

Article

Building Demolition Waste in Achieving a Sustainable Vernacular Building With a New Architectural Style in Egypt's New Cities

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Abstract

The Waste of construction are environmental problems facing society in the building industry and the field of urban development and civil expansions in many countries of the world, the vision of the state in the elimination of slums in Egypt is one of the most important axes of sustainable development through development or removal, where the front of the state building violations strongly and decisively in the period 'after through strict laws that led to the removal of many residential buildings in addition to many From the encroachments on the territory of the state, which led to the situation of the presence of a wealth of rubble in many residential neighborhoods within Cairo, The research addressed the possibility of using materials that can be used, recycled or re-characteristics in different compositions in order to contribute to the establishment of a new architectural style consisting of local materials not permanent but sources of construction can be used differently in specific urban ranges, The study led to the possibility of reuse significantly in local models individually non-professional, the research sought to come up with a matrix of criteria for the architectural product model consisting of recycling as a model of local and sustainable architecture and as one of the methods of Traditional architecture, as the research concluded the possibility of unifying a new architectural style represents a local environmental orientation using the waste of construction in a way that does not It harms the environment.

Keywords: Architecture style, Sustainability, Local materials, Architecture Venular, Architecture Design

1. Introduction

The vision of the state in the re-establishment of local materials recycling in the field of construction and studying the aspects of the investment of these wastes in a way that helps not to harm the surrounding environment [1], As the plan for the redevelopment and development of modern Egypt seeks to demolish many informal areas and build thousands of buildings [2], for those affected in the heart of Cairo and outside it and develop the villages very poor[3] , which gives room for the presence of many Waste of construction in different areas, The presence of demolition and removal quantities at the

current time inside Egypt poses a serious risk to the environment if it is not used properly with no methodology or guidelines for how to dispose of the Waste of demolition and construction in the same real estate field, Normal construction without a uniform elements may produce in random architectural style, The idea of local materials and local architecture is limited to ancient methods of natural materials without an update in thought based on the current situation and the changing circumstances of each geographical urban scope different from the other in nature and composition and the outcome waste from construction may be used as a local materials in some places .

1.1 Methodology

The research is dependent on theoretical Investigation of models in concepts that are interested in the use of subjective materials available in international project and an local case studies, which fall under the names of local architecture, Traditional and sustainable, upon that the research explain the different methods of recycling in building based on the usage categories of each type , In the other hand the study explain the Architecture style methodology and how to create an Architecture style, in addition the research uses analytical Investigation, criteria evaluation of the architecture types and style element and compare them using the materials available from the demolition waste and construction waste elements , and extracting the elements that can be used to apply local and sustainable architecture style, in the end the research exclude the new style of architecture which depend on using recycling elements from others buildings .

1.2 Sustainable architecture Principles and definition:

Sustainable architecture has addressed many definitions over the past years, changing from the concept of green umrah to extending towards the surrounding environment, community sustainability and economic capacity, where many definitions have emerged as follows [4].

Sustainable architecture is a building design that takes into account the good health environment using good materials with the lowest value for energy and provide good indoor air quality use within the scope of economic cost to not harm the environment and surrounding location [5].

The definition of green architecture in the concept of sustainability and sustainable development was also addressed as follows, green architecture or green design is the methodology by which construction is done to reduce the harmful effects on human health by protecting land, water and air from construction by selecting environmentally friendly materials[6] .

2.Theoretical investigation

2.1 Sustainability goals and objectives

The main objective of sustainable architecture is to create environmentally friendly and functionally successful and also contribute to improving the lifestyle and culture of

society, and sustainable architecture is geared towards serving environmental purposes and achieving community goals through

- A. Reducing the amount of material waste from development processes.
- B. Reduce load on natural and built environments - Reduce the environmental impact of the building (Ecological footprint) [7] .
- C. Rationalizing the consumption of natural resources
- D. Reduce total cost including construction and operation [8] .
- E. Use of available building materials and construction techniques[9].
- F. Optimal employment of clean energy sources [10] .

Through previous definitions it is clear that sustainable architecture is concerned with key elements namely materials used in construction to do not harm the environment and its choice within the components of buildings while reducing the resulting impact such as carbon emissions or damage caused by the resulting waste and how to dispose of them.

2.2 Construction waste in sustainable building as available local material

high performance of material, which constitutes the purpose of material technology, has led to the production of fully composite and industrial materials, which are characterized by desirable features but also with a lack of recycling can be the construction of a completely recycled building after demolition [11] , in contrast with pre-concrete or composite material building at this point is placed a key point which is the question of recycling is a legislative part of the delivery in the construction [12] , Morale to maintain development by producing stronger and more durable materials (with a longer life cycle and the problem mentioned lies in two aspects.

The first aspect (recycling case), where the recycling mechanism is based on the shortest life cycle in the construction, sets different economic assumptions than those established where the use of recycled materials in the building, whether in the stages of implementation or in the elements of the building itself, represents the value of achieving sustainability to different standards and the following values represent the ratio of achieving sustainability through the reuse of materials in construction .

2.4 Recycled materials in sustainability reports.

The points can be achieved in THE (Leadership in Energy and Environmental Design LEED v3 system in MR Credit 4: "Recycled Content". In order to earn a point, 10 percent of recycling must be accessed (based on the physical costs of the entire building except heating, ventilation and air conditioning). For two points, 20 per cent of the project is required.

In LEED v4, the recycling ratio under option 2 in MR Credit 3 is considered: "Product detection and improvement - raw material sources." [13] In total, 25 per cent of the materials (based on costs) must show one of the following:

- Extended manufacturer responsibility

- SAN certificate (bio-based materials)
- FSC Certification (Wood Products)
- Use of reusable materials
- Use of recycled materials

Based on that the materials selection and recycling is achieving heigh score in the sustainable rating LEED system , which is led to understand the methodology , terminology and the process to use it in the proper way and in harmony architecture style

2.5 Construction and Demolition Waste C&D for reconstruction process

The definition of construction and demolition waste are the waste from construction activities, repair or repair, partial or total demolition of buildings, civil facilities, roads and bridges [14]

2.5.1 Construction waste in the life cycle of the building

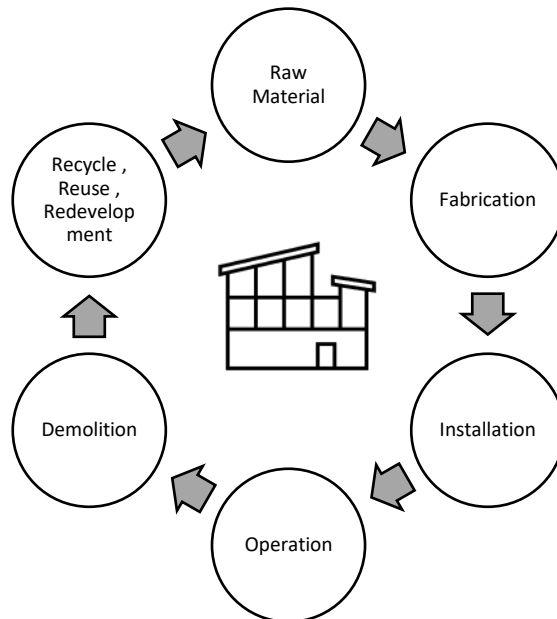


Figure (1) Building life cycle from materials process and technique

2.6 The architectural theories using the local material for construction as an architecture style

Many architectural terms have emerged that refer to the use of construction in a way that faces harsh or normal environmental conditions in order to adapt to it in order to achieve human climate comfort and safety, the history of terminology comes from the history of cities, buildings have emerged in sequential and sophisticated images since the beginning of history, which confirm in their presence adaptation to nature and even the architectural composition has evolved to include luxury in the architectural style, which are carved cities in mountains and cities buried and which have recently been nicknamed human

architecture Human Then in the modern era, many trends have matched these architectural ideas in a modern way and set them methodology and criteria to achieve their goals such as environmental architecture, from which the thought of local architecture Vernacular and sustainable architecture emerged

2.6.1 Vernacular architecture

There are many definition of the vernacular that defined from different point of view but most of them focus on the way of building , the time and the material as the following , vernacular buildings is that they are positioned by architects and architectural historians outside of what is considered ‘architecture [15]. The Vernacular buildings are those that belong to a group of constructions that were common in a particular region and time [16]

Local architecture is not expressed because of the quality of the buildings but is chosen within local buildings as a result of the considerations of time, place, history or passion that result, where the building is local if it conforms to previous considerations in giving the same sense and meaning [17]

Therefore, the term local or vernacular architecture is a different and diverse expression between the architectural fields that touched on the definition of local architecture, but the local architecture itself exists since the beginning of man and its origin, creation and residence in mountains and huts and this evolved into the architecture that we see now in the modern era, and through studies that have been done previously, the definition of the term local architecture lies in its interpretation through the following axes

2.6.1.1 Construction method

- The design method according to human needs consist of the following principles and procedure:
- How to overcome and adapt to the topography of the site
- The way to choose the right materials,
- Climate adaptation: Overcoming extreme desert heat and seasonal heavy rains in winter
- Selection of raw materials: use of local materials such (stone/clay/bamboo/pottery/archive/inches/ice)
- Choose the construction method: relying on the primitive self-construction method of the bearing walls

2.6. 1.2 The basic construction elements of Vernacular architecture:

- **Walls:** The thickness of the wall is considered one of the most important features and features of the local architecture where the thickness of the wall may reach half a meter, 50 cm
- **Bishop:** Wood backed by palm branches and limestone or clay
- **Windows:** wood or openings on internal skylights

There are many types of local architecture according to the building material used: the research will shed light on a new type of Traditional architecture based on reuse of this demolition and construction (broken concrete).

2.6.2 Traditional architecture

Traditional architecture has been defined as architecture that results from traditional implementation according to the needs of the users of the building and their different living conditions [18] , and the components of the natural environment surrounding them [19], as indicated by many research papers in the study of the desert of Egypt and its countryside in the building of the poor (Hassan Fathi) which used domes and other architectural treatments without reference to specialized engineers , as mentioned in the black sea areas of Turkey from the use of Traditional architecture for needs using available resources of granite and wood,, clay[20].

Traditional architecture is a description of the construction of the building of individuals, which reflects their culture and traditions - in line with the climate and social framework - less energy use and the use of less expensive materials .

Paul Oliver also said it is a building based on ancient techniques and formed by culture and space .

2.6.2.1 Features of Traditional architecture

- A. Meet local needs
- B. Use local construction materials
- C. Respect local customs and meet their wishes to build
- D. Keeping up with the topography of the natural location and terrain
- E. Overcoming climate requirements
- F. Do not use energy
- G. Do not achieve pollution of the environment, building from the environment itself without an industrial intruder on it
- H. Relying on the traditions and culture of society in the composition of the architectural product
- I. Having a framework that meets the material requirements available only for construction
- J. Respect other environmental requirements in adapting to surrounding organisms and overcoming their risks or acquiring them.

As a result of the extension of the ideology of Traditional architecture within the residential blocks in the cities resulted in many negatives resulting in random construction without reference to engineering methods and one of the most prominent negatives adopted Traditional random architecture, which was called many terms such as popular architecture or realistic architecture, from these disadvantages:

- A. Use of renewable building materials
- B. Relying on meeting social needs without coordinating with the state's planning policies
- C. Major encroachment on green areas and agriculture
- D. Thus, the transmission of Traditional thought in urban construction and the outskirts of cities led to the existence of random architecture without architecture control or organization .

2.7 Architecture style elements and contents :

he diversity of the term architectural character from definition to others where the architectural style and character was addressed as the repetition of architectural units on a regular basis to form an architectural character that distinguishes buildings or a group of buildings in a specific historical era as a structure system, façade finishes , Canopy , outline , number of stories[21].

Another definition of architecture style depended on the urban design an category as a skyline, building corners, the building roof top and façade grade orders [22].

As a result of collect the outline items and elements to be classify the building to type of style as the following :

- Skyline
- Opening
- Hat
- projection and recessed
 - corner
 - Skin
- features
- Building Transformation form
- underground
- Structure system
- Number Of Stories
- features
- Building dimensions

3. The result of common features and effects in the formation of Vernacular and traditional architecture

Accordingly, the research concluded that Traditional architecture corresponds to sustainable architecture and intersects at three main points (respect for climate - community identity - materials used and construction style) but what distinguishes local architecture is that it arises from the needs of the inhabitants of the site without resorting to architects.

Features/Effect	Traditional Architecture	Vernacular Architecture
Local construction materials	Intermediate	Strong
Local customs	Intermediate	Strong
Adaptation of the topography of the natural location	Low	Strong
Adapting to climate requirements	Intermediate	Strong
Reducing energy use	Intermediate	Intermediate
Pollution impact on environment	Low	Intermediate
Relying on the traditions and culture of society	Intermediate	Strong
An economic framework	Strong	Strong
Respect for environmental requirements	Intermediate	Strong
Respect for laws and regulations	Low	Intermediate

Table 1 Comparison of common elements in the formation of environmental, traditional, Traditional and local architecture

Through the previous table, the presence of reusable materials is shown as a common factor among all architectural orientations that take care of the environment and fall under the principles of sustainable architecture.

4. Study Proportions and types of materials extracted from the demolition of buildings in the current and future phase in Egypt

According to international rates, the amount of construction and demolition waste generated in Egypt is estimated at between 30-40 million tons per year, and according to the national strategy, construction and demolition waste in Egypt can achieve a recycling rate of up to 50% by 2030 .

The state plan in Egypt to rehabilitate and remove slums and their impact on the quantities of construction and demolition waste

State strategy for managing construction and demolition waste

The proposed strategy aims to build an integrated system for the management of construction and demolition waste and to stimulate partnership between city and local bodies and the private sector in building the target waste management system, in addition to identifying governance mechanisms among the participants in the process to ensure the integration of efforts between the actors in this field, from those responsible for generating waste (contractors and developers) to the administrative bodies responsible for licensing and monitoring construction, as

well as all other parties supporting the integrated management of construction and demolition residues.

4.1 Quantities generated from construction and demolition residues

Egypt

According to international rates, the amount of construction and demolition waste generated in Egypt is estimated between 20-30 million tons/year, and according to the national strategy for managing construction and demolition waste in Egypt can .Achieving a recycling rate of up to 50% by 2030

4.2 Strategic objectives for managing construction and demolition waste in Egypt

1. Preparing an institutional and legislative structure to regulate integrated management
2. Reducing the quantities generated at construction sites
3. Creating a collection, transportation, recycling and disposal infrastructure
4. Stimulate the participation of the private sector in the establishment and operation of the construction and demolition waste management system
5. Create a system to adopt the quality of materials resulting from recycling
6. Determining a rate of recycling and demolition waste up to 40% by the end of 2030.

5. Assembling components of construction waste process and technique

5.1 First, the removal phase:

- The removal phase comes through general strategies that are followed according to the buildings to be demolished and removed, including the following steps:
- Sorting and characterizing the building classification
- This stage contains the classification of buildings before they are demolished and removed where they are classified as:
- Dilapidated buildings that do not fit recycled building elements
- To extract reusable vocabulary, thus being characterized within materials that are used as raw materials in the production of other building materials with different chemical and physical qualities in scientific form and characterization, and fall under the process of complete destruction (Crashing).
- Buildings with good elements used with the same function reuse building elements
- Such as doors, windows, metals, wood, glass and plastic, for example, resizing the size and flats of the openings as a result of remeasuring them and adjusting their quality to produce elements of the same shape but different in measurement .
- Buildings with good elements used in different functions, Reuse and reassigned building elements such as recycling and recruitment where elements of openings use doors and windows in the formation of facades to produce a new architectural style different from the initial architectural style.

5.2 Secondly, the assembly phase:

- The materials extracted and produced from the demolition of the buildings are collected based on the strategy and objectives of the removal phase where the following is done :
 - Assembling raw materials in suitable echinate stores such as concrete break, stone break, brick break .
 - Assemble reusable materials with the same function and change dimensions and measurements within the workshops to produce the required measurements .
 - Assembling materials that will be reused in the new architectural composition, different interior design elements that result from other construction elements.

5.3 Third: The construction and re-assignment phase for Redesign and Reconstruction in new buildings

- **Design stage:**

This phase requires a determination of the architectural style required based on the available materials and elements referred to in the removal and classification methodology in the previous stages, on which the new architectural composition will be developed in accordance with existing standards, measurements and dimensions that are only available.

- **Construction phase:**

The construction strategy is determined according to the design and location conditions where the required quantities of the site and the assembled are determined according to the previous stages, with the identification of materials and processing and manufacturing mechanisms.

1. Identify buildings that will be demolished and removed
2. Identifying the elements based on the methods that have been put forward and categorized as follows:
3. Elements used as they are in the same function
4. Elements that are developed or formed in different sizes
5. Items used by the same measurement in different functions
6. Elements that are demolished and assembled as mixed sleeves
7. Items crushed and recycled as raw materials in the manufacture of other materials.

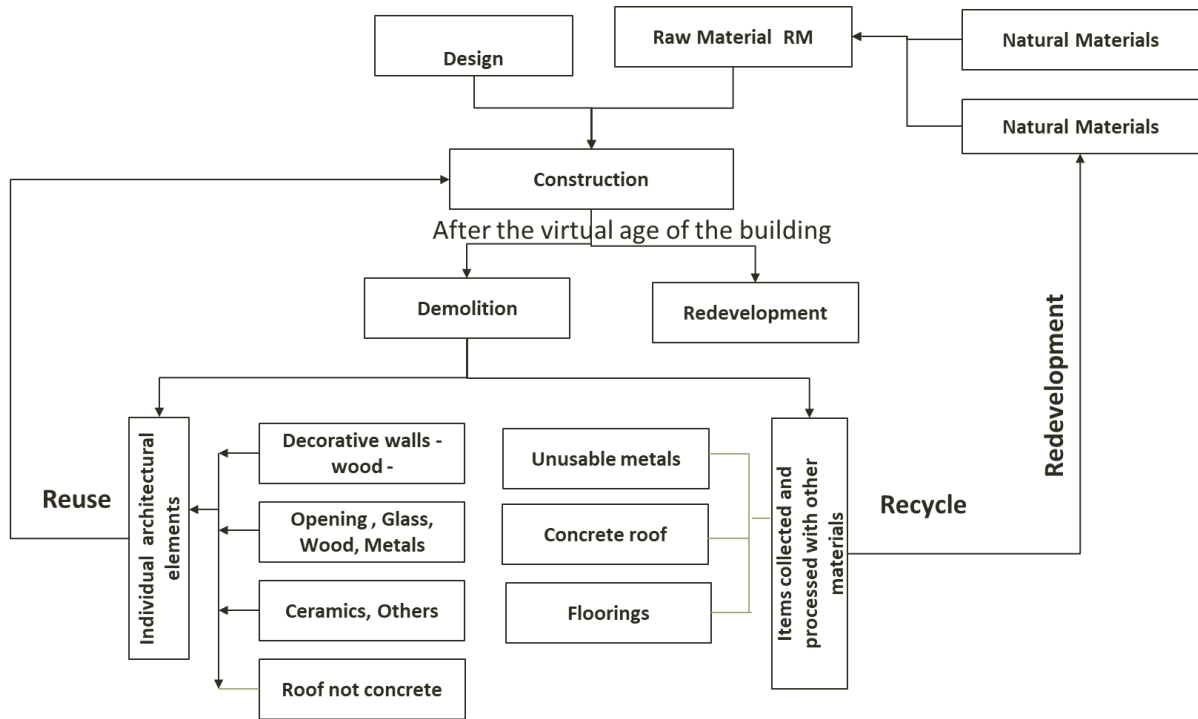


Figure No 2 Methodology for creating an architectural pattern for reusing demolition waste in the construction of other buildings


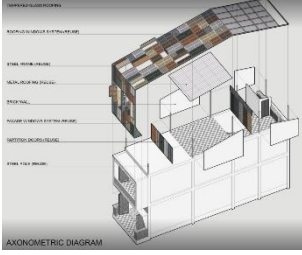

6 Cases Study of the Architecture style have been produced from reuse the construction demolition from other buildings in new buildings


1-Vegan House / Block Architects Year: 2014 Location: Vietnam		
Architecture Style's element	Old shutters give the exterior of the house a distinctive look. These types of shutters have been common in Vietnam for decades thanks to the ventilation they provide [23].	
Skyline	Straight	Simple horizontal skyline formation as a result of the use of load-bearing walls in the construction
Opening	Random	Reuse slots of different dimensions with the same function
Hat	Not include	No penthouse usage due to the use of the load-bearing structural system
projection and recessed corner	Include	There is a projection in the blocks and the opponent in the entrances and openings
corner	Sharpe	The use of right angles due to structurally perpendicular walls Making slots at the corners added the sharp, sharp character.
Skin	Not alignment	The building style used produced an irregular formation of vertical lines in the building's exterior envelope

features	Decorative Structure	Producing a simple, unconventional facade style, which appears in the use of protection doors from a previous project in shaping the facade from solar breakers
Building Transformation form	face to face	Producing a simple, unconventional facade style, which appears in the use of protection doors from a previous project in shaping the facade from solar breakers
underground	Not include	None of the foundation elements were used from previous elements from other buildings, whether with the same function or another function
Structure system	Bearing Wall	The basic system is to rely on load-bearing walls from reused buildings with a different function from a structural building to a load-bearing building.
Number Of Stories	Lower	The use of load-bearing walls resulted in a lower floor height
Building dimensions	Small	The structural elements of the load-bearing walls in the voids led to the determination of the size of the project

Jeong-Hwa Seoul South Korean		
Architecture Style's element	Artist Choi Jeong-Hwa used 1000 brightly colored recycled doors to transform a bland 10-story building into an eye-popping visual indulgence. [24].	
Skyline	Straight	The use of door units at the end of the building did not provide an opportunity for vertical and horizontal formation
Opening	Random	Lack of front-facing modules due to different dimensions of units used
Hat	Not include	Use of the upper Parapet of the building of the same formation horizontally
projection and recessed	Include	The use of vertical modules for door models did not allow for the formation of protrusions and horizontal interference between blocks
corner	Sharpe	Use of sharp angles as a result of the ends of the doors in the corners of the building
Skin	Not alignment	The modules is inconsistent in vertical lines with a variety of colors and boldness in shaping in the same situation and old color
features	Decorative structure	The use of different-shaped door units in the same colors without changing them gave the design side of the exterior of the building with its presence as an essential element of the building's cover
Building Transformation form	face to face	There is no formation in the block of the building or overlapping or overlapping configuration
underground	Not include	Not Available

Structure system	Not include	It doesn't use doors as a structural element, but it's essential for the formation of the outer shell.
Number Of Stories	Intermediate	The number of floors in the building is not related to how the doors used are used, with a height of 14 recurring floors, not affecting the construction status, but the doors are light elements on the building.
Building dimensions	Intermediate	No Impacts

Kamikatz Public House / Hiroshi Nakamura & NAP Year: 2015 Location: Japan			
Architecture Style's element	<p>Kamikatsu in Tokushima prefecture is committed to zero waste, aiming towards a society characterized by sustainable recycling. To give the building a local touch, shutters and windows taken from the town's abandoned houses make up the towering facade that faces the town[25].</p>		
Skyline	Straight	Simple horizontal sky line formation as a result of the use of load-bearing walls in the construction	
Opening	Random	Reuse slots of different dimensions with the same function	
Hat	include	No penthouse usage due to the use of the load-bearing structural system	
projection and recessed corner	Not include	There is a projection in the blocks and the opponent in the entrances and openings	
corner	Sharpe	The use of right angles due to structurally perpendicular walls Making slots at the corners added the sharp, sharp character.	
Skin	Not alignment	The building style used produced an irregular formation of vertical lines in the building's exterior envelope	
Features	Decorative and structure	Producing a simple, unconventional facade style, which appears in the use of protection doors from a previous project in shaping the facade from solar breakers	
Building Transformation form	face to face	Mass formation face to face as a result of the presence of planning in the load-bearing walls in the formation between voids and blocks	
underground	Not include	None of the foundation elements were used from previous elements from other buildings, whether with the same function or another function	
Structure system	Bearing Wall	The basic system is to rely on load-bearing walls from reused buildings with a different function from a structural building to a load-bearing building.	
Number Of Stories	Lower	The use of load-bearing walls resulted in a lower floor height	
Building dimensions	Small	The structural elements of the load-bearing walls in the voids led to the determination of the size of the project	

<p>Privat Villa and house for Taymor Alhadidi , Year : 2015 Egypt</p>		
<p>Architecture Style's element</p>	<p>Taymor House is a private villa has been constructed by a recycled material from different types of recycling , reuse and recycled, organic material and life use material like plastic moreover the building elements from other building and construction waste too , all the building contents a recycled elements from structure to the decorative elements .</p>	
<p>Skyline</p>	<p>Movement</p>	<p>The use of the end of the building moving with the natural design inspired by the design idea by returning to the natural environment</p>
<p>Opening</p>	<p>Random</p>	<p>The use of used wood frames added instability to the module used for the rectangular, square and circular holes.</p>
<p>Hat</p>	<p>Include</p>	<p>There are ends of the roof rooms used as a view and a viewfinder for the general site, which gave the architectural character as a castle in the desert</p>
<p>projection and recessed</p>	<p>Not include</p>	<p>There are no protrusions, deletions or additions in the blocks and facades, as the load-bearing walls were relied on to break the stone derived from recycling</p>
<p>corner</p>	<p>Curved</p>	<p>The use of circular and curved ends in the building, which gave a sense of continuity and connection between the facades and a view of the mass in a perspective way, where free stone fracture was used in the formation and was not linked to the dimensions of bricks and a specific shape</p>
<p>Skin</p>	<p>Not alignment</p>	<p>An irregularly shaped external dispute consisting of the remains of tree trunks, sand-filled bottles, tree veins, and re-disassembled planks of wood.</p>
<p>Features</p>	<p>Decorative and Structure</p>	<p>The structural elements were combined through the elements of wood and tree trunks, as well as an aesthetic composition to decorate the interior spaces.</p>
<p>Building Transformation form</p>	<p>face to face</p>	<p>The mini block is formed from the intersection between the cylinder block and the bright inclined cubes, in addition to the domes and lighthouses, which led to the resulting transformation in the formation of the block</p>
<p>underground</p>	<p>include</p>	<p>There are vaults of wood veins and broken stones in different levels underground</p>

Structure system	Bearing Wall	Working walls and decorative structural elements such as tree trunks
Number Of Stories	Lower	Low due to the use of load-bearing walls and freedom of formation
Building dimensions	Small	As a result of the use of load-bearing walls from breaking the stone and the freedom of curved formation, this resulted in a lack of freedom in size and height

As a result from the case studies and the display the existing buildings used different materials from other buildings as a construction and demolition waste (D&C) , upon that the following matrix shown the relation between building elements can be used and the proper way to be recycled moreover the impacts of the items on the architecture style from the displayed projects .

	Recycled as raw material	Recycled as a part of material	Reuse as a same function	Reuse with different function	Effect on Architecture style
Blocks, bricks	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steel Column	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Steel Doors	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Steel fence	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Slabs and concrete	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood doors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Glass doors	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
windows with aluminum and glass	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Wood with glass Windows	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tiles , flooring	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stairs steps	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Strong impact
- No impact

Table No 2 the relation between building elements and proper way of recycled with the impact of architecture style

7. Conclusion , recommendations and results

The research concluded on identifying the sustainability points related to the materials used in the construction and the ways in which they affect the architectural product and the research dealt with the listing of a number of buildings was used architectural elements reformulated and used in the same function or other function, as well as the research found a relationship between the architectural character resulting that the reused elements of the construction residue directly and may be dominated by random character in the aesthetic and organizational relationships of the facades but can use the Waste of construction In a range that must be equipped at an early stage of the buildings to be removed and from the buildings that will be used to achieve an architectural thought and an architectural character dominated by the unified composition.

The research also concluded that there are many ways in which architectural elements can be reused in various other functions, which may contribute to reducing the cost of new buildings that may share the waste of construction in the rebuilt system, which reflects sustainability on the other hand.

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