



# University of South Australia

## Architectural Research 2

Sean Pickersgill  
Bilal Abou-Mosleh  
100099457

## **Conflicted Architecture**

*'The Architectural Response of permanent structural methods and its connection to war in Lebanon and Palestine/Israel'*

15, 482 Words

## Contents

### 1.0 Introduction

### 2.0 Architecture and conflict

#### 2.1 The Beginning

#### 2.2 Modern warfare and the architectural target

### 3.0 The situation of Palestine/Israel: Eyal Weizman

#### 3.1 Architecture as a tool of war

#### 3.2 The domestic invasion

### 4.0 The sociological and psychological connection

#### 4.1 The psychological effect of war on the civilian population

#### 4.2 The sociological response to war in Lebanon and Palestine/Israel - initial investigation.

### 5.0 Lebanese Construction Method

#### 5.1 Interviews on the methods of construction in Lebanon

#### 5.2 Integrity of construction

##### i) The Holiday Inn

##### a) Identifying sociological implications

##### b) Structural observation and discussion

### 5.3 Residential construction

##### i) Construction Methodology

##### ii) Armored Concrete, Discussions with Tony Khouri and his experience with armored concrete

##### iii) Benefits of the construction typology (conflict specific) - a sociological discussion

##### a) Structural Repairs (Conflict related) - Sociological discussion

### 6.0 Conclusion

### Bibliography

##### i) What can one take from such research?

### Related Image Appendix

ABSTRACT: This paper focuses on the conflict regions of Lebanon and Palestine/Israel. Researching the field, violence prevails through the history of the regions and extensive architectural research on post war reconstruction has been conducted by professionals such as Eyal Weizman and Robert Bevan and an extensive list of professionals throughout the field. Further Research the medieval construction methods of fortification throughout the Islamic region reveals that war and destruction has influenced the design initiative, with the cause being intercultural violence throughout the region which is still present today. My research aims to provide a link to what seems to be ignored through the research of various professionals, of the construction/design efforts postwar, which, in effect of the cause, aim to 'fortify' infrastructure against the next conflict throughout the region. The cause and effect argument began in my observations of travel through the region, inspecting the construction methods, and how well structures are able to hold up to the extensive assault of the enemy. I aim to highlight main historical issues which have influenced such an ideology, with the link of the Israel/Palestine situation through Eyal Weizman's work, in order to produce grounding for the reason of such extreme construction methods. In case studies and extensive research the hope is to achieve this relationship between design and construction initiatives and the history of conflict throughout Lebanon and the Israel/Palestine.

### **1.0 Introduction**

'*The Destruction of Memory: Architecture at war*<sup>1</sup>' by R. Bevan provides the critical understanding of targets of war being one cultures presence in a location, in direct relation to history, culture and ethnicity which is symbolized in a society by the architecture present. Connections such as this are empirical to understand any architectural response, as response is defined by the reaction of an organism or mechanism to a specific stimulus<sup>2</sup>. On a conflicting note, recognized architects Eyal Weizman and Rafi Segal investigate the use of architecture as a control method used by the Israeli Defense Force within the region of Palestine/Israel<sup>3</sup>. This provides the vital link between politics and architecture needed in order to understand the adjustment of architectural thought throughout the region, to conditions specified by conflict and war.

The country of Lebanon in the Middle-East which borders the Israel/Palestine region, has been at continuous civil conflict since 1975. The text of D. Salame '*Memory and commemoration in Beirut: The Holiday Inn in bloom*' stated that the Lebanese civil war prevailed in 1975 and ceased in 1990<sup>4</sup>. Following this widespread period of internal civil conflict, Lebanon has been at a constant clash with bordering Israel. With an extensive history of war, influencing both culture and ethnicity throughout Lebanon, an architectural response is predictable. In the June-July war between Lebanon and Israel S.E. Manning's text '*the second war in Lebanon, was air power able to accomplish the goals of the Israeli Government*<sup>5</sup> revealed that 51 535 buildings were damaged, but only 5431 buildings were destroyed<sup>6</sup>. With such an immense difference within the statistics of buildings damaged in comparison to buildings destroyed, an investigation of the construction methods throughout Lebanon in order for the infrastructure to withstand such extensive bombing is needed.

### **2.0 Architecture and Conflict:**

In discussions with Lebanese Architect Majid Takyidien and thesis supervisors Doctor Chris Brisbin and Dr. Sean Pickersgill, it was decided that it is important to understand the psychological state of a population and the direct influences on architecture. We cannot ground such research on a specific period of time, without researching the beginnings of the culture and the influence, if any, of war and destruction. In Medieval times, the ideology of

---

<sup>1</sup> Bevan, R. (2006), *The destruction of memory - Architecture at war*, Reaction books, London

<sup>2</sup> (1999), *Webster's compact dictionary of the English language*, Trident Press International, USA

<sup>3</sup> Segal, R., Weizman, E., (2003), *A Civilian Occupation - The politics of Israeli architecture*, Babel publishers, Tel-Aviv

<sup>4</sup> Salame, D., (February 2010), *Memory and Commemoration in Beirut: The Holiday Inn in Bloom*, Concordia Undergraduate Journal of Art and History, Lebanon Volume 26.

<sup>5</sup> Manning, S.E., Submitted to Dr. G Schaub, *The second war in Lebanon, was air power able to accomplish the goals of the Israeli Government*, Air war College, Air University, United States Air-Force

<sup>6</sup> Manning, S.E., Submitted to Dr. G Schaub, *The second war in Lebanon, was air power able to accomplish the goals of the Israeli Government*, Air war College, Air University, United States Air-Force

defense throughout the Islamic region was a basis to architecture and design<sup>7</sup>. Beginning to investigate the means of this ideology, we begin to uncover initial measures taken throughout the Islamic region to protect ones culture and ethnicity through the territorial defense ideology of 'fortification'. This study into the beginnings of military used structures, and the design of the urban fabric for defense, is a crucial link to any research of this type, for it provides grounding by historical means to the population's initial psychological connection between architecture and defense.

## 2.1 The Beginnings

According to the texts of David Nicolle and Adam Hook '*Saracen strongholds 1100 -1500: the central and eastern Islamic lands*'<sup>8</sup>, one of the first fortifications in the Islamic region was the Fatimid palace city of al Qahira (Cairo), which had 3 major gates on its outside walls, Bab al-Futuh, Bab al-Nasr and Bab al-Zuwaylah, which were designed by one of the Islamic region's first Jamalid Wazir's (high political leader), Badr al-Jamali between 1087 and 1091.<sup>9</sup> These fortifications were in response to the threat of the Seljuk Turkish, which appeared in the Islamic region as a threat almost a decade before the crusaders.<sup>10</sup> Furthermore, within the same period, both the Jerusalem and the Iranian fortifications were also updated and re-enforced due to the Seljuk Turks threat.<sup>11</sup> The previous building material throughout the region had been brick, with very few important structures being built of stone. The triumph through the region of stone over brick was in direct cause to the movement of Badir al-Jamali, with the fortification of Cairo<sup>12</sup>.

This is an important revolution in the research as in response to threat in the medieval period of the Islamic region, fortification and re-fortification occurred, thus the aim of the research, being to identify the modern response of architecture on conflict and war throughout the regions of Lebanon and Israel/Palestine, has now been grounded through historical means. As we continue to research the medieval fortification, we begin to reveal that not only were main central elements fortified, in addition buildings with various meanings and cultural values were fortified<sup>13</sup>. The religious complex of Jamal al-dean in Anou, central Asia, was clearly intended to be a defense structure. The religious complex consisted of an irregular, four sided, fortified enclosure with round semi circular military tower's in three walls and a fortified gate in the forth. This fortification of a religious monument meant that a threat towards culture was present, and in turn the need to fortify and protect historical, cultural and ethnic means was prevalent. An important aspect here must be noted, the architectural conditions of fortification around such religious buildings, means that a psychological threat of war targeting religion in this circumstance was present. This gives an important link to the texts of R. Bevan '*The Destruction of Memory: Architecture at war*', where he discussed the importance of architecture among history in preserving a cultures presence in a location, and how in direct terms war targets the presence of culture, history and ethnicity of a population within in a region in order to succeed<sup>14</sup>.

---

<sup>7</sup> Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America

<sup>8</sup> Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America

<sup>9</sup> Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America

<sup>10</sup> Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America

<sup>11</sup> Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America

<sup>12</sup> Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America

<sup>13</sup> Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America

<sup>14</sup> Bevan, R., (2006), '*The destruction of memory: Architecture at war*', Reaktion Books, London, UK

The downfall of fortification through the Islamic region, referring to the texts of Nicolle, was directly related to the changing importance of the town or city ideal, which was in direct cause of advancing military technologies<sup>15</sup>. With this downfall, although the aesthetic of fortification met its demise, the psychological aspect of civil unrest prevailed which is clear in researching the architecture of the region in present day context.

## 2.2 Modern warfare and the architectural target

Since 2004, there have been thirty active armed conflicts around the globe, many of which are grounded in contested group rights, or threatened collective identity.<sup>16</sup> According to the texts of Edward Charlesworth 'Architects without frontiers: war, reconstruction and design responsibility', Cities with inter-ethnic conflict, such as Beirut, Lebanon and Palestine/Israel have three main motivations:

1. **Conflicts of a religious or ethnic nature:** The concept of 'cleansed' cities, promoted by ethically motivated politicians, has resulted in separatism and the creation of mini-apartheid states within communities segregated neighborhoods have been flustered where a rich multi-ethnic interaction formerly existed.
2. **Conflict of a civilian character:** Many cities have been/become increasingly targeted in today's conflicts, with once-cosmopolitan centers turning into battlefields as for example Beirut, where the conflicts have been spread by the wide-spread proliferation of small arms, anti personnel land-mines and second hand weaponry.
3. **Conflict between the 'have' and 'have not's':** This urbanization of war is not just about ethnic divisions, it is also a war between the 'have' and 'have not's'. It's all about long-ignored rural communities, who, through violence, make a statement against the urban centers that have always received greater attention and better treatment, for example the current conflict within Libya, Syria and Egypt.<sup>17</sup>

These aspects are important to understand as they all now incorporate the violence of war within inter-ethnic conflict, with the civilian population. This is occurring throughout Beirut and Palestine/Israel, as the urban context as a whole becomes the war zone. This is a crucial point within the research as we address the 'new battlefield' which exists amongst the civilian population. As stated within the texts of R. Bevan, '*...this has involved a shift of warfare from battlefields and the high seas, to the use of the city and the civilian populations as strategic targets both through conflict in the city and directed at the city.*'<sup>18</sup> With changing conditions of city after the stage of fortification failed to meet the requirements of advancing military technology, cities throughout the region were set in strategic sites such as hilltops and coast lines for example.<sup>19</sup> This empirical design choice, in turn made cities the targets of wars.

As Lebanese Politician Ghassan Tuani remarked in 1998, '*Destruction caused by war and the subsequent erasure of civic memory in destroyed cities is critically different from that of ghettoes and riots, one fundamental difference is between the systematic and strategic destruction of significant monuments and pre-war icons, such as Beirut's downtown district.*'<sup>20</sup> As the text of Charlesworth goes further to describe, '*There has always been another war against architecture going on - the destruction of the cultural artifacts of an enemy people or nation as a means of dominating, terrorizing, dividing and eradicating it all together*'<sup>21</sup> It is an important fact to note, that wars moved into the city however, only in the 20<sup>th</sup> century as the major site of destruction and death, in effect of the invention

---

<sup>15</sup> Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America

<sup>16</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>17</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>18</sup> Bevan, R., (2006), '*The destruction of memory: Architecture at war*', Reaktion Books, London, UK

<sup>19</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>20</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>21</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

of aerial bombing in Second World War.<sup>22</sup> An important result of cities being targeted by war was highlighted within Charlesworth's texts 'For cities with the history of war, or an area with the ideologies of war through the population, were often designed for war or influenced throughout the design by war.'<sup>23</sup> This fact begins to approach the design of the urban fabric of a city, in direct response to war throughout a culture, yet a crucial component is missing, the structural response of individual built modules, to the conditions of war.

Although measures to prohibit hostilities against historic monuments, works of art or places of worship, which constitutes the cultural or spiritual heritage of people, have been made by the United Nations in such acts as the 'military necessity waiver' or the 1954 and the 1977 additional protocols to the Geneva convention, these were unsuccessful in preventing the destruction of such areas, and thus this research is needed. Perhaps one of the most important recent examples of the failure of such measures is the eve of the United States of America's invasion on Iraq, on February 2003, where the Military released, in the US Air Force Association's magazine, 'In search of lawful targets', there was no mention of the conventions preventing the targeting of such sights.<sup>24</sup>

### **3.0 The Situation in Palestine/Israel: Eyal Weizman**

Eyal Weizman focuses on researching the segregation of the Palestinians from the region of Palestine/Israel, by the Israeli Defence Force. Using the research of Eyal Weizman this paper will focus on the use of Architecture throughout the region to control the Palestinian people, highlighting key issues and effects of such methods on the Palestinian culture. Furthermore exploration into the Israeli Defense Force attack strategy will be explored, in order to see what level of Domesticity is involved throughout the violence in the region.

#### **3.1 Architecture as a tool of war**

Throughout Eyal Weizman's research, he focuses on different measures of urban de-territorialization, by the Israeli Defence force, and using the urban fabric as a tool of conflict. In Eyal Weizman's text 'Aerial Sharon and the geometry of occupation' part one of a three part series, he begins by discussing the violation of Palestinian rights, not only by the constant blows of the Israeli Defense Force, but of a much steadier process in which the totality of the environment around them is configured around the Palestinians as an ever tightening knot.<sup>25</sup> The initial point of interest relative to this research in Eyal Weizman's paper, which is relative to architecture and the use of architecture for control, is the role of the Jewish Settlements throughout the region. The outward-facing arrangement of homes orients the view of its inhabitants towards the surrounding landscape in which 'national interests' are concerned — Main roads, junctions and Palestinian urban areas, compose part of the picturesque panorama.<sup>26</sup> The reason for this is so the Israeli Defense force is able to keep an eye on all that surrounds it, in order to monitor the landscape, a 'panoptic fortresses'.<sup>27</sup> Furthermore, the role of settlements as observation and control points promoted a particular layout of their urbanity. The role of mountain settlements and the urban fabric is concentric, as the roads enclose a full ring around the summit allowing for the panoptic fortress to be complete.<sup>28</sup> In areas where the Palestinian population grew too large for the likings of the Israeli Defence Force, these settlement observation points were wedged in between the centers, where Palestinians were restricted

---

<sup>22</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>23</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>24</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>25</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 1', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>26</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 1', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>27</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 1', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>28</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 1', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

entry, in order to separate communication between the two halves.<sup>29</sup> An interesting way in which Eyal Weizman summarized this situation is *'The small red roofed single family home replaces the tank as the smallest fighting unit, district regional and municipal plans replaced the strategic sand table.'*<sup>30</sup>

Perhaps the most important feature of the Israeli Defense Force using built infrastructure to control the Palestinian nation's freedom, begins with the traffic arteries separated across the national lines: *a six lane by pass roads on which military vehicle and Jewish civilian vans can rush between settlements contrast with the narrow, informal dust roads connecting Palestinian towns and villages.*<sup>31</sup> An interesting research by a group called 'Multiplicity' demonstrated the effects on the Palestinians, by showing that it takes an Israeli 90 minutes to cross West-Bank from north to south, whilst it takes a Palestinian driver 8 hours and that is only if the roads are opened by the Israeli Defense force.<sup>32</sup> In addition, the Palestinians are now surrounded by a separation fence, or what the international Media refers to as the Wall, which was built around the Palestinians, not around the Jewish settlements, in order to not restrict the Jewish nation's potentiality to grow. When this fence nears Palestinian Settlement areas, the tactical shoot through fence, transforms into an 8 meter high bullet proof wall with guard towers and firing posts above.<sup>33</sup> According to the organization of Human rights group 'B'Tselem' an approximate number of 210 000 Palestinian life's are affected by the IDF's walls, with irreversible damage to the economical prospect of the Palestinian state.<sup>34</sup>

The use of Fortification, in this instance through the region of Palestine/Israel, is no longer for defensive means, but rather for the means of control. The IDF has surrounded the Palestinians ability to privatize settlements, and aim to control all Palestinian settlements, in order to achieve 'national safety'.<sup>35</sup>

### 3.2 The domestic invasion

Other than the control of the Palestinian Urban Fabric, furthermore, what Eyal Weizman's research in his text *'Hollow land'* reveals, is the Invasion tactics of the Israeli defense force into the Palestinian Settlements. Soldiers of the IDF avoid using streets, roads, alleys and courtyards that define the logic of movement through the city as well as the external doors, internal stairwells and windows that constitute the order of the buildings. Rather they punched holes through party walls, ceiling and floors and moving across them through paths of the domestic interior hollowed out of the dense city fabric.<sup>36</sup> Fighting took place within half demolished living rooms bedrooms and corridors. Eyal Weizman states that 'it was not the given order of the space that governed patterns of movement, but the movement itself that produced the space around it.'<sup>37</sup> Fighting took place within un-suspecting occupants living rooms as Eyal Weizman states, 'The un-expected penetration of war into the private domain of the home has been experienced by the civilians in Palestine, resulting in the most profound form of trauma and humiliation.'<sup>38</sup> As a Palestinian interviewed by Eyal Weizman stated, pointing at a wall with a bookcase against it, 'and this is where they left out of the wall and through to the next house.'<sup>39</sup>

---

<sup>29</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 2', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>30</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 2', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>31</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 2', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>32</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 2', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>33</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 2', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>34</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 2', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>35</sup> Weizman, E., 'Aerial Sharon and the geometry of occupation, part 2', published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>

<sup>36</sup> Weizman, E., (2007), *Hollow land: Israel's architecture of occupation*, Verso, London

<sup>37</sup> Weizman, E., (2007), *Hollow land: Israel's architecture of occupation*, Verso, London

<sup>38</sup> Weizman, E., (2007), *Hollow land: Israel's architecture of occupation*, Verso, London

<sup>39</sup> Weizman, E., (2007), *Hollow land: Israel's architecture of occupation*, Verso, London

#### **4.0 The Sociological and psychological connection**

The link between war and the Civilian population needs to be analyzed before continuing research on the effect of war on architecture throughout the regions of Lebanon and Palestine/Israel. As state in the texts of Charlesworth, *'While the civilian urban populations have been severely affected by this surge in inter-ethnic warfare, they have suffered more recently, in relative terms, than during any other period.'*<sup>40</sup> The statistics state that in the First World War, 43% of all battle related deaths were civilian, in the Second World War 59% of all battle related deaths were civilian, remembering that this was the stage where air-raid technology begun, and since then, during a period where the number of conflicts within states overtook the number of conflicts between states, 74% of all battle related deaths were are civilian. This means that throughout time, the civilian exposure to conflict has increased, and it is important to explore the effects on the civilian psychological state, in order to understand their response to architecture.

#### **4.1 The psychological effect of war on the civilian population.**

*'the continual state of siege from armed military and civilian conflict that cities such as Beirut, Palestine/Israel ext. suffered in their respective countries civil war's created deep political and psychological trauma. Again, such trauma has often fostered over decades of ethnic hostility and cannot always be equated with that resulting from random urban violence.'*<sup>41</sup> Many professional opinions throughout the field of architecture such as Liebskind and Wigley, discuss the process of destroying iconic buildings, monuments and streetscapes as using 'nostalgia' as a 'lethal weapon'. Taking this theory into account it is interesting to research the meaning of Nostalgia before moving on, in order to create a benchmark to refer to in the direct influence of war on the civilian population before exploring the connection between infra-structure and war. The definition for nostalgia according to the Webster's compact dictionary of English is *1. Severe homesickness and 2. Any longing for something far away or long ago.*<sup>42</sup> Thus, we see how the reference to the ideology of Nostalgia being used as a weapon works, in order to defeat a society, by taking away, or destroying, what they treasure the most. Circumstances like this are relevant to Beirut and the city centers throughout Lebanon destroyed by inter-ethnic conflict.

Another important issue in discussing the psychological effect of war on the civilian population, within the regions of Palestine/Israel, is the manner in which the urban fabric around the Palestinians, due to Inter-ethnic conflict within the region, is being controlled against them. The study of Eyal Weizman lists the various issues throughout the region, describing the lifestyle of the Palestinian people being completely out of their reach, and controlled by the IDF. But an issue that has not been approached within the texts is the response from the Palestinians. How are the Palestinians responding to the psychological and traumatic effects of the IDF's extensive attack? This gives a scenario of cause and effect once again, with the exploration of the effect of the Israeli's Defense Force's mechanisms of defense, on the design of the Palestinians Infra-structure.

#### **4.2 The sociological response to war in Lebanon and Palestine/Israel - initial investigation.**

With the background knowledge of the conflicts affecting the region, with direct links to war, it is now important to focus on society's response to these aspects, which will be investigated within this research paper, focusing on the sociological response of construction means and design initiative. Here, the research of the architectural effect begins by my initial travels to Lebanon and my observations of a residential property in Quaberchmoun, Mount Lebanon. The residence I observed was a war damaged residence with an important feature; half the house was standing, while the other half of the house had been hit by an artillery rocket and destroyed (*Figure 1.a*). This had the exposed steel showing, which made me wonder how much structural integrity the owner or builder intended the house to have. When discussing the issue with my father, Houssam Abou-Mosleh, a Lebanese man living in Australia for the past 26 years, currently constructing a house in Lebanon, he stated "it's not only over engineered,

---

<sup>40</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>41</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>42</sup> Webster's Compact Dictionary of the English language, (1999), Trident press international, United States of America



it is immensely overkill engineering, and the reason for this is tradition, it is something one man does and the other man follows, and it's been like this for as long as I can remember".<sup>43</sup>

Here, an interesting issue needs to be discussed. The ideology of the immense structural integrity of the built form throughout the region of Lebanon is approached as exactly that, an ideology. Further investigation into the reasons behind such structural integrity need to be discussed further, but first investigation into the construction methods of the region need to occur.



Figure 1a  
House in Quaberchmoun hit by artillery  
17<sup>th</sup>/12<sup>th</sup>/2010  
Image Taken by:  
Bilal Abou-Mosleh

### **5.0 Lebanese Construction Method**

'The Lebanese House'<sup>44</sup> by F. Ragette listed the method of construction used in Lebanon for residential purposes. This included a foundation where structural pillars are taken down to bedrock level or a minimum of 2 meters underground, and the residence was built in skeletal structure, with 3 layers (exterior leaf of concrete blocks, interior leaf of concrete blocks and a cavity filled with rubble) with a minimum thickness of 500mm. the ceiling construction seen throughout the region is a steel re-enforced slab of concrete at a minimum thickness of 500mm<sup>45</sup>. An interview with Naji Abi-Mosleh<sup>46</sup>, an ex-construction manager in Lebanon, was conducted for further investigation into the construction methods of the region. An interesting fact was his opinion on the initial reinforcement pillars set in place for all construction to take the load of a building. This can be further explained after we discuss the initial observations of the research and why we came to observing residential construction throughout the region as evidence to the theory.

---

<sup>43</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011)(9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>44</sup> Ragette, F., (August 8, 1997), *Traditional Lebanese Architecture Part 2: Restoration*, Lebanese Environmental Magazine, The Levant, Lebanon, Volume 34

<sup>45</sup> Ragette, F., (August 8, 1997), *Traditional Lebanese Architecture Part 2: Restoration*, Lebanese Environmental Magazine, The Levant, Lebanon, Volume 34

<sup>46</sup> Abi-Mosleh, N., Interview with Naji Abi-Mosleh, (4<sup>th</sup>/07<sup>th</sup>/2011)(7:47pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

### 5.1 Interviews on the methods of construction in Lebanon

During my Interview with Naji Abi-Mosleh, he remarked an interesting fact in Lebanese construction; “We don’t avoid the bedrock or hard rock beneath our soil; we make use of it, drilling through them to create a cavity for the structural pillars, utilizing the strength of what is there”<sup>47</sup>

When discussing the issue of structural integrity in residential construction Naji highlighted an important aspect which proved how strong initial foundations were. Taking a walk through the village Ain Ksour, many buildings rise 5 to 6 storey’s high. When asked if much work was needed in order to do so, he explained an important aspect of Lebanese construction terminology “hawa el sate7”, in direct translation meaning the air of the roof. He explained that the roof was always a potential construction area, and that when levels were built on top no additional supports were required due to the structural integrity of the initial property being so great that it could hold the load. When asked why the initial property was built with such structural integrity he replied “This is the way that we build”. Once again, here a response which refers to the sociological ideology throughout the region, as discussions with Houssam Abou-Mosleh revealed, of the concept of over engineering structure is not relevant in the region, for it is the method of building, thus making it an important point of investigation, why?

Referring back to the interview with Houssam Abou-Mosleh, he had a very interesting fact from an outsider of sort’s point of view, “...Everything is permanent and solid, the floor, roof and structural pillars are all steel re-enforced concrete and the walls are no less than half a meter thick, solid concrete. The structural integrity of housing throughout the region is so great that it is hard to understand until one goes there and experiences construction.”<sup>48</sup> When discussing the issue of over engineering throughout the region, it is important once again to note that he remarked, “it’s not only over engineered, it is immensely overkill engineering, and the reason for this is tradition, it is something one man does and the other man follows, and it’s been like this for as long as I can remember”.<sup>49</sup>

### 5.2 Integrity of construction in Lebanon

In order to investigate the structural Integrity of built forms throughout the region, we will investigate a key case study and analyze how well architectural recovery transcended post conflict. In this paper we will focus on a key structure in order to analyze how well the structure survived various assaults. Initially, we will investigate the Holiday Inn on the Rouche in Beirut, Lebanon with the intent of explaining the initial observations which triggered further research into residential construction. This is a key example of the most predominant large scale form, which has survived the history of large scale strikes against the structure. It is important that we study such an example in order to initially experience the immense and un-documented efforts of structural integrity. As Houssam Abou-Mosleh stated, as the structural integrity of the built form is so great, it is hard to explain until one goes there and experiences it for themselves. My trip to Lebanon allowed me to do so, and thus I will describe the experience of viewing such a structure and the importance of the structures in my opinion, through my investigations of the built form, and interviews with locals on site.

#### i) The Holiday Inn

In order to discuss the Holiday Inn and its presence on the rouche coast line in Beirut, Lebanon, it is important to discuss the History of such a built form before beginning to dissect certain aspects relative to the topic. Initially we will begin our investigations by reading D. Salame’s paper titled *‘Memory and commemoration in Beirut: The Holiday Inn in bloom’*<sup>50</sup>. The Holiday Inn was built between 1971 and 1974 and designed by French architect Andre

---

<sup>47</sup> Abi-Mosleh, N., Interview with *Naji Abi-Mosleh*, (4<sup>th</sup>/07<sup>th</sup>/2011)(7:47pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>48</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011)(9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>49</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011)(9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>53</sup> Salame, D., (February 2010), *Memory and Commemoration in Beirut : The Holiday Inn in Bloom*, Concordia undergraduate Journal of Art and History, Lebanon, volume 6

<sup>50</sup> Salame, D., (February 2010), *Memory and Commemoration in Beirut : The Holiday Inn in Bloom*, Concordia undergraduate Journal of Art and History, Lebanon, volume 6

Wogensky and his Lebanese collaborator Maurice Hindie<sup>51</sup>. During the war which begun in 1975 and ceased in 1990, various Militias occupied the Holiday Inn due to its Height and location which made it a strategic position during conflict in the area<sup>52</sup>. Unlike other hotels throughout Beirut which were severely damaged by the war but later renovated, this structure still remains as a scar of war highlighting Beirut's cost line<sup>53</sup>. This is important to the initial investigations of the topic throughout the region in Lebanon, as it gives us a clear image of the immense destruction which occurred, and allows us to investigate the problems of restoration in present tense.

The Holiday Inn, Is owned by a joint-stocks company called St-Charles which is majority owned by a Kuwaiti Sheikh<sup>54</sup>. According to Salame's paper, it has recently been decided that the building will be restored and turned into a hotel again. Furthermore, D. Salame states that since the structure is so large in size, it would be fairly expensive to restore, but even more so to destroy the building.<sup>55</sup> This is a crucial factor in investigating the structural integrity of the building, not only is it able to withstand airstrikes and being in the depths of the Lebanese civil war for 15 years, but it is still able to be restored to a condition where it is to be habitable without sacrificing the stability of the structure. Investigation into academic texts to analyze information about the structural integrity of the Holiday Inn and its abilities to perform so well at war provided no reasonable guidelines or answers throughout my research. It was decided that an investigation on the topic be done first hand by exploring the structure and refining the research into a direct experiential moment which would give the required clarification needed in this particular situation.

a) *Identifying sociological implications*

My travels to Lebanon allowed me to experience and discuss the issue with residents of the country and broaden the context in which we understand the large structure. As displayed in figure 2a, the experience of arriving at the Holiday Inn needs to be expressed in order to understand the importance of the Holiday Inn in Lebanon. The abandoned colossal structure stands solid, playing an important role in the visual perception of the rouche area. You find yourself drawn towards the structure as a force acts upon you to explore this abandoned building which has obviously lived through times that were challenging to the people of the region, and reveals its storey throughout its façade clearly. As I got closer to photograph the Holiday Inn, an army officer intervened and advised me that it would be wise not to photograph the lower half and foundations of the building as it was now used as an army base. On observation of the lower half of the structure, tanks take their position within the building on both the ground and first floor. I then went further as to ask the army officer if he could inform me of the history of the building and his response was crucial to the investigation. He discussed the importance of the location, with an attitude clearly displaying how attached he was to the building and the history behind the structure. Moreover, watching citizens pass by the structure as if they were immune to its effect clarified the need for this research in order to explore the extent of the effect of war on the people of the region.

The significance of the psychological effect of war on the region is an important factor to consider when investigating the infrastructure throughout the region. The army officer's commitment in describing the history of the building as well as people dealing with the structure as nothing more than that; a structure, reveals a key sociological factor which must be approached in order to successfully investigate the situation throughout the region. This sociological factor is that the people throughout the region are directly influenced by the destruction of war on a regular basis; via visual perception as clearly indicated by the Holiday Inn, which has therefore created a sense of norm when confronting such devastated structures.

---

<sup>51</sup> Salame, D., (February 2010), Memory and Commemoration in Beirut : The Holiday Inn in Bloom, Concordia undergraduate Journal of Art and History, Lebanon, volume

<sup>52</sup> Salame, D., (February 2010), Memory and Commemoration in Beirut : The Holiday Inn in Bloom, Concordia undergraduate Journal of Art and History, Lebanon, volume 6

<sup>53</sup> Salame, D., (February 2010), Memory and Commemoration in Beirut : The Holiday Inn in Bloom, Concordia undergraduate Journal of Art and History, Lebanon, volume 6

<sup>54</sup> Salame, D., (February 2010), Memory and Commemoration in Beirut : The Holiday Inn in Bloom, Concordia undergraduate Journal of Art and History, Lebanon, volume 6

<sup>55</sup> Salame, D., (February 2010), Memory and Commemoration in Beirut : The Holiday Inn in Bloom, Concordia undergraduate Journal of Art and History, Lebanon, volume 6

As such, an influence is now present in our investigation on the structural properties of buildings, as the progression of the society and its history is directly related to the destruction of war; which is a regular occurrence throughout the region.



Figure 2a  
Holiday Inn on the Rouche, Beirut Lebanon  
20<sup>th</sup>/6<sup>th</sup>/2011  
Image taken by:  
Bilal Abou-Mosleh

#### b) Structural observation and discussion

During observations of the abandoned Holiday Inn structure on the coastline of the Rouche in Beirut Lebanon, I observed interesting structural qualities throughout the pillars and the façade. Figures 3a, 3b, 3c and 3d display the initiation into investigations on structural integrity. It is clear that there is a presence of over engineering throughout the structure of the holiday inn when referring to the history of damage the structure witheld at war. Figure 3a displays an observation of one of the structures reinforced pillars with exposed steel reinforcement. Investigation into these engineering initiatives of the design.

It is key to note that the following are investigated observations of the structure, not engineering specifications. This is an architectural investigation to find the true effect of war on architectural structures throughout the region and discussion on engineering factors and building method found through observation which can be related back to the issue being discussed. The findings have been found through research and discussions conducted first-hand, with the limited resources available on the specific topic being investigated.

Initially we find the extent of damage done to the structure, as observed through figures 3a and 3b; we find that in some cases the sub-framing within the structure damaged, and in severe cases even missing all together. The relevance of these images is to be able to comprehend the extent of damage done to the structure, not being clearly visible in images which show the structure as a whole. If we refer to images 3c and 3d, we observe the important factors which fueled the research towards construction methodologies and observed engineering initiatives, with the structural beams exposed steel re-enforcement. In figure 3d, we can clearly see that the exposed area on the reinforcing beam reveals 12 steel reinforcing rods in the space of approximately 500mm.



Figure 3a  
Holiday Inn on the Rouche, Beirut Lebanon  
20<sup>th</sup>/6<sup>th</sup>/2011  
Image taken by:  
Bilal Abou-Mosleh



Figure 3b  
Holiday Inn on the Rouche, Beirut Lebanon  
20<sup>th</sup>/6<sup>th</sup>/2011  
Image taken by:  
Bilal Abou-Mosleh



Figure 3c  
Holiday Inn on the Rouche, Beirut Lebanon  
20<sup>th</sup>/6<sup>th</sup>/2011  
Image taken by:  
Bilal Abou-Mosleh



Figure 3d  
Holiday Inn on the Rouche, Beirut Lebanon  
20<sup>th</sup>/6<sup>th</sup>/2011  
Image taken by:  
Bilal Abou-Mosleh

Figure 3D has provided us with an important note, that every column we see is a re-enforced concrete load transferring component. Furthermore, from the exposed steel re-enforcement we can clearly see the large number of steel re-enforcement rods, throughout each beam of the structure. If we refer to figure 3E, we can observe the depth of each column and from figure 2a how often these columns occur. These structural observations along with the facts of how heavily bombarded with airstrikes and constant militia clashes throughout the 15 years of Lebanese civil war, allows one to observe a structure which was indefinitely over engineered in-regards to its true purpose. It still stands solid, enough so not to be a risk to surrounding buildings as well as its capability to be restored. The issue that St. George faces is not the ability of whether or not the building can be restored, but the expense in restoring such a structure to a 5 star hotel.



Figure 3E  
Holiday Inn on the Rouche, Beirut Lebanon  
20<sup>th</sup>/6<sup>th</sup>/2011  
Image taken by:  
Bilal Abou-Mosleh

It is important to not get too involved in the investigation of such a multi-storey structure, as it would take extensive research and observation capabilities; which are restricted due to reasons discussed above, but to take the observations and sociological impact recorded and move further into the exploration of the sociological implications of such structures within the region on a psychological and influential level. Thus, learning from these structural abilities as an insight, we must move forward and be more specific in investigating how the average person throughout the region has reacted to such a re-occurring violent history in relation to the construction of specific structures. It was decided that the best way to do so would be to observe residential construction methods, as this would be to more of a personal level, rather than commercial construction.

Furthermore, an important reason why not to focus on large-scale commercial architecture throughout Beirut as an identification of such an affect on a culture and the way in which they design, is that in Beirut it is well known

that many of the commercial multi-storey constructions which occurred; and which still occur, belong to international investors<sup>56</sup>, and many of which are designed and constructed by foreign companies and firms. As Bernard Khouri discusses in a paper for '*L'Architecture d'Aujourd'hui*', the damage throughout Beirut is not from the war but rather a distressing amount of anarchic real-estate moves. The actual culture and heritage of Beirut is fast demising and sold as a false statement of historical meaning and context, owned by the private sectors and rich international investors.<sup>57</sup> Thus the best resolution for such an investigation would be to focus on residential structures, as not only do they belong to the people of the region, but we could directly be informed of concerns and intentions by a selection of individuals throughout the region and compare it to the beliefs gathered throughout the Holiday Inn observations.

### 5.3 Residential construction

It is important that we understand at a bare minimum, the basics behind a residential construction within the region of Lebanon, in order to continue the discussion on a sociological level, with the right background of understanding. In this section we hope to not only investigate the construction methodology through discussions with Houssam Abou-Mosleh, Rasheed Amin el-Dien and Tony Khouri, who have all successfully built residences within the region at hand, but furthermore, discuss what type of issues they face when the region is at war, and what type of un-documented assistance does such a structure attain when faced with such a situation. The aim is not to affirm a pure connection of war and architecture, but that architecture within the region is constructed with concerns of warfare at hand. Thus the desired result of such an investigation would allow us to confirm a response to particular issues in regards to warfare, when designing/constructing a residential structure.

#### i) Construction Methodology

Initially, to gain the construction knowledge needed in order to discuss such sociological responses to the structures throughout the region during warfare, I discussed the construction methodologies with two people who are familiar with typical building methods throughout the region. Houssam Abou-Mosleh, A registered Australian builder who has knowledge of building several structures within the region of Lebanon, and Rasheed Amien el-Dien, during the interview was constructing a second storey residence on 'hawa el Sata7', which we discussed previously meaning; in literal translation, the air on the roof, and furthermore had knowledge of constructing multiple residences throughout the region. The discussion revealed an indepth step by step analysis of construction of a residential structure within the region, which is to be observed in figure 4a.

To begin with we will discuss the construction method excluding section G, as this is an alternate building method which was discovered in talks with Tony Khouri; a project manager specific to the region, at a later date. Initially discussing construction methodology with Houssam Abou-Mosleh and Rasheed Amien al-Dein, they begun by explaining how the pillars are almost always drilled in residential construction. This drilling is in order to get the foundations of the structural pillars deep into the ground and even into the bedrock in order to increase the structural support of the residence, when asked where these pillars are placed, or what determines them, the response was "the pillars are placed at every corner of the structure, wherever there is two perpendiculars meeting a pillar is placed throughout the entire residence"<sup>58</sup> (shown in diagram labeled a). Furthermore, the steel work for the floor slab is laid along with the steel work of the pillars, to enable the steel re-enforcement of the floor slab to be tied to the steel re-enforcement of the pillars. Once the steel re-enforcement works are complete, a formwork of the pillars and the floor slab are erected, in order to pour the concrete on sight, as this is the method used throughout the region. Thus the floor slab does not act as just a base to build on, but rather acts as

---

<sup>56</sup> Albert, M-D, "Beirut battles with its history", *L'Architecture d'Aujourd'hui*, (November 2011), Beirut, Lebanon

<sup>57</sup> Albert, M-D, "Beirut battles with its history", *L'Architecture d'Aujourd'hui*, (November 2011), Beirut, Lebanon

<sup>58</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

an integrated part of the structure, as the structural pillars are tied into the floor slab and then carry the load down to the bedrock level or engineers specifications of depth.<sup>59</sup>

- A) Pillar drilled down to bedrock or engineers specifications where bedrock not available
- B) Pillar with enough steel re-enforcement to take double the required load
- C) Steel re-enforcement of the roof to enable the connection between pillars and roof slab (integrated with steel re-enforcement of pillars)
- D) Roof construction method, built from besa-block and triangular formed steel rod
- D1) Detail: junction between besa-block and triangular formed steel rod with steel rod tie
- E) roof slab poured on top of part D
- F) Double thickness besa-block typical wall construction method
- F1) besa-block detail
- G) Armored concrete wall construction
- G1) Detail: Armored concrete steel grid: displaying how steel-rod is tied together using steel wire
- H) Floor slab laid in integration with pillar supports

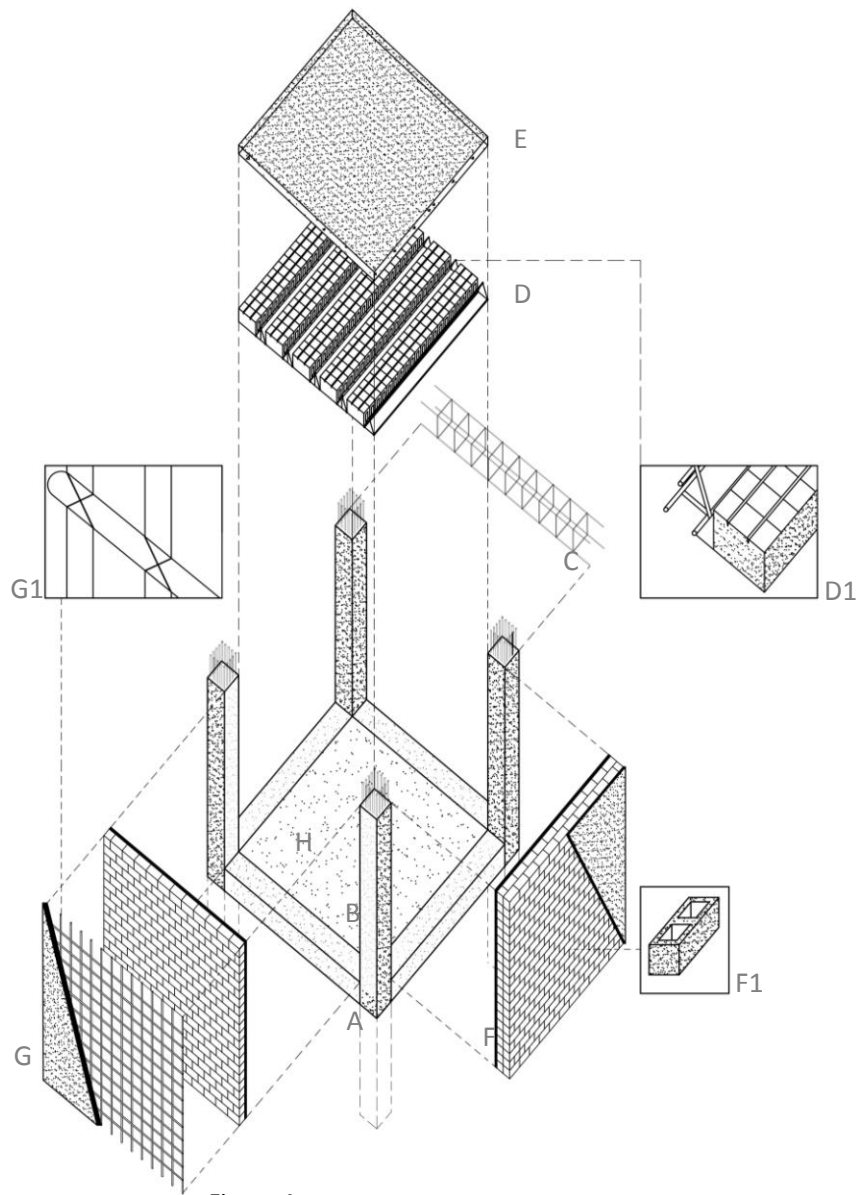


Figure 4a  
Residential Construction Methodology  
18<sup>th</sup>/10<sup>th</sup>/2012  
Image Drawn by:  
Bilal Abou-Mosleh

<sup>59</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon



The second step is the erection of the roof steel supports (as indicated in figure 4a, c). This is a series of 4 steel rods which are welded or wire tied to the each of the four edges of the square shaped steel rod brackets created at the same thickness as the pillars. On each edge of the pillars, there is exposed steel re-enforcement which travels all the way down with the pillar down to the bedrock or engineers specifications. These steel re-enforcements are then attached to the roof steel work<sup>60</sup> shown in (figure 4a, labeled c). Once the roof steel work has been placed on all lengths between the pillars, the roof must now be poured as a slab. The way in which is done is quite unique as it has specific steel work and besa-block re-enforcement throughout the roof slab. Firstly, formwork is placed spanning the extent of the roof surface, generally a series of timber slats laid to form a flat surface. Once this is done, on a series of spacers the arrangement shown in figure 4a (labeled D) is laid. If we refer to figure 4b, we are able to see a birds-eye view of the construction process of the roof slab and the form work to gain a better understanding of the development.

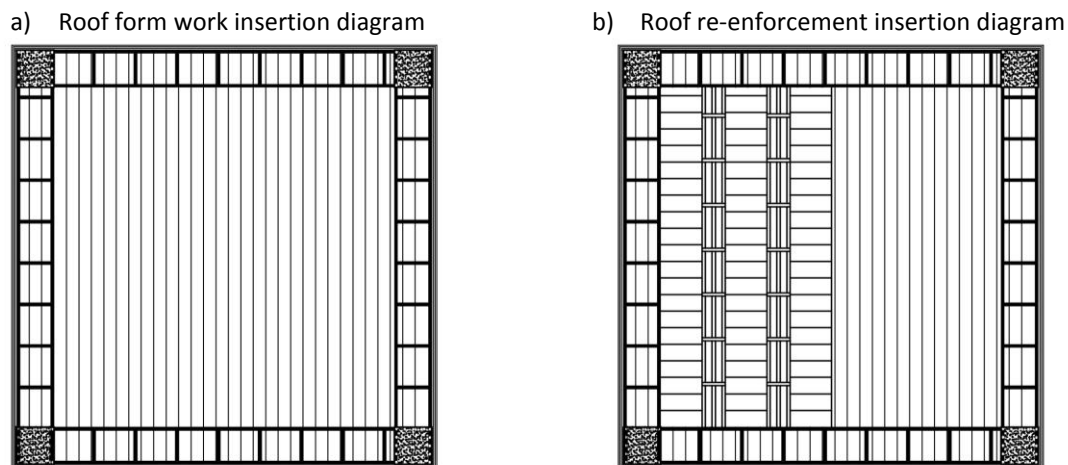


Figure 4b  
Birds eye view: roof formwork/construction  
18<sup>th</sup>/10<sup>th</sup>/2012  
Image Drawn by:  
Bilal Abou-Mosleh

Furthermore, Houssam and Rasheed stated that “once the structural pillars, floor slab and roof have gone up, the walls go in as a separate component to the structural form.”<sup>61</sup> “The openings between the structural elements are filled in with double besa-block layers and then rendered over for a clean finish”<sup>62</sup>. I found this element of the research very interesting, as the walls are not a structural element. When I asked them if they could explain this point further, they referred to the process which is explained above; “the structure is independent of its walls,

<sup>60</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>61</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>62</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

when the walls are inserted; their job is to basically fill in the gaps between the structural supports, in order to enclose the structure.”<sup>63</sup> In order to explain this concept further, I asked them to take a look at figure 1a, the initial inspiration to the research investigation. They stated that this was a perfect example to explain the construction methods acting at their best. They stated “the house has one collapsed side, thus if you can imagine the house being built in the method we just explained, and a bomb, rather than go through elements of the roof structure causing little to no damage, landing on one of the structural pillar supports holding up the corner of that house, only that one section which relies on that structural pillar to hold it up would collapse.”<sup>64</sup> Once again I asked them if this was of any relevance directly to war in the construction methodology itself, they replied the response which was given in previous attempts to get a reply, “this is how we build, I’m not sure why but it’s just how construction is conducted here.”<sup>65</sup>

In the discussion with Houssam and Rasheed in regards to the walls and why they are built out of double bessa-block bricks if they have no structural requirements, an interesting aspect was discussed. Houssam stated that “in the days of building houses out of stone, prior to the introduction of concrete throughout the region there is a direct link made between the method in which the stone walls were constructed, and conflict”. He went on to explain “when they would build a wall, the stone was not cut as a square, but rather cut as a type of rhombus. What this would mean is that the more pressure put on the structure from the outside the stronger the structure would hold.”<sup>66</sup> (Refer to figure 4c for further understanding). furthermore when I asked him to sketch it out for me to get a further understanding, referring to figure 4c, we can see the cultures connection to arches throughout history, as this is not so relevant as the key aspect of this discussion, the structural ability to withstand outside forces, we will not go into too much depth discussing the shape, but rather the ability of the structure to withstand forces put upon it.

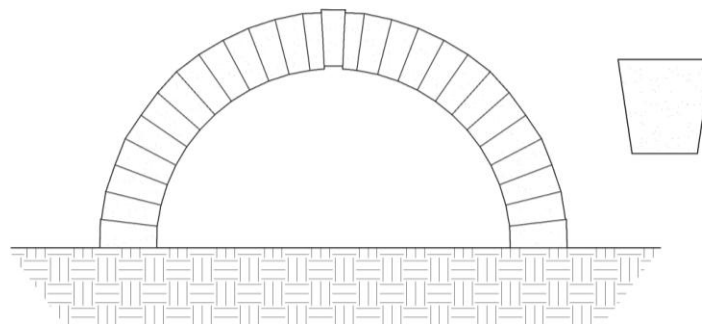


Figure 4c  
Stone Arch Composition diagram  
18<sup>th</sup>/10<sup>th</sup>/2012  
Image Drawn by:  
Bilal Abou-Mosleh

---

<sup>63</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>64</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>65</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>66</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

Why this is important to the discussion at hand, is that I asked a particular question in order to clarify an aspect which I did not understand throughout the construction methodology, “if the walls have no particular load requirements, and they are used only to enclose the structure, why then are the walls constructed out of double besa-block bricks?”. And I was given an answer which gave me direction in looking for a link between architectural construction methods and conflict. Houssam stated that “because of the way they used to build walls back in the day, the culture is only used to having solid walls. Although this is not the only reason we use such solid materials to build walls throughout the region, as there is moisture concerns, stability concerns as well as well as the expense of timber construction throughout the region, it plays an important part.”<sup>67</sup> He stated that solid walls were a key in the defense mechanisms of the culture in the past. The rhombus shape stone was not only to withstand natural forces upon the structure, but withstand catapults, and ram attempts throughout the region of invading enemies. As this is our past, and conflict is still present throughout the region, I cannot see why they would move away from the idea of solid walls. “Walls are known to be solid as long as I can remember, as our grandfathers used to have a saying to explain the strongest men throughout the region “*hayt mabi hido*” which translates into a “*a wall wouldn’t stop him*”.”<sup>68</sup> When I asked if there had been any further developments in recent times throughout the region, which would link any part of the construction methodology back to conflict directly, he answered yes, Armored Concrete which is used instead of the besa-block brick walls in certain constructions throughout the region.

#### **ii) Armored Concrete, Discussions with Tony Khouri and his experience with armored concrete**

Tony Khouri is a project Manager which has worked throughout the region of Lebanon and the UAE for the past 15-20 years. In regards to his experience, I was very interested in talking to him, due to the decision he had made in the construction of one of his own properties owned in Beirut. Tony had decided to construct his residential properties walls out of armored concrete. I was interested in learning why he had made the decision as well as what’s involved in the process of constructing armored concrete.

Initially, we began by discussing the reasons behind using armored concrete in his residential property. He began by discussing the state of Beirut after the civil war; “Beirut after the Civil war from 1975-1990 was un-recognizable. The state of anguish in which the people were in after losing their homes, and everything they had worked so hard to create was devastating for the nation.”<sup>69</sup> He went on to explain how a culture can only learn from its past, and when violence is in your past, you progress towards finding solutions to work towards it never happening again. This was an interesting progress in my research as I learnt that the psychological effect of war had embedded in many people who weren’t as lucky as others, but rather lost their homes during the civil war. Before discussing sociological impact of the conflict itself and what a residential property means to people in a time of conflict, it is important to understand the reasons behind using armored concrete in construction of residential structures, and furthermore the construction methodology behind it.

Firstly Tony Khouri explained how armored concrete is constructed. “There are two ways of constructing armored concrete, the first being a pre-cast panel purchased with a grid steel-rod core cast into a concrete panel, which is erected onsite, and the second being the armored concrete wall being built on sight, and integrated into the steel work of the structural pillars around the residence.”<sup>70</sup> I asked him to explain the built onsite method further to gain

---

<sup>67</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>68</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>69</sup> Khoury, T., Interview with *Tony Khoury*, (10<sup>th</sup>/12<sup>th</sup>/2012), (6:00pm (UTC + 9:30 Adelaide)), Location: Clearview, Adelaide, South Australia, Australia

<sup>70</sup> Khoury, T., Interview with *Tony Khoury*, (10<sup>th</sup>/12<sup>th</sup>/2012), (6:00pm (UTC + 9:30 Adelaide)), Location: Clearview, Adelaide, South Australia, Australia

an understanding of the difference in structural integrity of an average built residence with double bessa-block walls and that of armored concrete. Referring to G in diagram 4a, Tony explained that there are two methods to the construction of an armored concrete wall onsite used in the region. The first is that the grid steel rod work is set up connected to both structural pillars steel-rod re-enforcement on either side, and the pillars are poured in one process, and then the grid work is enclosed in concrete as thick as that of the structural pillars in the second process, thus creating a re-enforced concrete slab as the walls of the residence. The second method used is identical to that of the first, with the exception of pouring a slab around the grid work. Once the pillars are poured, with the steel-rod grid work in place, a single bessa-block wall is erected to the inside face of the residence. Once that is complete, the outward facing side is enclosed in form work and concrete is then poured creating a slab on the outside face with a bessa-block wall on the inside face (as shown in diagram 4a, G)<sup>71</sup>.

When asked how this would act in times of conflict, he stated “Here, bullets are not a worry, as even the double bessa-block walls stop bullets from penetrating the structure, but when bombs are concerned, a double bessa-brick wall would crumble at the force of the bomb. When a bomb is faced with an armored concrete wall, the initial impact is stopped by the face of the wall, the steel grid work holds the integrity of the wall, and the inside wall prevents any penetration of shrapnel from the bomb to enter.<sup>72</sup>, the advantage of a bessa-block wall on the inside of the armored concrete wall, is that this is a separate wall to the outside face all together, this means that even if there was a chance of the structural integrity of the armored concrete on the outside face to be jeopardized, the inside wall is still standing as a separate component.<sup>73</sup>

This is a major progress in the research initiative. Here, we have found a construction methodology which has been proven used in the region, as Tony Khouri used it to build his residence, which is purely to defend oneself from a conflict situation. Thus what is revealed is that the psychological effects of war on architecture of the region, although not visible in all situations, are clearly present in the region, when such a permanent structure, is made in-penetrable to the enemies strikes. In order for one to face such a decision to adjust a construction method further in order of defense, means that the sociological impact of a culture with such a dominance of re-occurring conflict has somewhat adjusted the way structure is comprehended to a certain extent. This was proven by further discussion with Tony Khouri, when he stated that “although Armored Concrete is one way of defense against an attack, you can always discuss with the people of the region how they shelter themselves within residential structures when a threat emerges. “Even the most basic of residential structures are strong enough to withstand an attack and many people have certain ways of sheltering themselves within their residences when the bombs begin to drop.”<sup>74</sup>

### **iii) Benefits of the construction typology (Conflict specific) - a sociological discussion**

In discussions with residences of the region, it is crucial to note their defense techniques once a threat arises. There are certain aspects of residential construction which we discussed previously that assist in protecting people within the region once a threat arises. The first of these aspects which we will discuss is building on ‘hawa el sate7’. As we previously discuss it is a regular occurrence throughout the region for families to build multiple residences on, in direct translation ‘the air of the roof’. Thus this therefore means that there are multiple roof’s above the original residence. From studying the construction methodology of residential construction throughout the region, we can see that this would mean that there are multiple structurally in-dependant layers that are capable of taking damage with no effect to structural integrity. Thus, speaking to Naji Abi-Mosleh, Houssam Abou-Mosleh and

---

<sup>71</sup> Khoury, T., Interview with *Tony Khoury*, (10<sup>th</sup>/12<sup>th</sup>/2012), (6:00pm (UTC + 9:30 Adelaide)), Location: Clearview, Adelaide, South Australia, Australia

<sup>72</sup> Khoury, T., Interview with *Tony Khoury*, (10<sup>th</sup>/12<sup>th</sup>/2012), (6:00pm (UTC + 9:30 Adelaide)), Location: Clearview, Adelaide, South Australia, Australia

<sup>73</sup> Khoury, T., Interview with *Tony Khoury*, (10<sup>th</sup>/12<sup>th</sup>/2012), (6:00pm (UTC + 9:30 Adelaide)), Location: Clearview, Adelaide, South Australia, Australia

<sup>74</sup> Khoury, T., Interview with *Tony Khoury*, (10<sup>th</sup>/12<sup>th</sup>/2012), (6:00pm (UTC + 9:30 Adelaide)), Location: Clearview, Adelaide, South Australia, Australia

Rasheed Amien al-Dien, it was stated that this is a major advantage during air-strikes in times of conflict.<sup>75</sup> They discussed that people take refuge in the ground floor residence during an airstrike in an area with minimal glazing, preferably in one of the bathrooms, with mattress placed on any glazing elements, due to glazing acting similar to shrapnel during an explosion. Discussing this fact with multiple people throughout the region, it was confirmed that if an airstrike threat was to begin, they take shelter in a building with multiple levels. Ghada Amien al-Dien stated that “even if the structural pillar on the level above was to be struck, the top story would fall but generally the bottom story would take the load, and you would be safe if you were to take refuge on the ground floor.”<sup>76</sup>

Furthermore, I was curious in discussing the advantages of solid wall construction as opposed to alternate methods, and search for a possible link between conflict and solid wall construction. Talking to Hanan Amien al-Dien, she stated that “in times of conflict it is very important for one to be able to take refuge in a residence. One of the key threats are not the bombs themselves during a time of conflict, but rather the shrapnel that comes post-explosion, and the stray bullets in times of battles, and even times of no battles, throughout the region.”<sup>77</sup> I was amazed when she then went further to show me the exterior walls of their residences. On both stories, the walls were covered up by patch work repairs. She clarified that these repairs were the result of both shrapnel and bullet holes in times of conflict<sup>78</sup>. When I looked closer to observe the patch work further, I discovered a bullet which had jammed itself into the wall. It was then clear to me why the walls were built solid. The residences throughout the region provide shelter for the people of the region. Although conflict is not the only reason behind solid walls, it could be the reason why people of the region to not move away from such solid, permanent structures.

To explore further on Hannan’s statement, that bullets are not only a concern during conflict times, I will recount a situation which occurred during my stay at the Amien al-Dien residence. During the afternoon of the 27<sup>th</sup>/06<sup>th</sup>/2011, there were a series of weddings occurring in the transcending villages below Ain-Ksour towards Beirut. At approximately 3:00pm a series of celebratory gunshot were heard throughout the mountain region, as it is well known that people shoot in the air on key events such as weddings, birthdays, New Years Eve and various other religious celebrations. As we sat and listened to the gunshots in the living room of the second story, we heard a loud smashing sound as if somebody had dropped a clay jug. When we proceeded to look through the house to see what had dropped there was a knock on the door. One of the residences from the property below, Sohair Amien al-Dien was asking us if somebody had thrown something at the terracotta tiles of the outdoor pergola area below. When we went down to investigate the cause of the break, I discovered something lodged firmly into the slab in the ground. A bullet, dropping back down after it had been shot into the sky during these celebrations, had come back down, punctured the terracotta tiles, and proceeded to lodge itself firmly into the ground floor slab of the verandah area. When speaking to Houssam Abou-Mosleh and Rasheed Amien al-Dien, they stated that this was a regular occurrence throughout the region. Houssam stated “could you imagine if the roof was made of tiles and gyprock ceiling? It would have punctured through them both and entered the residence with ease, and god forbid someone get in its way”<sup>79</sup> discussing and observing the evidence of conflict specific damage on the residences in the region, I was curious to learn of any repairs that had occurred and how well recovery after certain conflict related situations is.

---

<sup>75</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon, Khoury, T., Interview with *Tony Khoury*, (10<sup>th</sup>/12<sup>th</sup>/2012), (6:00pm (UTC + 9:30 Adelaide)), Location: Clearview, Adelaide, South Australia, Australia

<sup>76</sup> Amien al-Dien, G., Interview with *Ghada Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>77</sup> Amien al-Dien, H., Interview with *Hannan Amien al-Dien*, (13<sup>th</sup>/07<sup>th</sup>/2011), (3:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>78</sup> Amien al-Dien, H., Interview with *Hannan Amien al-Dien*, (13<sup>th</sup>/07<sup>th</sup>/2011), (3:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>79</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (28<sup>th</sup>/06<sup>th</sup>/2011), (3:30pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

**a) Structural Repairs (Conflict related) - Sociological discussions**

It is important to understand the extent of damage post-conflict throughout the region, and complexity of residential repairs. Here we will discuss, with a selection of people within the region, the extent of repairs to their residences post-conflict. Initially we will begin our discussion with Houssam Abou-Mosleh, the owner of a house approximately 100 years old which belonged to his father, Shaffic Abou-Mosleh, throughout the civil war of Lebanon. To begin with, it is important to list the type of damage that was done to the house throughout the civil war. Houssam stated that the damage throughout the residence was extensive and included:

- a) A bomb landing on the roof of the living area, taking out a section of the roof
- b) Bullet halls throughout all faces of the residence
- c) Explosions on multiple wall-faces of the residence taking out large sections of walls
- d) Sections of the residence burnt out by enemy soldiers
- e) All glass windows and doors were blown out due to extensive explosions near by<sup>80</sup>

Houssam went on to explain that “approximately 2 months after the conflict had ceased, the house was back into its original condition.”<sup>81</sup> In order to investigate the repair methodology behind residential recovery post-conflict successfully, we will investigate each of the issues above and briefly discuss the process with Houssam Abou-Mosleh.

To begin with we will discuss the issues behind the air strike damage to the living area and the recovery method behind it. Houssam stated that “when the bomb landed on the roof of the living area in my father’s residence, it just missed the structural pillar and exploded on the roof slab. This in result opened the roof right up damaging the steel supports within that section, creating a hole in the roof slab.”<sup>82</sup> I then asked him to discuss the severity of such damage to the structure, where he replied “nearly nothing at all, all this meant is that we had to angle-grind the steel extruding out of the slab area, cut the damaged area into a rhombus like crater, and then lay the appropriate formwork and re-pour the section.”<sup>83</sup> (Refer to diagram 4a) 1) He went on to discuss the benefits of the roof construction method in such a situation. Due to the many individual roof construction elements as discussed previously, this meant that when one of the structural elements is jeopardized, it can be repaired with minimal effort, as the structural integrity of the roof can only be jeopardized by a strike on the structural pillars which hold that particular section up. Refer to figure 4a) 2) To observe a large scale roof repair.

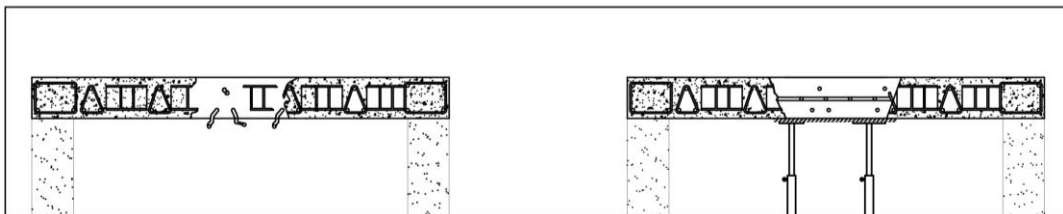


Figure 4a) 1)  
Houssam Abou-Mosleh: Roof Repair procedural diagram  
19<sup>th</sup>/12<sup>th</sup>/2012  
Image Drawn by:  
Bilal Abou-Mosleh

<sup>80</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (28<sup>th</sup>/06<sup>th</sup>/2011), (3:30pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>81</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (28<sup>th</sup>/06<sup>th</sup>/2011), (3:30pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>82</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (28<sup>th</sup>/06<sup>th</sup>/2011), (3:30pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>83</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (28<sup>th</sup>/06<sup>th</sup>/2011), (3:30pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

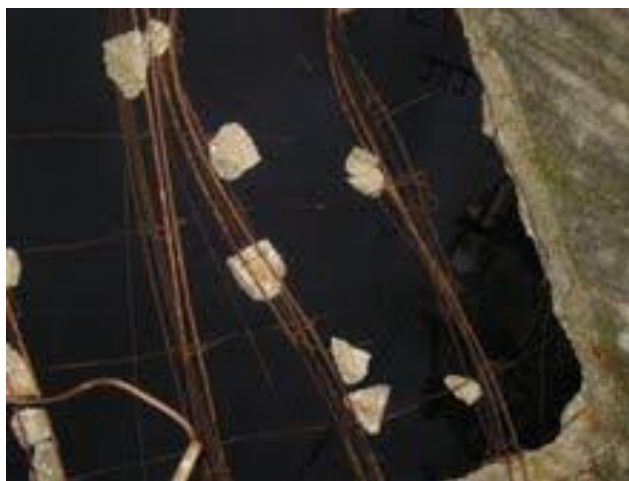


Figure 4a) 2)  
Roof repair post-conflict- steel members left in place  
03<sup>rd</sup>/02<sup>nd</sup>/2013  
Image taken by:  
Hanan Amien al-Dien

Bullet Halls throughout the faces of the residence, Houssam described to be the most basic repair of all. He stated that, due to the force of the bullet generally not being enough to penetrate its way through the wall, this meant that the wall was not jeopardized in any way at all. Thus all that had to be done in these particular circumstances is that the wall would have to have to be re-plastered with concrete, and a new paint job. Here the benefits of using such solid wall methods prevail, as damage to such elements from stray and directed bullets is minimal.<sup>84</sup> (refer to figures 4a) 3) and 4a) 4))



Figure 4a) 3)  
Roof repair post-conflict- steel members left in place  
03<sup>rd</sup>/02<sup>nd</sup>/2013  
Image taken by:  
Hanan Amien al-Dien

---

<sup>84</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (28<sup>th</sup>/06<sup>th</sup>/2011), (3:30pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

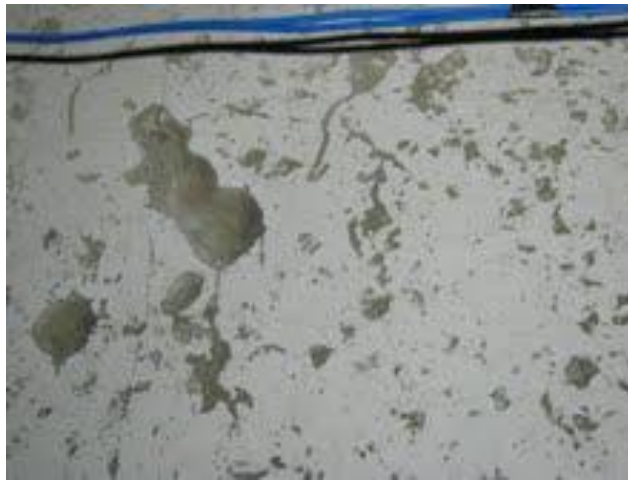


Figure 4a) 4)  
Post Conflict repair – patch work of shrapnel and bullet holes  
03<sup>rd</sup>/02<sup>nd</sup>/2013  
Image taken by:  
Hanan Amien al-Dien

When discussing section c) Explosions on multiple wall-faces of the residence taking out large sections of walls, Houssam stated another benefit of the construction typology. He stated that “because the walls were not of a structural member throughout construction, if a wall was jeopardized to the level that it needed to be replaced, all this meant is exactly that, the wall had to be replaced”. This method is quite simple according to our discussion, the affected area was taken down, the new bessa-blocks were put in place, and the entire wall was re-plastered and painted. You would not have to prop the building up in this situation, due to the wall not being connected to the structural elements throughout the residence.

Once again when discussing the recovery process post fire, as in the situation where certain areas of the house were burnt out by enemy soldiers, Houssam stated that “this could easily be fixed and in fact the burning out of certain areas of the house by enemy soldiers, was not to damage the structure itself at all, as they knew they could not do so, but rather to damage furnishing and fixtures throughout the area. The burnt out areas included the living area, the kitchen area and the bathroom area, because they knew these would be the most expensive areas throughout the house to re-fit and furnish” due to the solid method of building throughout the region, when a fire is to occur, generally all that meant is that, if the fire had reached extremely high temperatures, the plaster would bubble and peel off the bessa-block walls, and thus the bessa-block walls would be re-plastered and painted, and where the fire had just singed the walls rather than damage them, a clean-up and re-painting was all that was required for the repair. This is very much the same as glazing repair as well. Because most if not all the windows and glazed doors throughout the region is constructed in steel, this would mean that all they would need in post-conflict recovery is to be re-painted and re-glazed.<sup>85</sup>

Houssam stated that “when you observe how fast and how basic repair methods are to the residences throughout the region post-conflict, if no structural compromise had occurred as a consequence, you begin to understand why the building methodology throughout the region is the way it is.” He then went on to explain that throughout the region’s history, conflict had been imbedded into the peoples mind, thus they could not feel safe within there residences, unless the residence was able to withstand particular damage which the people of the region were familiar with. “I am not saying it is the only cause as to why the building method evolved into what it is today, but I am saying that you cannot avoid what is in a cultures past, as it does shape what every culture becomes.”<sup>86</sup> This is a very important note to discuss from a resident in the area with experience in conflict related situations and recovery post-conflict. Furthermore, Rasheed Amien al-Dien further stated “although it is not clear, with such a

---

<sup>85</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (28<sup>th</sup>/06<sup>th</sup>/2011), (3:30pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>86</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (28<sup>th</sup>/06<sup>th</sup>/2011), (3:30pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon



persistent occurrence of violence throughout the region, the issue of conflict and the way in which people which live throughout the region respond to everyday situations and building their residences to live in, must be influenced by all that has happened in their past”<sup>87</sup>

Here, we must make take notice of the sociological and psychological effects which prevailed in discussions with residences of the region, and documented theories of the consequences of war and conflict previously discussed in the research paper. Both Houssam and Rasheed agreed that there must be some sort of connection between war and the evolution of construction processes throughout the region, that is not to say it is the only cause of such developments in the construction methodology, but a connection is prevailing over the extensive research into sociological actions pre/post-conflict. If we attempt to initially categorize the conflict type using the previously analyzed texts of Edward Charlesworth, we would state that Lebanon in the time of the civilian war, from 1975-1990, was conflict by civilian character. Edward Charles worth stated: “*conflict civilian character: Many cities have been/become increasingly targeted in today’s conflicts, with once-cosmopolitan centers turning into battle fields as for example, Beirut, where the conflicts have been spread by the wide spread proliferation of small arms, anti-personnel land mines and second-hand weaponry*”.<sup>88</sup> Furthermore, he states that “*The continual state of siege from armed military and civilian conflict that cities such as Beirut, Palestine/Israel ext. suffered in their respective countries civil war’s, created deep political and psychological trauma. Again such trauma has fostered over decades of ethnic hostility and cannot always be equated to that resulting from random urban violence.*”<sup>89</sup>

From the discussions we can take the above statements from Edward Charlesworth to be true. The violence which occurs throughout the region of Lebanon and Palestine/Israel cannot be summarized as a series of random urban events which lead to war. From the historical investigations which we committed to at the beginning of the paper, we can see that conflict throughout the region is long-going, with no particular start and no end in sight. Over decades, the conflicts have created a type of ethnic hostility throughout the region, and with the psychological trauma caused by this hostility and conflict; we can begin to see how infrastructure throughout the region would begin to adjust to defend one’s self against such incidents. If we refer to Edward Charlesworth’s texts, he states that the conflict throughout the region of Lebanon was not used in one particular area/spot. This meant that peoples lounge rooms at certain stages throughout the conflict were battle-fields in themselves. Furthermore, in Eyal Weizmann’s texts, he also stated that a tactic which the IDF used in order to gain entry into suspected Palestine Guerilla fighters homes, was not the front door, as that was likely to be booby-trapped, but rather blow through the walls of the residence at gain direct access into the residences<sup>90</sup>. Thus is it possible that through these advances of conflict throughout the region’s past and present, people of the region begun to adjust their construction methods, in order to fulfill defensive techniques, among other factors, against such conflicts throughout the region?

## 6.0 Conclusion

Conflict is an important factor to consider when discussing regional architecture. Through this papers investigation, we discussed the link between aspects affecting the psychological condition of a society relating to conflict, and the relationship between sociological effect and architecture. Furthermore, we have affirmed that there is a link between architecture and conflict itself when discussing how architecture is directly a target of war in many cases. The importance of this paper was not to prove that conflict was the only reason why architecture throughout the region of Lebanon and Palestine/Israel developed in the way that it did, but rather document evidence that conflict does play a role in the way architecture is both perceived and conducted throughout the region.

---

<sup>87</sup> Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

<sup>88</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>89</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>90</sup> Weizman, E., (2007), *Hollow land: Israel’s architecture of occupation*, Verso, London

To review, the aim of this research paper was to architecturally provide grounding to such permanent construction methods in today's construction throughout the regions of Lebanon and Palestine/Israel. From Research of medieval construction methods of fortification throughout the Islamic religion, as studies of the Saracen Turks revealed that conflict has influenced the design initiative; with causes being inter-cultural violence throughout the region, which is still present today. As Edward Charlesworth quotes in his text *'Architects without frontiers: War, re-construction and design responsibility'* "While civilian urban populations have been severely affected by this surge of inter-ethnic warfare, they have suffered more recently, in relative terms, than during any other period". His statistics suggest that in World War I, 43% of total casualties were civilian. In World War Two that number increased to 59% of total casualties being civilian. The critical turning point in his findings was the point in warfare, where the number of conflicts within states overtook those between states. At this point, the percentage rose to 74% of total casualties being civilian.<sup>91</sup> This is a very important statistic in our research, in concern to inter-ethnic warfare within the regions of Lebanon and Palestine/Israel.

If we discuss the text *'Destruction of Memory: Architecture at war'* by R. Bevan, he states that the targets of war are those which show a culture's presence in a location, indirect relation to history, culture and ethnicity which is symbolized in society by the architecture present<sup>92</sup>. As Edward Charlesworth discussed in his texts, and as previously mentioned in this paper, both Lebanon and Palestine/Israel are both classified under *'conflict of civilian character: Many cities have been or become increasingly targeted in today's conflicts, with once cosmopolitan centers turning into battle-fields as for example Beirut, where conflicts have been spread by the wide-spread proliferation of small arms, anti-personnel land mines and second hand weaponry.'*<sup>93</sup> If in fact war targets a culture's presence in a location as R. Bevan states in his texts, and a civilian conflict such as Beirut or Palestine/Israel were to occur, between multiple ethnic groups, this puts a lot of the residences and civilians at danger. What this would mean is that in situations where inter-ethnic violence was to occur, as R. Bevan states that a history, culture and ethnicity are symbolized by the architecture present in a location, and thus the architecture is readily targeted, and thus when the battles occur in once cosmopolitan centres, many homes and residences throughout the region are affected.

The most important fact perhaps to summarize a link between architecture and conflict within the region of Lebanon and Palestine/Israel, is that made in the texts of Charlesworth, where he states that *"The continual state of siege from armed military forces and civilian conflicts such as Beirut and Palestine/Israel etc, suffered in their respective countries civil wars, created deep political and psychological trauma. Again, such trauma has fostered over decades of ethnic hostility and cannot always be equated with that of random urban violence"*<sup>94</sup>. As we have discussed previously throughout the paper, the regions have a long history of conflict. Thus a long history resulting in political and psychological trauma in an extensive history of civilian conflict would see that the regions cosmopolitan areas are constantly at threat. Affirming the points clarified by investigations throughout the research, are the direct sociological discussions with residences within the region of Lebanon. As Houssam initially stated *"When you go to observe how fast and how basic repair methods are to the residences throughout the region that haven't taken severe structural damage, you begin to understand why the building methodology throughout the region is the way it is"*<sup>95</sup>, this hinted that the people throughout the region understood that their history of conflict related issues, have implemented construction methodologies. This was further affirmed by the statement from Rasheed, where he stated *"Although it's not clear, with such a persistent occurrence of violence throughout the region, people must adapt to their everyday situations, and when it comes to where people live must be*

---

<sup>91</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>92</sup> Bevan, R., (2006), *'The destruction of memory: Architecture at war'*, Reaktion Books, London, UK

<sup>93</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>94</sup> Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

<sup>95</sup> Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

*influenced by all that has happened in their past*<sup>96</sup>. When he said live, in Lebanese he said “assiso heloun” which in literal translation means ‘created their footings’. This was once again affirmed in discussions with Tony Khoury in regards to the development of armored concrete for residential applications throughout the region, with the pure intent of a defense mechanism against conflict situations.

In Conclusion, although Conflict is not the only reason why people build the way they do within the region; the paper has put forward an argument to be considered. Conflict seems to have a direct correlation with the regions construction methodology of permanent measures. It is important to understand such connections to a regions past, not only to understand the psychological implications of conflict on a society, but furthermore, to understand the different considerations one must take as an architect, responsible for architecture. One must consider the effect of what architecture symbolizes in any area or culture, and thus what that specific area or culture requires. If one working to represent a particular society’s needs, beliefs and history, and conflict prevails, what action must one take in order to ensure at a minimum the protection of such important aspect of sociological identification?

---

<sup>96</sup> Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

## Bibliography:

Abou Aummo, R., (2012), *Assem Salam, Building a Beirut with a cause*, Alakhbar, Lebanon, resourced from <http://english.al-akhbar.com/node/13393>

Abou-Haidar, F., (August 8 1997) *Traditional Lebanese Architecture Part 2: Restoration*, Lebanese Environmental Magazine, The Levant, Lebanon, Volume 34.

Akkach, S., Fung, S., Scriver, P., (1999), *Self, Place and imagination*, The University of Adelaide, Australia

Albert, M-D, "Beirut battles with its history", *L'Architecture d'Aujourd'hui*, (November 2011), Beirut, Lebanon

Bajjaly, J., (April 22<sup>nd</sup>, 2012), *Destroying Beirut's Heritage one building at a time*, Alakhbar, Lebanon

Bevan, R., (2006), *The destruction of memory: Architecture at war*, Reaktion Books, London, UK

Charlesworth, E., (2006), *Architects without frontiers: War, reconstruction and design responsibility*, Architectural press: Elsevier, Oxford

Colomina, B., (2007), *Domesticity at war*, MIT press, Massachusetts

Cotter, S., Empson, J., Hadjithomas, J., Joreige, K. (13<sup>th</sup>/7<sup>th</sup>/2006) *Out of Beirut*, Modern Art, Oxford, London

Dimbley, J., McCollin, D. (1979) *The Palestinians*, Quartet Books, London

Democracy Now, (September 19<sup>th</sup>, 2006) *Business Owners, Workers charge Israel Deliberately Targeted Lebanon's Economy*, Democracy Now, Lebanon, [www.democracynow.org/article.pl?sid=06/09/19/1348222](http://www.democracynow.org/article.pl?sid=06/09/19/1348222) (accessed on 8th/5th/2011)

E.Manning, S., submitted to Dr.G. Schaub, *The second war in Lebanon, was air power able to accomplish the goals of the Israeli Government*, Air war College, Air University, United States Air-Force.

Faris, H., (1986), *International journal of Middle East studies*, Vol. 18, No. 1, Cambridge University Press, London, United Kingdom

Fawaz, M., Peillen, I., (2008), *The case of Beirut, Lebanon*, Massachusetts institute of technology, AUB Department of Architecture, Lebanon

Fisk, R., (2005), *The great war for civilization: the conquest of the Middle East*, Front vintage books, United States of America.

Fletcher, B., (1996), *'Sir Banister Fletcher's: A history of architecture*, architectural press, Oxford

Faour, M., (1991) *The Demography of Lebanon: a Reappraisal*, Taylor and Francis Ltd., Middle Eastern Studies, Volume 27, No.4, pg.631-341

Henderson, I., (2012), *Beirut: the city that rose again*, Telegraph, United Kingdom, 08/01/2012

J. Maginn, P., (2004), *Urban regeneration, community power, and the (in) significance of 'race'*, MPG Books, Boodwin, Cornwall

Khraishe, D., (May 3<sup>rd</sup>, 2011), *Building Beirut on Indy's watch*, The Daily Star, Lebanon

- Kirke, P.J., (2005), *The architecture of defense: 36 strategies*, Friend books, Australia
- Lawler, A., (2011), *Rebuilding Beirut*, Archeologists institute of America, United States of America
- Nicolle, D., Hook, A., (2009), *Saracen strong holds 1100-1500: The central and eastern Islamic lands*, Osprey Publishing, United States of America
- Davis, P., (2007), *Filling the void: Hezbollah's state building in Lebanon*, School of Economics and Political science, University of Sydney, Australia
- Ragette, F., 1974, *Architecture in Lebanon, the Lebanese House*, Beirut, American University of Beirut, Lebanon
- Safrankova, J., (2006), *Sociological and psychological aspects of Architecture and urban space*, Czech Technical University, Prague.
- Salame, D., (February 2010) *Memory and Commemoration in Beirut: The Holiday Inn in Bloom*, Concordia Undergraduate Journal of Art and History, Lebanon Volume 26.
- Segal, R., Weizman, E., (2003) *A civilian Occupation – The politics of Israeli architecture*, Babel publishers, Tel-Aviv
- Shevstov, A., (May 2007) *Environmental implications of the Israeli-Lebanon conflict*, ICE case study No.216, American University of Washington, America
- Starr, L., Cronkite, W., (May 2011) *Lebanese architect embraces "poetry of Decay" renovating war scarred buildings*, School of Sustainability, Arizona State University, Arizona, USA
- Sullivan, E., (2008), *Construction methods on Digital Karnak*, Los Angeles, (pdf Document), <http://dlib.etc.edu/projects/karnak/assets/media/resources/ConstructionMethodsAndBuidlingMaterials/guide.pdf>
- Tohme, Y., (2011), *Identity through evolution*, Design build network, Lebanon
- W. Said, E., (2002) *The end of the peace process*, Granta Books, London
- Whitmount, D., *Four Corners: In the line of fire*, (aired on 18<sup>th</sup>/9<sup>th</sup>/2006) (viewed on 6<sup>th</sup>/4<sup>th</sup>/2011), ABC Channel 2, Length 45 mins.
- Weizman, E., (2007) *'Aerial Sharon and the geometry of occupation, part 1'*, published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>
- Weizman, E., (2007) *'Aerial Sharon and the geometry of occupation, part 2'*, published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>
- Weizman, E., (2007) *'Aerial Sharon and the geometry of occupation, part 3'*, published online by OpenDemocracy.net under Creative Commons. <http://www.opendemocracy.net/author/eyal-weizman>
- Weizman, E., (2007), *Hollow land: Israel's architecture of occupation*, Verso, London

Thank you to: Primary Resources

Abi-Mosleh, N., Interview with *Naji Abi-Mosleh*, (4<sup>th</sup>/07<sup>th</sup>/2011), (7:47pm (UTC + 2:00 Beirut), (10<sup>th</sup>/07<sup>th</sup>/2011)(7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

Abou-Mosleh, H., Interview with *Houssam Abou-Mosleh*, (5<sup>th</sup>/07<sup>th</sup>/2011), (9:45am (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

Amien al-Dien, G., Interview with *Ghada Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

Amien al-Dien, H., Interview with *Hannan Amien al-Dien*, (13<sup>th</sup>/07<sup>th</sup>/2011), (3:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

Amien al-Dien, R., Interview with *Rasheed Amien al-Dien*, (10<sup>th</sup>/07<sup>th</sup>/2011), (7:00pm (UTC + 2:00 Beirut)), Location: Ain Ksour, Lebanon

Khoury, T., Interview with *Tony Khoury*, (10<sup>th</sup>/12<sup>th</sup>/2012), (6:00pm (UTC + 9:30 Adelaide)), Location: Clearview, Adelaide, South Australia, Australia

**i) What can one take from such research?**

This research paper's aim was to be able to form an architectural link between Conflict and permanent construction methods throughout the region of Lebanon and Palestine Israel. By exploring and discussing permanent methods of structure throughout the region, we are able to see what the structures are capable of resisting in times of conflict. As we observe the modern day construction industry in the western world become less-permanent with increased use of materials with temporary life spans, we encounter the problem of structures becoming less and less permanent and more so impermanent, causing landfill issues as structures are constantly replaced. Thus not only is the intent to form a architectural link between conflict and permanent construction methodology & architecturally document the construction process in the region, but furthermore, make the unfamiliar permanent construction processes of the region known, to perhaps show an alternative to such temporary methods. It is hoped that such research will lead to further architectural investigations on the construction methodologies of the region, and increase the minimal information available in today's data-bases, on present-day construction documentation in the region and furthermore, discuss the architectural implications of the psychological and sociological impact of conflict around the world.

Related image Appendix:

Lebanon



A building destroyed by Lebanon's civil war

October 8<sup>th</sup> 2012

Image taken by:

Antonio caselli

Resourced from:

<http://www.insightonconflict.org/2012/10/lebanon-fear-unknown/>



Building destroyed in Israel vs. Hezbollah 2006

South Lebanon, Lebanon

January 2<sup>nd</sup> 2012

Image taken by:

Muhammad Shublaq

Resourced from:

[http://www.dominionpaper.ca/images/bombed\\_building\\_beirut](http://www.dominionpaper.ca/images/bombed_building_beirut)



Building Destroyed in Lebanese Civil War

June 25<sup>th</sup> 2011

Image taken by:

Corinne Frenzel

Resourced from:

<http://www.flickr.com/photos/64501524@N06/5870933285/>





Building destroyed in Israel vs. Hezbollah 2006  
Haifa, Lebanon  
2007

Resourced from: [http://www.zionism-israel.com/dic/Second Lebanon war.htm](http://www.zionism-israel.com/dic/Second%20Lebanon%20war.htm)



A Women looks at destruction of Haret Hrayk, in Lebanon's  
south after cease-fire August 2006  
August 2006

Image taken by:  
Derek Henry Flood

Resourced from:  
<http://the-war-diaries.com/?cat=34>

Israel/Palestine



A family inspects what left of their home in the southern city of Rafah, Israel/Palestine  
November 11<sup>th</sup> 2011

Image taken by:  
Saber Mohammad

Resourced from:

<http://occupiedpalestine.wordpress.com/2012/11/11/gazaun-derattack-nov-11-2012-7th-martyr-in-gaza/>



An elderly women inspects what's left of her residence after Israeli Defense Force air strikes on Gaza  
November 11<sup>th</sup> 2011

Image taken by:  
Palestinian Media Centre

Resourced from:

<http://occupiedpalestine.wordpress.com/2012/11/11/gazaun-derattack-nov-11-2012-7th-martyr-in-gaza/>



Israeli Defense Force blow their way through multiple  
Palestinian Residences

Image taken from:

*Hollow Land* by Eyal Weizman

Resourced from:

Weizman, E., (2007), *Hollow land: Israel's architecture of  
occupation*, Verso, London



Gaza after the 2008 Airstrike  
2008

Image taken by:

Getty Media

Resourced from:

[http://thefunambulist.net/category/weaponized-  
architecture/page/7/](http://thefunambulist.net/category/weaponized-architecture/page/7/)