urban patterns be incorporated into specific, albeit complex, ideas. The goal is to create a language of vertical location. The definition of urban form and place comes from Kevin Lynch. In his influential work *The Image of the City*, Lynch describes the "pioneering researcher of concepts of urban form" and its organization and place in the experiences and perceptions of its inhabitants. The city is not described from an aerial or schematic perspective, but rather through how the urban structures interact with the townspeople. Through the use of field studies and research, Lynch has identified a set of patterns found within the city that help guide, organize, and understand the city from the inside out. These patterns allow for an understanding of urban form, space, and how the city functions on the individual and social levels. These patterns contain an opportunity to translate horizontal urban models into a vertical system. In this sense, a set of urban models becomes vertical urban models that address Lynch's original concepts of image and place. In *Image of the City*, Kevin Lynch describes the possibility of imagining a city and finding its way through the use of five patterns: Path, Node, Edge, Area and Landmark. Within a city, however, it plays a major role in organizing an urban experience. These concepts create the image and experience of the city and then define its different types of places. In combination, translating each of these patterns into a vertical model creates a complex set of components to define the interconnected space between the stacked jobs. This urban network contains the potential of each of the five types, even in the vertical system. (Lynch, 1969, p. 46)

Definition of Urban Form and Place from Kevin Lynch

The city is defined in the language of patterns, street, path, square and park, which builds the language of urban space, and accommodates a variety of functions and activities at different levels. This is expanded to imperatives the city should provide luxury and a sense of place and community. These are most notably associated with nature and public spaces, and all people should have easy access to open spaces, trees, places to sit and relax, and places to play. Well-designed neighborhoods inspire the people who live in them, while poorly designed cities deal with their citizens brutally. (Miller, 2013, p. 19)

1- The path: It is the mean of travel and movement through the city and the main region in which the city witnesses and is interconnected. It is a public space where people move and travel in a city experience seamlessly encountering many new and familiar attractions. The track can easily be an elevator system - but is instead designed in such a way that the urban world lies in the use of patterns as requirements for the vertical urban form.

2- The node: It is the primary focal point of urban form, where people meet, congregate and act as focal points for urban activity and life. The node is the defining region of its surroundings and serves as anchorage for public life and image. The node becomes the primary vertically scattered focal points to create public areas for formal and informal meetings. The nodes regulate the urban system and create zones of activity and dense urban life.

3- The border: is a physical or perceived boundary that separates, divides or delineates urban areas. A ledge can have many causes, whether positive in the case of a body of water that unites an urban area or negative in the case of an interstate road that cuts the neighborhood in two. The edges are the boundaries surrounding the vertical system as well as the potential horizontal barriers to create a distinct definition between the vertical areas.

4- District: A larger urban area that shares a perceived or physical similarity and interconnection, a neighborhood or a specific area. The neighborhood speaks closely to the compact city ideas as they contain a certain personality and identity. High-rise areas are larger areas that contain both the urban area and the programmed space that share common distinct characteristics. It can be identified first by location and height, but second only to the node or nodes it contains and also for physical or functional distinction.

5- The landmark: It is a distinctive element that helps in determining the path and direction by providing a point or direction to compare the person's position with it. The landmark is something although it is not directly experienced, but the organizational element is internally. This element can be continuous, such as a central core that is expressed continuously or externally, the landmark can be the direction to the context through the views to the surrounding environment that establish any Site with respect to context.

These patterns are the essentials of an urban space that will be very helpful in designing a vertical urbanization. The patterns when applied to the vertical will create the combined city ideas in a clear way. Models, in terms of functionality, can be preceded by the concept of verticality in a different form and modified to contain the principles of each concept while each classification opens unique opportunities to define and develop vertical urbanization.

nodes are stacked urban blocks

Many architectural approaches approach the design of certain aspects of vertical urbanism and the creation of places in a vertical system. These different approaches respond to specific issues related to: -

Density.

- The diversity of space.
- And contact.
- The green space.
- Public places as they relate to skyscrapers and the vertical built environment.

One proprietary method is to create stacked urban squares that cut and annotate the block of the skyscraper to create large, unique public spaces. This space approach results in the creation of large shared spaces vertically for the skyscraper. This aspect creates a park- or square-like appearance within the skyscraper - the public space where people can gather and interact. It is an essential part of urbanism for a space not only to move around in, but to rest and relax. This then leads to linking activities that could relate to this Civilization in the sky. The fabric of public space enters the skyscraper in a way that utilizes the multifunctional uses of skyscrapers. (Miller, Vertical Urbanism, 2013, p. 54)

Streets are vertical tracks

The third methodology for vertical urbanization is a method of linking uses within a skyscraper with a general movement and gathering area. The challenge in this case is to organize a space around a vertical motion system that is public and accessible. The elevator, as the usual system of movement within a skyscraper, does not allow for much interaction, activity, or access to various other uses. The means for constructing a vertical street may need to be based on the various modes of transport proposed by Ken Yeang which included a pedestrian, cyclist, or secondary traffic system. (Miller, Vertical Urbanism, 2013, p. 59)

And when walking through the tall building, it only allows a person to interact with some of its components. The lobby, is the world of the least private and one that most visitors interact with. And for the people who live and work within that building, they only interact with two other components; The elevator is floored and their destination. The elevator, one of the inventions that made tall buildings reasonable, removed the need to interact with floors between, above, and below. But this scheme reminds us of the suburbs. Different houses and buildings function as different levels of a tall building. Separate walkways between different floors are used as travel corridors; Like an elevator. Disconnecting from the ocean as you travel by car through a suburban community is a lot like the disintegration that occurs when traveling between floors in an elevator but we can remodel a tall building. Instead of separating the upper floors from the audience, a path is created across the floors for the audience to benefit from the cityscape. Along this public corridor, a variety of events can be presented to draw the audience towards the summit; Restaurants, bars and retail venues to name but a few. The rest of the spaces can be allocated to offices and traditional apartments, as well as a series of various software elements. There should be a series of public places linked to the cornice to reduce the burden of walking on a large number of stairs. The end results are a series of spaces that combine to create new, vague, indefinite spaces. (Alemayehu, 2017, p. 80)

conclusion

1- The public space of the city is not limited to the ground level. As the open space may be available above the ground. A percentage of the roof area must be allocated to the public or the residential community. By requiring a percentage of green roofs, these vertical spaces can also provide environmental benefits in the form of water management, air quality improvement and urban agriculture.

2- External spaces of all kinds have great importance in various areas of development, in addition to their importance in the field of urbanism and the urban environment. The interest in inter-urban spaces comes recently to find solutions for city residents to improve the level and performance of those spaces between buildings. These spaces are called many terms that vary according to the urban vision and the nature of use. It can be summarized as follows: -

Spaces of movement and transportation.

- Spaces for social interaction.
- Spaces that can reduce density within the city.
- Spaces that can enhance the environmental performance of a building.

- Spaces that can be measured in terms of providing urban green spaces as well as aesthetics, they enhance the identity of the building.

3- The hierarchy of roads and urban spaces is of great importance in city planning due to its role in: -

Giving the city its distinctive identity, which gives the city its personality and character.

- Clarifying the planning idea of the city, which gives a first idea of the planning units for it
- Distribute activities and services in line with their location and arrangement within the planning system.
- Social, economic and environmental factors to ensure a diversity of housing units and others, which provides different housing patterns that enhance the principles of sustainability.
- Every place has one coordinates and directionality with distinct and unique characteristics, and no other place in the universe can share those characteristics such as trends, morphology, climate, human demography.

4- Vertical hierarchy and flexibility in the articulation method between urban spaces leads to an increase in the efficiency of these spaces. And this link may be visual or physical in a way that enhances this hierarchy, and through it, the urban space system is activated in order to play its role doubly. And increase social interaction within those spaces that enhance the positivity of the place.

5- We must integrate tall buildings into the urban fabric in order not to erase the city's communications (physical and visual) and erode the urban form. This indicates the need for a sensitive approach that breaks down verticality through smaller blocks interspersed with certain porosity, as well as horizontal and vertical connections between buildings, and integration with transportation infrastructure. This should be accompanied by a system of diverse social and green spaces (sky bridges, sky floors, sky gardens, etc.) that can include a variety of functions and support space sharing and time sharing, so as to reduce redundancy in our urban environments.

6- City quality living in a high-density context means that increases in density need to be balanced with more greenery and to ensure that natural ventilation remains open through sheltered urban air corridors, the creation of new interesting community spaces and community gardens is required.

7- Buildings are not intended to be stationary objects in time, they must be allowed to evolve with the city. While three-dimensional flexibility is of paramount importance, it is equally important to allow movement along the time axis. Future changes should be incorporated into today's buildings.

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