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Investigation of colonial-era architecture style on modern architecture design style in Aden city

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ABSTRACT

This study investigated the lasting influence of British colonial architecture (129 years) on contemporary building design in Aden, Yemen. The initial focus was on the perception of British Neo-Classical architecture as a symbol of superiority, overshadowing Aden's rich architectural history. This research explored Aden's architectural transformation from pre-colonial to colonial periods, analyzing the impact of colonial-era building facades on modern design practices. Through observation and interviews with built environment professionals, the study examined the broader social, political, and economic effects of British colonialism. The findings reveal a significant influence of British colonial architecture on the design of building facades in Aden. This influence is evident in structures like the repurposed church on Crater Mountain, which now serves as a government building. The influx of British administrators, soldiers, and workers from diverse backgrounds (Indian, Somali, Jewish) during the colonial period contributed to Aden's architectural diversity by constructing churches, temples, and government buildings. Unfortunately, the ongoing war in Yemen has damaged or destroyed many of these structures. This study also found that classical architectural elements from British colonial buildings like the Military Museum in Crater, the Heritage Museum, and the Tax Office continue to influence modern design. These elements and the miniature Big Ben clock in Al-Tawahi stand as prominent symbols of British influence in Aden. However, the Yemeni government's restoration efforts for these colonial-era buildings have been slow and largely ineffective. The research further explored the enduring influence of Neo-classical architectural ideals in Aden. The study highlights the formal guidelines, specific modules, and proportions used in designing arches and columns, particularly in residential buildings. These elements contribute to the aesthetic qualities of these structures. While the British incorporated classical elements during their rule, architectural advancements and new materials have led to the incorporation of novel elements in contemporary design.

1. Introduction

Colonial architecture, by expression, is the style of architecture lent from a country genuinely and then integrated into the architecture and building structures located in another region that is far away from the main region. This type of architectural style originated from the period colonists established a fusion using fusion blending the vocabulary of the architecture of their own country of origin with the architectural style and design principles of the country or region they colonized. It is generally believed that the architectural style of a particular era or season is a reflection of a region's political power as well as social standing. As a mark of power, Louis XIII constructed the Versailles Palace, the Greeks built the

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Parthenon, and Shahjahan, the Mughal emperor constructed the Taj Mahal [1]. Meanwhile, the British, who saw themselves as the successor of the Mughals, decided to utilize architectural style as a power symbol [2]. The British claim to the Mughal legacy stemmed from their takeover of India following the Sepoy Rebellion of 1857 [3]. This rebellion, a major turning point in British-Indian relations, saw Indian soldiers revolt against British rule. Though ultimately crushed by the British, it marked the symbolic end of Mughal rule and solidified British dominance in India. This sense of succession likely influenced the British approach to architecture in their colonies, including Aden. Undersigned structures that altered Yemeni architectural architecture [4]. The city of Aden has seen alternating periods of economic growth and decline along with a continuous process of political, economic, social, and urban changes, according to the city's history [5]. This research aims to explore the potential of reviving the authentic characteristics of colonial architecture in Aden, Yemen. The objective is to assess the impact of this style on contemporary building facades and determine if reviving these elements can benefit the city's historical preservation, economic development, and overall architectural identity. The research will consider both the potential for fostering a sense of place and cultural appreciation while acknowledging factors like restoration costs, community involvement, and the importance of integrating these elements with local Yemeni architectural traditions.

2. Literature review

2.1 Revival of Colonial Architecture:

The revival of colonial architecture is a complex phenomenon with both proponents and detractors. This section delves into existing research on the topic, examining global trends and exploring the potential benefits and drawbacks associated with this practice. Several studies highlight the potential of reviving colonial architecture for historical preservation and cultural tourism. For instance, Leal [6] in her research on Havana, Cuba, demonstrates how restored colonial buildings can act as a magnet for tourists, fostering a sense of place and appreciation for the city's unique heritage. However, López & Rico [7] also caution against overlooking local architectural traditions in their study of San Juan, Puerto Rico. They emphasize the importance of integrating colonial elements with existing vernacular styles to create a more complete and authentic representation of the built environment. The economic impact of reviving colonial architecture is another area of ongoing research. Monclús [8] finds that restoration projects in Barcelona, Spain have successfully revitalized urban areas, leading to increased property values and generating revenue for local businesses. However, concerns regarding gentrification are also raised. Lees [9] warns that gentrification can displace low-income residents and homogenize urban landscapes in his work on London, England.

2.2 Colonial Architecture in Yemen

Focusing specifically on Yemen, existing research provides valuable insights into the historical significance and current state of colonial architecture in Aden. Griego [10] offers a comprehensive historical analysis of Aden's colonial architecture, tracing the influence of British colonial styles on the city's built environment. This research serves as a foundation for understanding the potential impact of reviving these elements in contemporary design. The current state of Aden's colonial buildings is a cause for concern. Alsarhan [11] documents the devastating effects of war and neglect on these structures. Their study highlights the urgent need for restoration efforts that are sensitive to both historical accuracy and

contemporary needs. Furthermore, World Bank [12] emphasizes the importance of community involvement in any restoration project, ensuring that the benefits are shared by local residents.

2.3 Gap in Knowledge

While existing research offers valuable insights, a specific gap exists regarding the potential for reviving colonial architecture in Aden, Yemen, and its impact on contemporary building design. This study aims to address this gap by:

o Analyzing the specific characteristics of Aden's colonial architecture and their influence on modern facade design.
o Assessing the feasibility of reviving these elements in light of current social, economic, and environmental considerations.
o Evaluating the potential benefits and drawbacks of colonial architectural revival for the city's historical preservation, economic development, and overall architectural identity.

3. Research methodology

The research study design is done to acknowledge and identify the phases of research till the completion end [13]. The research design is established as the road map or data collection guidelines, as well as guidelines for the data analysis process.

Table 1 Colonial Buildings Typologies

No	Colonial Buildings Typologies	Name of Buildings	Zone Code	Location of Sample	Total
1	Government building	Tax office	A	Crater	1
		Tourist visa office	B	Al-Tawahi	1
		Legislative council office	C	Crater	1
2	Financial buildings	Bank luke thomas and kahveji	D	Al-Tawahi	1
		National Bank India Ltd	E	Al-Tawahi	1
3	Educational buildings	Education office	F	Al-Tawahi	1
		Primary and secondary school	G	Crater+Al-Tawahi	2
4	Commercial buildings	Shops	I	Crater+Al-Twahi	100
		Markets	J	Crater+Al-Twahi	2
		Retails	K	Crater	30-50
5	Religious buildings	Masjid Alsheeah-Aljafriyah	L	Crater	1
		Masjid Al-asqlany	M	Crater	1
6	Residential buildings	Houses (A)+Shops	H1-H26	Crater	160
		Houses(B)+Shops	H1-H19	Al-Tawahi	100
7	Museums	Military Museum	N	Crater	1
		National Museum of Antiquities	O	Crater	1
8	Monuments	Big Pin clock	P	Al-Tawahi	1
		Victoria queen Elizabeth	Q	Al-Tawahi	1

The investigation was conducted in Yemen's Aden city. There are several reasons why Aden City was selected as the study's site, including the fact that several colonial urban organizations, such as Crater and Al-Tawahi, were established there and still have remnants of their colonial architectural design in their recognizable buildings. The city has also been impacted by various architectural styles over the years, which may have a significant impact on the contemporary architectural design style of the majority of housing developments in the city. To identify colonial architectural facades and components, the study will concentrate on structures constructed during the British colonial era (1839 to 1967). As colonial formations were prominent in the city, notably in the Crater and AL-Tawahi Zones, the majority of the buildings included in this study were located in Aden. This is depicted as indicated in Table 1 Colonial Buildings Typologies and Name of Buildings, distributed in the two areas of the city of Aden, namely (Crater and Al-Tawahi), and this is shown in Fig. 1 and Fig. 2.
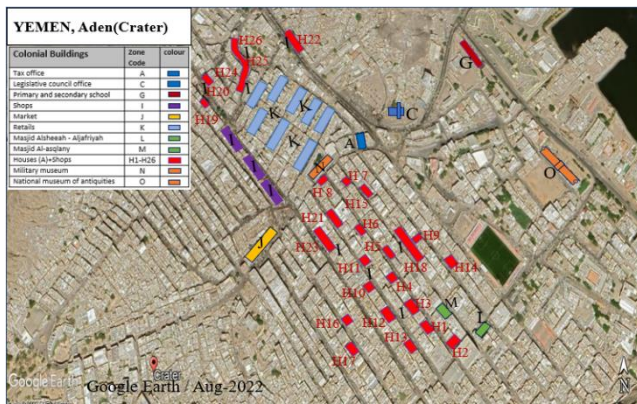

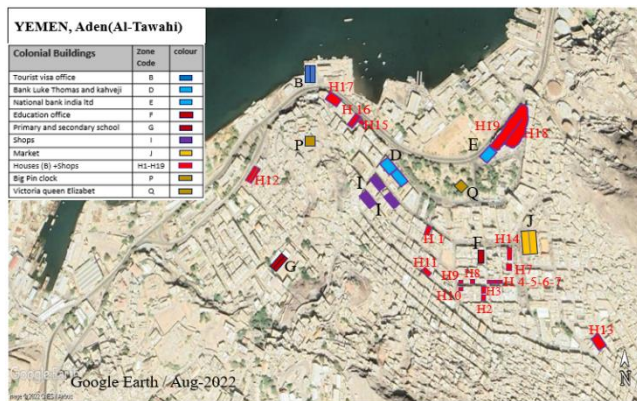**Figure 1.** Location of Crater-Aden. Source: (Crater-Google Earth Agu-2022)

Figure 2. Location of Al-Tawahi. Source: (Al-Tawahi-Google Earth Agu-2022)

In this study, multiple techniques of research methodology were engaged to gather the needed data. Data documentation was retrieved using interviews and observations. These were founded on British Colonial Architecture and its stylistic influence on building facades in the city of Aden in Yemen. To attain the objective of this study, the three questions of this research were addressed utilizing the most suitable methods. It has been observed that multiple data need to be research instruments or techniques are utilized in research methodology and each of these techniques was utilized to meet some specific data in three phases. A diagrammed of the "Research Methodology" is as in Fig. 3.
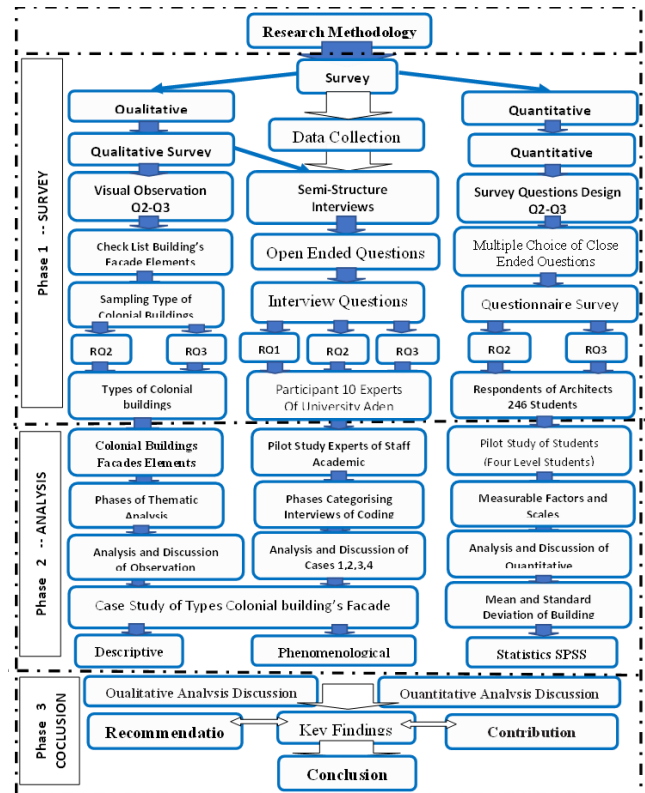

Figure 3. A diagram of the Research Methodology

In this research study, different survey methods were used, this is according to the mix methods of research, qualitative and quantitative methods. In this study, the surveys utilized under qualitative research study include visual observations and interviews. Using visual observation, an initial observation of British-built colonial buildings was done and justified that all the selected colonial buildings are suitable to be assessed as case studies in this research. The British colonial buildings were selected concerning their location, function, usage facade, and elements. The researcher covered some selected areas of Aden city, such as Crater and Al-Tawahi. A wide lens observation was done to check out British colonial buildings that showcase the British style of architecture through the building's facade and elements. An observation sheet was used to gather the data and also visitation to the location of the colonial buildings was done. This resulted in the narrowing down of the case study sample size so that the eligible ones could be selected and justified. Visual documentation of colonial architectural style buildings and their facades within the Aden City of Yemen was conducted using a digital camera (Canon D 500) for pictures. These were converted to images for proper and detailed analysis. There was some series of manual documentation as well, deliberately done using sketching and drawing on a plain sheet of paper to give details of some important elements and their dimensions. The interview is used as an instrument in research to gather qualitative data from respondents for the research objectives. In this study, a semi-structured interview with experts in colonial architectural buildings was conducted. Experts in the building

style in Aden city such as academicians' staff in Aden of university, architects, and private developers, in Aden city Municipal area which includes Crater and Al-Tawahi were interviewed using a semi-structured interview questionnaire. The questionnaire consists of three sections, which are the biography, their knowledge of colonial buildings, and their expertise on different façade of colonial buildings. Likewise, the quantitative method of research was explained as a systematic and empirical exploration of phenomena through statistics and mathematics in addition to processing data numerically. In this study, a well-structured survey questionnaire was used in conducting the quantitative research method. The questionnaire was sectionalized into seven (7) sections. The first section is about the demography of the respondents, section B is about the colonial building's facade (Mass and articulations). Section C of the questionnaire concentrates on building facade opinion, while section D focuses on colonial building facades' architectural details changes. Section E contains questions on the building's facade (Architectural material) alteration, while section F focuses on building facade arrangement. The last section focuses on the continuity of Architectural identity.

4. Finding analysis

The purpose of the research in this study is to identify and highlight British colonial features in the representation of colonial buildings in the city of Aden. Table 1 highlights the most significant and crucial components. An examination of different British architectural design motifs can provide a fundamental understanding of the colonial influence on a few particular buildings in Yemen's Aden metropolis. The following colonial building facade architectural components were discovered through observation. In Table 2, this is highlighted. Table 2 lists and description of the architectural components of colonial building facades.

Table 2. Architectural elements of Colonial Buildings facades and definitions

Architectural Elements	Definition
Accolade	A sculptured extension to an arch.
Apron	1. Elevated panel that sits in front of a window, wall monument, or tablet. 2. An open area of a marine terminal that is next to a berth for a vessel and is used to move cargo directly between the vessel and the terminal. 3. A concrete slab placed just outside a car door or a tunnel to prevent heavy loads or frequent turning movements from wearing out the asphalt surface.
Arcade	A covered walkway that is formed by a series of arches passageway or pathway supported by columns and covered in a series of arches or vaults. Blind arcades and arcades are the same thing when applied to a wall.
Arch	A curving construction structure that can span a room and support a lot of weight.
Architrave	The column-to-column running beam or lowest division of the entablature.
Articulation	The process of joining pieces so that, although being united, each portion remains distinct and

Ashlar	Clear about the others is known as articulation. The edges and angles of the cut stone have been correctly angled and squared. Arises with vertical joints, constructed on horizontal courses.
Balcony/veranda	A projecting platform that is supported by pillars, posts, brackets, or consoles and encircled by a balustrade, with access from an upper floor level provided by windows or doors.
Balustrade	A rail or coping used to fence in a balcony or serve as an open parapet supported by a row of short shafts or balusters. and formed with a lathe.
Bay	A building's façade or interior that has been extensively divided by a variety of windows, vaults, arches, roofs, etc.
Bond	A layered brick construction. Stretcher, English, header, Flemish, garden wall, herringbone, basket, American, and Chinese bonds are among the several bond types.
Classical column	A column having a square or round base with a capital in the Doric, Ionic, or Corinthian styles.
Colonnade	A set of columns and their superstructure that are either standalone structures or are built into a building.
Cornice	The crowning or upper portion of the entablature is also used for any crowning projection in Classical or Renaissance architecture.
Cupola	The ornamental crown tropine that tops a column or pilaster.
Cincture	A column's top and bottom may be marked with a ring, list, or fillet to distinguish the shaft from the capital and base.
Dentil	one of several tiny teeth-shaped rectangular or square blocks set beneath a cornice.
Fan-light window or Door	A window with an upper semi-circular or semi-elliptical shape that is frequently fixed with sash bars that resemble a row of fan ribs and are mostly mounted on top of a door or another window.
Colarino, collarino, hypotrachelium	Between the astragal and the annulets is a little frieze that serves as the Tuscan and Doric column capital. Vitruvius gave it the name hyperhelium.
Column	A vertical support is often made up of a base and a cylinder.
Keystone	The topmost and centre stone, also known as the voussoirs, is wedge-shaped and frequently carved with human heads, occasionally holding a bust or other adornment.
Lintel	The highest and most prominent stone, also known as the voussoirs, is wedge-shaped and frequently has human heads carved into it. Occasionally, it will also support a bust or other adornment.
Loggia	A colonnaded gallery that is open on one or more sides. The area is frequently found on an upper story of a structure with views of a garden or open court.

Mullion	A vertical bar made of wood, metal, or stone that divides a series of two or more windows.
Muntin	An element that separates a glass pane into two or more lines or panes in a window, either vertically or horizontally.
Parapet wall	Particularly in classical and modern design, a low-projecting wall runs vertically along the edge of the building or house to replace the overhang roof system. Behind the parapet wall, there is a roof gutter design.
Pedestal	A column's base is built several feet above the ground and significantly larger than the diameter of the corresponding column.
Pediment	A triangular wall portion set above the entablature and supported by columns makes up the initial design. Throughout the neoclassical era, the design steadily changed into several shapes, most notably semi-circular and rectangular sections.
Pelmet	A structure positioned above a window.
Pilaster	A wall-integral column that is created with a modest protrusion that resembles a supporting column
Pitch roof	A roof that exceeds the Malaysian Uniform Building By-Laws' 20° definition of a slope.
Porte-cochere/ portico	A covered porch or portico that is typically used to let people out of cars or horse-drawn carriages (in colonial times) and to offer shelter from the elements can be situated on either the main or secondary entry. It frequently has an open balcony or veranda on top.
Rake	The gable's outside-facing diagonal border is also known as the raking cornice or the sloping cornice. Rake is the same as slope, which is the ratio of the roof's rise to run.
Round arch	A circular arch was constructed
Sash	The vertical and horizontal frame that encloses a window's glazing. A sash can be fixed or moveable, and depending on how it moves, it can be one of several different varieties (for example, casement, single or double hung, awning, hopper, or sliding).
Springer	The bottom voussoir on each arch's side.
Truss	A structural element that supports structural loads, such as those on a floor, roof, or bridge, and is formed of straight wood or metal members that are often arranged in a triangle arrangement with "pinned" connections at the top and bottom chords.
Tympanum	An ornamental wall surface that is semi-circular or triangular and surrounds an entrance with a lintel or arch.

This section provides a summary of the findings based on the developed building façade checklist factor and the development of an adequate model for both the visual survey and the analysis. In measuring and analyzing a building's visual façade and components, there will be an examination of the primary metrics and key indicators. According to [13], facades are thought of as a building's exterior faces. They are recognized as the essential component of a building's outer image that defines and shapes its cultural identity. A building's façade generally consists of three main zones: the base zone, which links the structure to the ground; the middle zone, which includes openings; and the roof zone, which uses a silhouette to connect the structure to the sky. The results of the research show that the arrangement of the roof, the materials, the apertures, and the finishes affect several elements of the building facades. The primary factors that affect a building façade's design, which is connected to shape, composition, texture, and component color, are demonstrated in this study [14]. Because the socio-cultural performance of the building façade is the primary parameter determining the value of the building architectural style, the formal building structure's analysis of a British colonial building façade as in this study offers information related to comprehension of building identity [15]. By the analysis of this study, models for determining the degree of similarity and for analyzing building facades and elements are presented in the literature on the analysis of architectural facades. Despite the many theoretical angles, the basic principles of analysis in significant situations centered on the division of larger portions of building facades into smaller portions. The important underpinning for these methods comes from Biederman's theory, which forms the fundamental basis of Recognition by Component [16]. The technique of breaking down the general bulk of the façade into segments, as is customary in the field of architectural analysis, is described in the theory. Niezabitowski [17] concluded from this that bigger entire section decompositions into smaller parts are consistent with modern theories of visual insight. The many facade systems and arrangement variations in urban contexts, according to Scholars in the specialized field of architectural visual observation analysis, have led to a multitude of attitudes [18]. The study relies on architectural reviews of literature and also on design guidelines of British colonial buildings' facades, which Centre on a set of parameters that have a direct impact on the visual appearance, to strengthen the theoretical proposition in the study models as well as to formulate the effective parameters for visual analysis. For this study and by architectural review, the parameter of articulation and massing consists of several elements that are classified as geometry, which is an important aspect for determining the regularity of the building form. According to [19], it serves as a sign of its regularity. The ratio of geometrical elements to all system components is used to evaluate the geometrical quality [20]. The building envelope is another element; it serves as a physical barrier between the building's internal and exterior environments [21]. According to [22], the building's principal use was described. It should be clearly expressed to show human scale about both the vertical and horizontal components since the envelope is for human desires and requirements. Another element is the type of articulated façade, which includes the foundation, the body, and the roof. Building facades should be well expressed with distinctive building façade expression by design rules. Building façade articulation plays a big element in describing how a building looks, especially colonial building facades [23]. Articulating a façade involves dividing it into the three categories of foundation, body, and roof. Therefore, the type of articulation and regular connections between house facade components have a direct impact on the identity of the building, in this case, a colonial structure. Building articulation should, therefore, positively or considerably adapt to the general characteristics of the location. All of these were taken into account appropriately during the analysis of the data or results of the visual observation stage of this investigation.

The colonial influence on some particular buildings in the Yemeni city of Aden can be fundamentally understood by analyzing distinct British

architectural façade design patterns. Findings from the interview about the Research Question:

a) What effect did colonial architectural features have on Aden's façade design during that time?

b) How were the building facades in Aden influenced by colonial architecture during the colonial era by the British?

c) When developing in the classical architectural style, how can an architect achieve the simplicity of the past during the phase of multiple factors?

The majority of experts—nearly 95%—thought that restoring the simplicity of the past might be accomplished by retaining the distinctive local architectural features and classically arranging them. It was determined that the simplicity of the historical heritage can express architectural values, as can the extent to which these values can be brought back in the design of the classical style. This was explained by expert F as follows: Preserving the original local architectural features and rearranging them in the classical style might help recreate the simplicity of the past. The simplicity of the past's history and the degree to which these characteristics can be brought back in classical style design serve to showcase architectural values. This design creates a modern mix that echoes the classical style by fusing artistic and architectural concepts and ideas. This is an example of an integrated design for architectural facades, which is a merged design that incorporates aspects and components of historical architecture with elements of a classic design. Expert J also used the following phrase when designing the city of Aden's classic architectural style: "When designing the classic architectural style in the city, he is keen to choose the elements that are compatible with the traditional environment of the city, and that add beauty to the facades with local building materials and commensurate with the environment and climate of Aden, and until the architect reaches a model in which simplicity is available for the unique and distinct architecture of Aden that brought together various civilizations and helped the city of Aden develop a unique architectural style. However, other experts disagree with the notion that Aden's character is represented by its classical architecture because the city itself has a distinctive identity. This was stated by Expert H in the following way: "I disagree with the opinion that classical architecture represents the identity of Aden because the city of Aden has a unique identity, but it ended when the British occupation came and changed the identity of the city and transferred the elements, constituents, and components of the design of colonial architecture to the city of Aden." Because of this, the structures in the city of Aden stood out as having a colonial aesthetic from those in the other governorates of Yemen. This study revealed the potential benefits of reviving Aden's colonial architecture. Restoring these structures could foster historical preservation and cultural tourism, similar to Havana's revitalization efforts. Furthermore, integrating these elements with contemporary design could create a more authentic representation of the city's built environment. However, challenges also emerged. The current state of the buildings necessitates restoration efforts that are sensitive to both historical accuracy and contemporary needs. Additionally, concerns regarding gentrification highlight the importance of ensuring that the benefits of revival are shared by the local community. Due to the qualitative nature of this research, which focused on analyzing existing literature and historical context, statistical methods were not employed. Future research that aims to quantitatively assess the impact of colonial architectural revival on factors like tourism rates or property values would benefit from incorporating robust statistical analysis to strengthen the conclusions.

5. Conclusions

This study investigated the potential for reviving colonial architecture in Aden, Yemen, and its impact on contemporary building design. By analyzing existing research and the specific characteristics of Aden's colonial buildings, the study aimed to bridge the gap in knowledge regarding the feasibility and implications of this practice. The findings reveal a compelling case for the potential benefits of reviving colonial architecture in Aden. Restoring these structures can foster historical preservation and cultural tourism, echoing Leal's [1] observations in Havana. Furthermore, by integrating colonial elements with contemporary design considerations, as advocated by López & Rico [2], a more complete and authentic representation of Aden's built environment can be achieved. However, the study also acknowledges the challenges associated with colonial architectural revival. As highlighted by Alsarhan [6], the devastating effects of war and neglect necessitate restoration efforts that are sensitive to historical accuracy and contemporary needs. Additionally, concerns regarding gentrification, as identified by Lees [4], warrant careful consideration to ensure the benefits of revival are shared by the local community.

In conclusion, this study suggests that reviving colonial architecture in Aden holds promise for historical preservation, cultural tourism, and a more complete representation of the city's architectural heritage. However, achieving this requires a nuanced approach that balances historical accuracy with contemporary needs, while also mitigating the potential for gentrification. Future research can delve deeper into specific design strategies for integrating colonial elements into contemporary facades, considering factors like social, economic, and environmental sustainability.

Authors' contribution

Declaration of competing interest

Funding source

Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Acknowledgments

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Appendix A

Questionnaire:

Section A: Respondent Background (please tick one)

1- Undergraduate Architecture Students: **L e v e l**

| 2 | 3 | 4 | 5 |

2- Period of Study: **Morning**　　　**Evening**

| | |

3- Gender:　　　　　　　　　　　　　　　　　　　　　**Male**　**Female**

The following part of the questionnaire focuses on **(the colonial building architectural elements, its influence during the colonial era, and the influence of colonial architecture on modern-day architecture in Aden city).**

Consider the following statements and signify your level of agreement or disagreement with it by simply ticking the appropriate number on a 5-point Likert scale given below. (Please tick one box) Evaluation parameters are:

Section B: Colonial Building's Façade (Mass and Articulation)

Strongly Disagree 1	Disagree 2	No answer / Neutral 3	Agree 4	Strongly Agree 5
S. D	D	N	A	S. A

No	B1- (Geometry of mass)	1 S. D	2 D	3 N	4 A	5 S. A
1	Changing colonial façade geometry has a negative influence on a place belonging					
2	Altering colonial façade geometry will reduce the continuity of architectural element identity					
3	Disparity of colonial façade geometry will decrease the symbolic expression of architectural element identity					
4	The variation of colonial geometry of mass will increase the diversity of architectural identity.					

No	B2- Colonial building envelope	1 S. D	2 D	3 N	4 A	5 S. A
5	Colonial building envelope will increase the visual privacy					
6	Colonial building envelope alterations have a negative impact on architectural identity continuity					
7	Colonial building envelope transformation has a direct relationship with modern architecture					
8	Colonial building envelope modernization will lead to reduce the authenticity of architectural identity					
No	B3-Type of Façade Articulation	1 S. D	2 D	3 N	4 A	5 S. A
9	Changing the colonial façade articulations will decrease the understanding of precision of meaning.					
10	Colonial House base, reorganization in a new pattern have a significant negative impact on the permanency of architectural element identity					
11	Colonial House body reorganization in a new pattern have a significant negative impact on the permanency of architectural element identity					
12	Colonial House roof reorganization in a new pattern have a significant negative impact on the permanency of architectural element identity					
No	B4- Building Façade Orientation					
13	Colonial building façade orientation has a direct relationship with climate consideration of architectural element identity					
14	Colonial building façade orientation enhances energy efficiency that led to genuineness of architectural identity.					
No	B5- Mass Location Within the Plot of Land.					
15	The locations of colonial architectural form within the plot of land have a positive impact on identity belonging to the place.					
16	Form colonial building located within the plot of land will support the climate consideration of architectural element identity					
17	Setting back from all sides of land is a translation of colonial building modernization toward modern architectural element identity.					

Section C: Building façade Opinion.

This section is measuring the impact of Opening parameters please tick one box where is it applicable.

No	C1: Building Façade Window	1 S. D	2 D	3 N	4 A	5 S. A
18	Changing the colonial building size of windows to large screen glazing panels indicates transforming it to conform with modern architecture.					
19	Exploiting Colonial building window size will affect the climate consideration of modern architectural identity					
20	The Clearness of large size colonial building windows will create a new identity for house façades in the specified places.					
21	Varying the dimensionality of colonial building windows openings has a vital influence on identity symbolic functions.					
22	Changing the directivity of openings will decrease the continuity of colonial buildings' architectural identity					
23	Openings shape transformations toward Western modernization have a negative influence on the authenticity of colonial architectural elements identity					
No	C2- Building Façade Entrance	1 S. D	2 D	3 N	4 A	5 S. A
24	Hiding the entrance opening located within the mass of colonial building mass has a negative impact on identity symbolic function					
25	Enlarging the scale of building entrance will improve the modernity symbol of power					
26	Changing the entrance of colonial buildings will surge the continuity of architectural identity					

Section D: Colonial Building Façade (Architectural Details) Changes.

This section highlights the **architectural detail**s parameters (Please tick one box)

No	Section D: (Architectural Details) Changes.	1 S. D	2 D	3 N	4 A	5 S. A
27	Alteration of architectural details from colonial traditions to modern elements will decrease the belonging to place					
28	Keeping colonial building architectural details support the authenticity of architectural identity					
29	Colonial building architectural details as a means of originality will improve the moral aspects of architectural element identity					
30	Improving the colonial architectural details of building façade will increase the diversity					
31	Modernization of architectural details will create a significant influence on the privacy of colonial building architectural identity					
32	Technology as a mode of modernity has a negative impact on authenticity of colonial building architectural details					

Section E: Building's Façade (Architectural Material) Alterations.

This section highlights the **Architectural Material** parameters (Please tick one box)

No	E:(Architectural Material) Alterations.	1 S. D	2 D	3 N	4 A	5 S. A
33	Altering colonial building roofing system will improve the way towards new innovations and leads to construction of new identities					
34	Constructing new identities in local tradition is a translation of new technologies and construction methods					
35	Colonial building roof shape is a translation of socio- cultural factors					
36	Using flat roof shape in building design has a positive influence on the colonial building's household social activities					
37	Parapet line relations with adjacent buildings will reflect the continuity of colonial building architectural identity					
38	Façade colour is considered as a reflection of physical and moral aspects of colonial building architectural identity					

39	Material natural colours in building façade will enhance the physical and moral aspects of colonial building architectural identity					
40	Exploiting colours in building façade led to confusion which affects the meaning dimension of colonial architectural message.					

Section F: Building Façade Arrangement

No	F1 Solidity	1 S.D	2 D	3 N	4 A	5 S.A
41	Exploiting building façade form solidity reflects colonial building historic heritage of Aden city.					
42	Engaging transparency in colonial building façade will reduce the privacy of architectural identity.					
43	Diminishing the solidity of building façade has a negative influence on climate consideration in hot dusty environments.					
44	Altering the form of solidity will impact the symbolic expression of colonial building architectural identity					
45	Increasing transparent glass of colonial building façade form will lead to modern architecture outdoor looking approach					
No	F2 Complexity					
46	Exploiting complexity of building façade form will decrease the clarity of colonial building architectural symbols					
47	Complications of elements in colonial building façade have a negative effect on cultural identity authenticity					
48	Complexity of elements in colonial building façade will increase the complication of meaning of architectural symbols.					
No	F3 Rhythm and Scale	1 S.D	2 D	3 N	4 A	5 S.A
49	Colonial building façade rhythm of elements will create symbolic representation					
50	Altering rhythm of elements has a negative impact on the symbolic expression of colonial building architectural identity					
51	Changing rhythm of colonial building façade elements lead to decreasing the familiarity of meanings.					

No	F4 Integration					
52	Colonial building façade element integration will intensify the symbolic expression of architectural identity					
53	Colonial building façade element integration will lead to rhetoric and originality of the architectural message					
54	Integration of colonial building façade elements has a positive effect on the multiplicity of meaning					
55	Integration of colonial building façade elements will increase the familiarity of architectural message					

Section G: The Continuity of Architectural Identity

No	Section G: The Continuity of Architectural Identity	1 S.D	2 D	3 N	4 A	5 S.A
56	Variety of colonial building façade elements impacts the continuity of architectural identity					
57	Changing the articulation of a colonial building façade results in minimizing the continuity of architectural identity					
58	Efficient use of local architectural details leads to continuity of colonial building architectural identity					
59	The shape of the colonial building roof has a direct impact on physical and moral aspects of architectural identity					
60	Utilizing a flat roof shape in building design will improve the continuity of colonial building architectural identity					
61	Orderliness of a colonial building façade plays a powerful role in Yemen's cultural continuity					