Brutalist Architecture in Jordan: Towards a Codifying Methodology

Sonia Al-Najjar
Lecturer, Department of Architecture Engineering, Middle East University, Amman, P.O. Box, Amman 11831, Jordan. Email: najjarsonia@hotmail.com.

Wael W. Al-Azhari
Associate Professor, Department of Architecture Engineering, The University of Jordan, Aljubeiha, P.O. Box, Amman 11942, Jordan. Email: w.alazhari@ju.edu.jo.

Abstract- Brutalist Architecture in Jordan was interpreted and developed in ways unique to the Jordanian experience. This paper traces the roots of Brutalism in Jordan, and presents an understanding of the conditions that led to the presence of this ‘style’ of building and a codifying methodology based on the world characteristics of the style. The research methodology depends on a codifying system for Brutalist Architecture in Jordan using Reyner Banham’s description of the characteristics of Brutalist Architecture which he explained in his seminal essay of December 1955, in which he attempted to codify the then emerging architectural movement of Brutalism. Nine building cases are chosen and analyzed using ‘operationalizing’; i.e., validating real variables of Brutalist characteristics in selected buildings where the level at which the ranking or measuring approaches reality is called the ‘reliability’. The aim of ‘operationalizing’ is to make the characteristics validity and reliability accessible for more quantitative research. Buildings are chosen from different building categories including educational, corporate and government buildings. The choice of buildings conforms to the era between 1945 and 1985. The research concludes that there are some roots for New Brutalist architecture in Jordan, the buildings that represent this style adhere to the group of characteristics described in Banham’s article of 1955.

Keywords- Brutalism; Brutalist Architecture; Modernism; Amman Architecture.

I. INTRODUCTION

The term New Brutalism or Brutalist Architecture is used to describe a form of architecture that appeared, mainly in Europe, from around 1945 - 1975. Uncompromisingly Modern, this trend in architecture was controversial at times, both striking and arresting and, perhaps like no other style before or since, aroused extremes of emotion and debate. Some regarded Brutalist buildings as monstrous soulless structures of concrete, steel and glass, whereas others saw the genre as a logical progression, having its own grace and balance [1]. Brutalism and its architects were not concerned about aesthetics, but other things in society; it was as much a social, ethical and moral movement as it was an architectural movement. The architects of the time were impugned with this moral consciousness. What remained of the hulking masses of concrete, sometimes other materials, represent an extraordinary period of incredible optimism and determination to use architecture to transform society. This was a particular architecture for ambitious times, gripped by a favour for change. Unfortunately, these original architectural and social ideologies have nowadays moved far from that orthodoxy and architecture has moved into new aspirations.

II. ANTECEDENTS OF MODERNIST ARCHITECTURE IN JORDAN

The greatest ideological appeal of the Modern movement was its claim to transcend ideology; and many saw Le Corbusier as the ‘revolutionary architect par excellence.’ Modernism came to defy traditional and region specific aesthetic and its indigenous locality. Instead, it encouraged the proliferation of Modernist vision beyond the margins of Europe to other continents and cultures, from post-colonial India to Latin America. Modernism shaped much of the history, culture and built fabric of the twentieth century. Globally, the new Modernist designed cities of Chandigarh and Brasilia were examples of the most ambitious and famous of Modernism’s numerous expressions in architecture and urbanism. Modern architecture was imported a as a high visible symbol and an effective instrument of a radical program to create thoroughly modern Westernized nations.
The Post-war years in the Arab World saw the rise of Arab nationalism, modernization and the establishment of many independent Arab states. Despite many conflicts, wars and years of unrest to follow, the construction boom continued in the Arab States. The Arab League was formed in 1945 to represent the interests of the Arabs, and especially to pursue the political unification of the Arab world, a project known as Pan-Arabism [2]. Jordan saw most of its building projects in the post war years; 1945 onwards, following Jordan’s independence from the British Mandate in 1946. The Post-war years in Jordan have witnessed the building of a nation, most prominently the establishment of the Jordanian constitution in 1952 along many other state developments in spite of the political and regional turmoil [3].

Having weathered the tumultuous radicalism of the 1950s, the Hashemite Kingdom of Jordan entered the decade of the 1960s with renewed hope and confidence. The 1960s proved to be promising years, as the economy started to take off. The industrial backbone of Jordan’s modern economy—the potash, phosphate and cement industries—were developed during this time. In Zarqa, East of Amman, an oil refinery was constructed. The country was linked by a network of highways, and a new educational system was introduced to the Kingdom. In 1962, the Kingdom constructed its first national university, Jordan University, at Jubeiha, on the outskirts of Amman city [3]. Prior to the 1967 War, Jordan witnessed higher rates of economic growth than most other developing countries. A thriving construction industry provided job opportunities for Jordanians, while tourism from Jerusalem, Bethlehem, and the many East Bank attractions provided the Kingdom with a wellspring of foreign exchange income. The economy was further boosted by remittances from Jordanian expatriates who left to work in the countries of the Arabian Gulf. The progress the Kingdom underwent during these years gave rise to a new middle class of educated Jordanians keen on building their country. As this group of professionals grew in number and talent, Jordan became more stable.

First generation of Jordanian architects in the 1950s, were graduates of nearby countries like Egypt and Lebanon. Some of them were graduates of institutions i.e. Cairo University (King Fuad I University) then, American University of Beirut and Alexandria University. Architectural education in the Arab world at that time focused on the Modernist ideology imported by academics who adapted the Western model of architectural theory.

The legacy of local architecture or traditional as the Postmodernism years would suggest later, were absent in the early years of architectural practice in Jordan and the Arab World. Architects adapted Western architectural schools’ thought and applied it in Jordan using local materials, mainly stone. This juxtaposition was the main ingredient for creating a contemporary but a national identity in architecture. This trend of applying Western thought using local materials would articulate and continue to shape much of the Jordanian built environment to this day. Modernist buildings in Jordan varied between residential, public or state buildings. These building projects were mostly commissioned by the state or private ownerships. One of the earliest iconic Modernist buildings is the multi-story Insurance Building in Amman, designed by the Lebanese architect Khalil Khoury, and was completed in 1962. The 11-story building was the highest in Amman back then and its modern design featured open office space, Figure 1. Another prominent Modernist who designed many buildings in Amman was the renowned Egyptian architect Sayed Karim. Karim designed most of the cinema buildings in the city of Amman in the mid-1950s. One of these famous cinema buildings was Al-Hussein Cinema in Downtown Amman completed around 1954, Figure 2. The modernist buildings in Amman at that time echoed much of the philosophy of Modernism specifically those explained in Le Corbusier essays in Towards a New Architecture, i.e. honest materials and minimalism in plans and masses [4].
III. WHAT IS BRUTALIST ARCHITECTURE

The development of the Brutalist style found much of its vocabulary of the late work of Le Corbusier especially his *Béton brut* manner. Unité d'Habitation is arguably the most influential Brutalist building of all time. Le Corbusier believed the tower block was the solution for rehousing the masses that had been displaced during the Second World War, and that high-rise building could be used to create spacious city homes with the same amenities as a typical street. Swiss-French architect Le Corbusier's love of concrete translated into a building that many consider the birth of Brutalism. The Unité d’Habitation in Marseilles, France was his first project in 10 years. World War II having interrupted his practice. Completed in 1952 and created as housing for the working class, Le Corbusier’s design called for a giant reinforced concrete framework fit with modular apartments. The mammoth complex, which could house up to 1,600 people, was largely devoid of decorative elements and laid the framework for future Brutalist projects. Post-war housing projects that echoed and responded to the needs of society were built after the war in Europe to respond to social needs. They were seen afterwards as anti-human due to their scale, so many of these projects saw their grave end after years of disrepair and social negligence [6].

Concrete as a material for articulation of masses was popular in the Post-war years, concrete buildings enabled a fast and feasible city to house people and rebuild after the war in Europe and worldwide. A vast amount of novel materials and innovative construction techniques came into being between 1945 and 1975. Banks and corporate establishments found the monumentality and formality of Brutalist architecture appealing to their vision and commercial and economic stability [7]. The buildings proved Brutalism as an architectural philosophy was often associated with socialist utopian ideology, which tended to be supported by its designers, especially Alison and Peter Smithson, near the height of the style. This style had a strong position in the architecture of European communist countries from the mid-1960s to the late 1980s. Associated with schools, churches, libraries, theatres, and social housing projects, Brutalism is often intertwined with 20th-century urban theory that looked toward socialist ideals. With the need for construction after World War II, Brutalism took hold around the world, but particularly in the United Kingdom and Eastern European Communist countries, where it was sometimes used to create a new national socialist architecture.

IV. CODIFYING BRUTALISM AND WORLD CHARACTERISTICS

Architectural American critic Reyner Banham did not coin the phrase Brutalist Architecture, but he certainly popularized it. According to Reyner Banham, in his Architecture Review article of 1955, Brutalist buildings have general characteristics that can be summarized in four main codifying characteristics [8], which are:

4.1 Brutalist buildings have formal, axial plans that exhibit the basic structure.
4.2 Brutalist architecture was honest about its use of materials. Concrete as building material in its brut form without any paint, or treatment, or even white wash which was a distinguished feature of other Modernist buildings. Having said that, Brutalist buildings are not necessarily concrete buildings or Betun Brut buildings, in many countries where other building materials are used; like brick or stone, this style’s features are present with the same honesty in the use of materials.
4.3 Honesty is extended to all building apparatus by visible use of pipes and manifest conduits. The buildings are clear of what they are made of, and how they work, and there is not another thing to see except the play of spaces [m]. Up to the mid-1950s truth to materials remained an essential percept of Brutalist architecture, manifesting itself initially in an obsessive concern for the excessive articulation of mechanical and structural elements, as in Alison and Peter Smithson, Sheffield University extension of 1953 [9]. Figure 3.
4.4 Brutalist buildings are usually constructed with repeated modular elements forming masses representing specific functional zones, distinctly articulated and grouped together into a unified whole. This is mostly apparent in the iconic Brutalist building of Boston City hall, Figure 4.
There are many ways to study and research urban, architectural and technical design, and there are many variables and characteristics. Buildings are set within contexts including the spatial one, the ecological, economic, cultural and political contexts. Virtually, typological thinking cannot be separated from the consideration of context. According to Rossi (1984), the study of typology was based on relationships between buildings and the city. In his book, The Architecture of the City, typology becomes readily identifiable when regarding architectures as urban artifacts. As a public space closely interrelated with city life, the city is regarded as an assemblage of referential elements under the tradition of typology, which is isomorphic to architecture [11]. Christopher Alexander (1964) shares the same view when studying form in relation to context, he suggests that it is important that the form is well fitted to the context, and suggests mathematical sets that analyze and synthesize the form and the good fit within context [12]. British architect Alan Colquhoun drew an analogy between architecture and language; he indicated that our study of buildings and architecture could be syntactic or semantic, similar to the semantic theory about metalanguage and
object language, the design languages in architecture also need to be distinguished into different levels of hierarchy [13]. As Giulio Carlo Argan once argued, an architectural type is a summary of architectural designs with common characteristics, conveyed in a schema [14]. An architectural schema is the result of analysis using different variables of Form, Structure, Function and Material, Table 1.

Table-1 Form, Structure, Function, and Material as Components of Architectural Schema.

<table>
<thead>
<tr>
<th>Form (State of Dispersion)</th>
<th>matter</th>
<th>space</th>
<th>image</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mass</td>
<td>division</td>
<td>appearance</td>
</tr>
<tr>
<td>Structure (Separations and Connections)</td>
<td>construction</td>
<td>articulation</td>
<td>composition</td>
</tr>
<tr>
<td>Function (External Action)</td>
<td>physics</td>
<td>use</td>
<td>meaning</td>
</tr>
<tr>
<td>Material (Attributes)</td>
<td>utility</td>
<td>aesthetics</td>
<td>tactility</td>
</tr>
</tbody>
</table>

The variables can be tested using a method called ‘operationalizing’, which tends to tie theoretical ideas to evidence [15]. The level at which the characteristic to be researched is represented is called ‘validity’, the level at which the ranking or measuring approaches reality is called the ‘reliability’. The aim of ‘operationalizing’ is to make a certain characteristic F that alone is an immeasurable characteristic, accessible for more quantitative research. If the value of the named variable x is high for a certain case it will certainly increase the reliability. Other different computable variables are probably needed to assert the operationalization, Table 2.

Table-2 Method of ‘Operationalizing’ using Validity and Reliability [10].

<table>
<thead>
<tr>
<th>VALIDITY</th>
<th>RELIABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>F(X,Y,Z,M)</td>
<td>F(X,Y,Z,M)</td>
</tr>
<tr>
<td>Reality</td>
<td></td>
</tr>
</tbody>
</table>

F = characteristic to be tested.

These buildings are examined with reference to the global characteristics of Brutalist Architecture, which can be summarized in four main codifying variables (x,y,z,m) as follows:

x = Buildings have formal, axial plans that exhibit the basic structure.
y = Concrete as building material in its brut form without any paint, or treatment.
z = Honesty is extended to all building apparatus where pipes and manifest conduits and structural elements are exposed and visible.
m = Repeated modular elements forming masses representing specific functional zones; and this is to put it in simple words for Brutalism denotes the following function values:

F (x) = Function is Formal
F (y) = Material is Concrete
F (z) = Structure is Exposed
F (m) = Form is Modular

The reference model chosen is the Boston City Hall, Figure 4, an example of Brutalist architecture from the year 1962, although from a later stage of development of the New Brutalist Style but is a renowned iconic building that represents the major characteristics of the Brutalist Style and is considered an epitome of a ‘type’. The plan of the city hall, Figure 5 is formal with a central space that contains the vertical circulation nuclei like stairs or lifts. Spaces are arranged around the central core formally with the use of corridors and axial means of circulation. This corresponds to the variable (x); i.e. having formal plans and formal arrangement of spaces or functions, with means of axial circulation. This gives the total massing of the building a formality synonymous with the New Brutalism style, Figure 6.
Each characteristic or variable is given a score value weighing from (0-5) with regard to form, structure, function and material as in Table 3.

Table 3 Operationalization for the Boston City Hall Building.

<table>
<thead>
<tr>
<th></th>
<th>Function</th>
<th>Material</th>
<th>Structure</th>
<th>Form</th>
<th>F(x) = Formal (0-5)</th>
<th>F(y) = Concrete (0-5)</th>
<th>F(z) = Exposed (0-5)</th>
<th>F(m) = Modular (0-5)</th>
<th>Score 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>20</td>
</tr>
</tbody>
</table>

As can be seen in Table 3, The Boston City hall building has a total score value of 20, this score value is considered the ‘reliability’ of our test, and will be the bench mark of evaluation for analyzing and codifying the Brutalist Style characteristics in Jordan.

In order to do so, nine architecture cases are chosen from different building categories in Jordan; educational buildings, corporate and banking and governmental buildings, etc. These cases are examined using the same methodology used for the Boston City Hall Building, and the same evaluation scale to find out the score value or the ‘reliability’.
Case I (Housing Bank) Figure 7
Building: Housing Bank
Building Category: Corporate Buildings
Location: Abdali - Amman
Architect: Arabtech Jardaneh; Rasem Badran and Maher Nammari; Amman-Jordan
Year: 1979

<table>
<thead>
<tr>
<th>Function</th>
<th>F(x) = Formal</th>
<th>Material</th>
<th>F(y) = Concrete</th>
<th>Structure</th>
<th>F(z) = Exposed</th>
<th>Form</th>
<th>F(m) = Modular</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
<td>4</td>
<td></td>
<td>5</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

Figure 7. Housing Bank of Jordan by Arabtech Jardaneh, completed 1979.

Case II (Sayegh Tower) Figure 8
Building: Sayegh Tower
Building Category: Corporate Buildings
Location: Abdali - Amman
Architect: Sigma Consulting Engineers; Amman - Jordan
Year: 1978

<table>
<thead>
<tr>
<th>Function</th>
<th>F(x) = Formal</th>
<th>Material</th>
<th>F(y) = Concrete</th>
<th>Structure</th>
<th>F(z) = Exposed</th>
<th>Form</th>
<th>F(m) = Modular</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td></td>
<td>4</td>
<td></td>
<td>5</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

Figure 8. Sayegh Tower by Sigma Consulting Engineers, completed 1978.

Case III (Ministry of Finance) Figure 9
Building: Ministry of Finance
Building Category: Government Buildings
Location: Abdali - Amman
Architect: Sigma Consulting Engineers; Amman - Jordan
Year: 1976

<table>
<thead>
<tr>
<th>Function</th>
<th>F(x) = Formal</th>
<th>Material</th>
<th>F(y) = Concrete</th>
<th>Structure</th>
<th>F(z) = Exposed</th>
<th>Form</th>
<th>F(m) = Modular</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td></td>
<td>4</td>
<td></td>
<td>4</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

Figure 9. Ministry of Finance by Sigma Consulting Engineers, completed 1976.
Case IV (Housing Bank Commercial Centre) Figure 10
Building: Housing Bank Commercial Centre
Building Category: Commercial Buildings
Location: Shmeisani - Amman
Architect: Dar Al Handasah; Beirut - Lebanon
Year: 1978-1980

<table>
<thead>
<tr>
<th>Function</th>
<th>F(x) = Formal</th>
<th>F(y) = Concrete</th>
<th>F(z) = Exposed</th>
<th>F(m) = Modular</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>11</td>
</tr>
</tbody>
</table>

Figure 10. Housing Bank Commercial Centre by, completed 1980.

Case V (Amman Tower Al Burj) Figure 11
Building: Amman Tower (Al Burj)
Building Category: Commercial Buildings
Location: Jabal Amman - Amman
Architect: General Engineering International; Italo Stegher and Sergio Musmeci; Rome-Italy.
Year: 1979-1985

<table>
<thead>
<tr>
<th>Function</th>
<th>F(x) = Formal</th>
<th>F(y) = Concrete</th>
<th>F(z) = Exposed</th>
<th>F(m) = Modular</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>

Figure 11. Amman Tower (Al Burj) by General Engineering International completed 1985.

Case VI (School of Medicine) Figure 12
Building: School of Medicine
Building Category: Educational Buildings
Location: University of Jordan - Amman
Architect: Maher Nammari; Amman - Jordan
Year: 1976

<table>
<thead>
<tr>
<th>Function</th>
<th>F(x) = Formal</th>
<th>F(y) = Concrete</th>
<th>F(z) = Exposed</th>
<th>F(m) = Modular</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>14</td>
</tr>
</tbody>
</table>

Figure 12. School of Medicine - the University of Jordan by Maher Nammari, completed 1976.
### Case VII (Jerusalem Jewel Building) Figure 13
Building: Jerusalem Jewel Building
Building Category: Commercial Buildings
Location: Abdali - Amman
Architect: Waddah Al Abedi; Amman-Jordan
Year: 1979

<table>
<thead>
<tr>
<th>Function</th>
<th>Material</th>
<th>Structure</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>$F(x) = \text{Formal}$</td>
<td>$F(y) = \text{Concrete}$</td>
<td>$F(z) = \text{Exposed}$</td>
<td>$F(m) = \text{Modular}$</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

Score: 13

Figure 13: Jerusalem Jewel Building by Waddah Al Abedi.

### Case VIII (Amman Chamber of Commerce) Figure 14
Building: Amman Chamber of Commerce
Building Category: Corporate Buildings
Location: Shmeisani - Amman
Architect: Diran Bitar Khalaf Consultants
Year: 1975

<table>
<thead>
<tr>
<th>Function</th>
<th>Material</th>
<th>Structure</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>$F(x) = \text{Formal}$</td>
<td>$F(y) = \text{Concrete}$</td>
<td>$F(z) = \text{Exposed}$</td>
<td>$F(m) = \text{Modular}$</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Score: 11

Figure 14: Amman Chamber of Commerce by Diran Bitar Khalaf Consultants, completed 1975.

### Case IX (Amman Old Wheat Mills) Figure 15
Building: Amman Old Wheat Mills
Building Category: Wheat Mills
Location: Mahatta - Amman
Architect: Greek Consultant (Unknown)
Year: 1947-1948

<table>
<thead>
<tr>
<th>Function</th>
<th>Material</th>
<th>Structure</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>$F(x) = \text{Formal}$</td>
<td>$F(y) = \text{Concrete}$</td>
<td>$F(z) = \text{Exposed}$</td>
<td>$F(m) = \text{Modular}$</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Score: 16

Figure 15: Amman Old Wheat Mill 1947-1949.

The average score or reliability average for the nine cases is 14.33 out of 20 which is about 71.67%, which means that the variables (x,y,m,z) for Jordanian New Brutalism approaches 71.67% reality compared to world Brutalist Style characteristics, maintained in the reference model chosen and that is The Boston City Hall.
VI. CONCLUSIONS AND RECOMMENDATIONS

The study shows that there are traces of the Brutalist Style in Jordan, specifically in the city of Amman. With an average of 71.67% characteristics conformance. This is due to the popularity of concrete as a building material among Modernist architects in Jordan at the time of building, and the effect worldwide trends had on Jordanian architecture, especially those concerning the Modernist and Brutalist Style between 1945 and 1980. Unfortunately, Modernist architectural buildings in Amman are not considered valuable heritage, which puts them in the danger zone. This research aims at highlighting Modernist buildings and their sub-styles as vessels of our stories and as important cultural artifacts. Hence, a careful assessment of the political, social, economic and architectural reasons behind their history and realization is of vital importance.

As Modern buildings are ageing, renovating old buildings needs to be considered by decision makers and city officials. Coding and listing of buildings should depend on proper scientific methods that take into consideration all aspects of the building life and historical and architectural value [18] [19].

Recent years have shown a Brutalism redux among contemporary architects in Jordan and worldwide, this revival focuses almost purely on its aesthetics. Unfortunately, there is an ethical dimension to Brutalism that often gets overlooked in these narratives. Studying the origins of this ‘style’ contributes to more understanding of the culture and ethics described most vividly in the conversations that Peter Smithson had with his students over time [20]. In these conversations, he genuinely elaborated on his notion of an architecture that deoids itself from self-expression and symbolism and decoration. Instead, it expresses eternal utility and simplicity.

REFERENCES