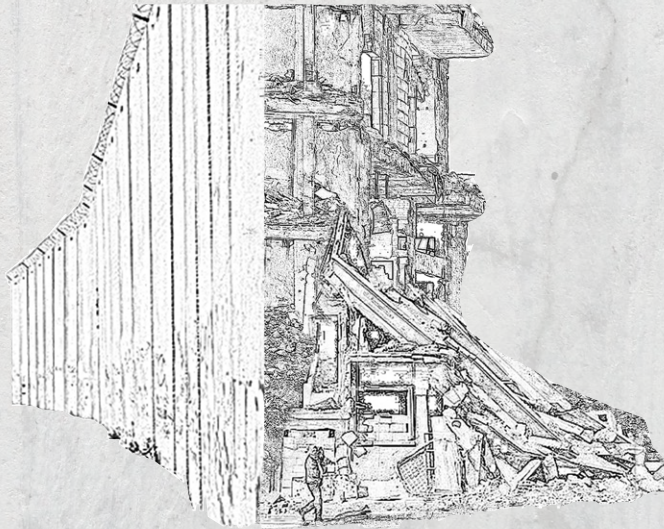


TRACES OF CONFLICT

THE ROLE OF CONCRETE AND ITS POTENTIAL
REUSE FOR A RESISTIVE ARCHITECTURE.





2024, Serayu Gujja

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THE ROLE OF CONCRETE AND ITS
POTENTIAL REUSE FOR A RESISTIVE
ARCHITECTURE.

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Thesis statement
Master's project
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DISCLAIMER

It is worth mentioning that the beginning of researching this thesis statement, which was in September 2023, I had already established that it would draw several examples from the Israeli-Palestinian conflict as it was quite clear from my initial findings that this particular conflict encompassed diverse and compelling examples for the subject I intended to research. After the 7th October attacks, which were later followed by a full-blown war, I became quite weary of addressing the topic in general. However, as many have argued this conflict began long before that date. The architectural apparatuses involved in this conflict are vital to understand how the discipline of architecture and urban planning can become accomplices of violence.

PREFACE

Initially, I was led to this topic by a very simple thought that came about while observing images of Syria's destroyed landscape: what happens next? What happens with all this concrete rubble? What happens to the half leaning, half destroyed houses? What happens to the heritage of this ancient and very rich civilisation? Most often when it comes to regions in conflict, we are informed of the civilian death through numbers as showing actual bodies tends to be censored for the public. Pictures of a city in rubble are often showcased as a permanent witness to all those deaths. Destruction of the built environment as a result of war are images well ingrained in our minds and are the material representation of violence. Until recently, I had merely associated violence and architecture through its aspect of destruction where architecture happens to suffer from collateral damage. And so my research topic was leaning towards the idea of exploring the potential of reuse (not recycle) of concrete rubbles in the context of for example the Syrian and Iraqi conflict. I thought of local inhabitants of the region that could appropriate it as a new material in the perspective of reconstruction. This notion of reusing concrete waste from demolished buildings is being extensively researched in the epfl community. I wanted to explore this aspect outside of Switzerland where the quality and access to equipment and resources remain very limited in comparison. Hence my choice to look into the Middle East as it is a very prominent region for current conflicts. However, while looking into this topic more, I realized the relation between architecture and violence is more than just that.

Architecture becomes sometimes or often times a medium for violence. I was familiar and briefly introduced previously with the notion of architecture being used as a weapon in conflicts through the work done by Eyal Weizmann founder of forensic architecture. But I was not aware of the extent of strategic planning especially when it comes to framing the discourse around a conflict and the severe displacement of populations that it has caused. Thus, I quickly understood the effect of conflict on the landscape and the built environment goes beyond just concrete rubble..

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Chapter 1 shows that *planned* and *organised* destruction is implemented for radical restructuration of cities, a case of design by destruction. The example of the Syrian conflict shows that war conditions are presented as an opportunity to reshape the urban fabric of cities like Homs and Hama with the aim of optimising economic goals going beyond military necessity and political control.

Chapter 2 attempts to show the main dynamic of destruction and the most commonly associated with war: aerial bombing and shelling. Exploring various forms of this destruction will allow to understand the resulting concrete debris for potential recovery.

Chapter 3 addresses more in depth the demolition policies of the Israeli government. Two main operations are discussed; the selective house demolitions and the mass demolition strategy carried out during Operation Open Field in 2002. These processes render the domestic spaces as the main battleground for state violence.

Chapter 4 attempts to categories the material fragments – concrete rubble- and understand the various patterns of destruction that came as a result. Consequently, the potential reuse will be explored.

Chapter 5 This chapter highlights two important architectural apparatus' in Israeli-Palestinian conflict that share a complex relationship, the refugee camp and the colonial settlements. The production and consumption of concrete become entangled in a race for self-determination.

Chapter 6 presents how prefabricated concrete barriers and T walls have become a crucial element of the Iraqi and Israeli-Palestinian landscape. The implementation of these walls and their effects on the given population will be discussed for both cases.

Chapter 7 firstly talks about the underground network of tunnels of Gaza as apparatus of survival and rebellion. Secondly, it addresses a less known operation applied by the Israeli army, concrete home sealing that consists of pouring concrete in Palestinian homes as a form of punishment.

Chapter 8 gives two possible directions for the development of a project that embodies an architecture of resistance. A main vision focuses on the concrete sealing and the second on partially destroyed buildings.

INTRODUCTION

In the context of war and conflict, it is crucial to understand that it is not only destruction that occurs but also construction. Notably, concrete plays a major role, whereby it is not only targeted and destroyed as a result of wars and conflict but in fact produced brand new to shape a new landscape that reinforces the power entity in control of the territory be it for a political, economic or ideological gain. Concrete takes on various forms, such as literal rubble, barely standing structures, prefabricated walls, and even newly poured concrete which is what the title of this research “traces of conflict” encompasses.

Focusing on specific conflicts of the Middle East, this research seeks to comprehend how concrete as a material shapes the landscape and populations of contested regions, as well as explore the potential for its reuse or reappropriation. Given that the geopolitics of war and conflicts are generally addressed purely through a discourse of law and social implications, forensic scholars such as Eyal Weizmann provide a different approach that requires an analysis of events *materially*¹. It is equally important to assess material objects in order to understand the complexities of geopolitical events. In this case, concrete is the main actor of events, often seen playing a double role.

This work is structured into two main parts, focusing on the portrayal of concrete as both destroyed and newly built. The built environment being reconfigured by those two means, the objective is to gain a deeper understanding of why diverse practices involving concrete are employed, despite the common motivation of territorial control. The impact of these practices on both space and time will be explored in relation to the affected population. The last chapters of both parts attempt to present the potential reuse of concrete by presenting a catalogue of various types of concrete rubble and exploring ideas for a design project embodying an architecture of resistance.

My intention is not to put forth potential “solutions” to the issues, but rather to offer approaches for navigating with the current outcomes of a conflict. While I do confine the case studies to the conflicts of Israel-Palestine, Iraq and Syria, this research aims to present an inventory of practices involving concrete that serves as a scope for broader discussions regarding the policies of urban destruction and reconstruction in conflicts globally. Moreover, this work doesn’t delve precisely into the history of these conflicts as the focus lies on understanding the dynamics of architecture, concrete and war.

¹ Rubaii, “Concrete Soldiers”.

PART I DESTRUCTION, BEYOND COLLATERAL DAMAGE

The notion of collateral damage refers to *unintentional* and *incidental* damage that occurs because of military actions. It can be as result of missing targets and damaging buildings on the way of the designated target. Additionally, military necessity and objectives may involve security reasons by strategically targeting certain logistical infrastructure for example a bridge to cut the mobility of the opposing force. Proportionality must be respected between the military and humanitarian aspects to consider the damage as simply collateral. It can no longer be justified as such if the targets of military action extend to civilian buildings such as housing, public institutions, cultural monuments etc. It then qualifies as a *deliberate* destruction of the built environment known as *urbicide*.²

Although historically the notion of urbicide has occurred for as long as war has existed, the actual term is relatively recent. The term was originally used by urban planners and architects in the context of rapid redevelopment and urban restructuring of American cities. It was later reconceptualized in the context of conflict and militarization of urban cities.³

Formulated by the former mayor of Belgrade between 1992-96 following the Bosnian war, the term refers the intentional and widespread killing of buildings and cities. While the targets of destruction are of no longer of military necessity, the act destructs the urban and social fabric of a city in a way that affects the daily life of the civilians.⁴

Part I focuses on the dynamic of destruction showing that it doesn't simply refer to a state of collateral damage, but the deliberate and calculated act is motivated by territorial control, political, ideological factors, or the overlapping of all. It reveals how various objectives are materialized through the destruction of concrete.

Destruction is not a side effect of war but the main leverage of political pressure.⁵

² Abujidi, *Urbicide in Palestine*.

³ Golańska, *Slow Urbicide*.

⁴ Lambert, *Weaponized Architecture*, p.23

⁵ Golańska, *Slow Urbicide*.



Figure 1 A destroyed neighbourhood in Homs, Syria

CHAPTER 1: RUINATION, A TOOL FOR RESTRUCTURATION

In the context of conflict, urban planning takes a dark turn researching and experimenting ways of maximising the urbicidal violence. The planned urban destruction is a cynical aspect of the discipline that is *rarely acknowledged* as Graham puts it. A relevant example of planned destruction projects is the fire-bombing of German and Japanese cities. The US Strategic Bombing Survey of 1947 has have admitted to the combustibility tests of Japanese houses conducted within the country. To ensure the tailoring of inflammatory devices for their designated targets, replicas of German and Japanese housing units were built in Nevada. The housing units were meticulously furnished with roofing material, furniture, and clothing mirroring the same environment of the targeted cities of Dresden and Tokyo who would later be devastated by fire. Within the USSBS a multitude of architects, engineers, urban statisticians carefully analysed each urban bombing incident in Japan and Germany with the goal of enhancing the efficiency of the city's obliteration process. Another experiment was conducted where a Japanese village was built in Nevada to predict the effects of atomic bombs on Hiroshima and Nagasaki.⁶ Such process of design by destruction is either driven by strategic or ideological factors. Strategic engagement is typically associated with territorial control, disruption of peace and domination of resources. Whereas ideologically driven violence involves deliberate cultural destruction and ethno-sectarian genocides.⁷

The Syrian conflict is a compelling example where the systematic destruction played a crucial role not only in the regime's repressive tactics but for the implementation of development projects for restructuration. As Talebi highlights, the spatial distribution of the damage occurred is uneven and correlates to various political and economic factors. Indeed, the destruction functioned as a weapon that allows to disperse urban protestors subsequently securing territorial and military advantages.⁸ Moreover, the ruination of the environment in which opponents functioned eliminates any potential for negotiation. In essence, the destruction acted as a safeguard against negotiations, allowing the regime to remain in power.⁹

⁶ Graham, 'Constructing Urbicide by Bulldozer in the Occupied Territories'.

⁷ Talebi, 'The Politics and Economics of Urbicide'.

⁸ Talebi.

⁹ Kheder, 'Survival Through Destruction'.

Additionally, Talebi investigates destruction as an opportunity for financial gain. The immediate phase following the end of the military confrontations is marked by looting activities, a dynamic of destruction not often addressed. From electronic appliances, furniture to building materials, anything of value is looted from the properties, sometimes even being the main objective of armed groups. Typically, it is the same soldiers who captured the area who engage in these activities. The example of the city of Homs showcases how the extent and nature of looting differed based on the socio-economic status of the targeted areas thus influencing the technique and intensity of destruction employed. The available data suggests that the supposed “poor” neighbourhoods, as considered by the regime, experienced a greater level of destruction. These areas were rendered as potential sites for urban development, extracting debris and building materials. Whereas the wealthier neighbourhoods were spared from severe destruction to facilitate the looting of valuable appliances and furniture.¹⁰

Months or even years following the capture of a city, demolition was another form of destruction that took place across entire neighbourhoods like in Hama and Damascus. The motivation being urban development and reconstruction, these cities were demolished not by aerial bombs but by explosives and bulldozers. A ground operation conducted by local municipalities meant to make way for commercial development.¹¹

We perceive destruction as a state of interruption or a temporary end, but it is in fact this very stage that regenerates the construction market and promotes financial interests. It should be understood as a cycle, where the momentum can be initiated by the politics of war and conflicts.

destruction should be understood not as a single event but as successive waves of ruination and a continuous process of eradication that internalizes parallel processes of (re)production and circulation.¹²

¹⁰ Talebi, ‘The Politics and Economics of Urbicide’.

¹¹ Talebi.

¹² Talebi.

While the data for the city of Hama demonstrated the correlation between urban typology and the intensity of destruction, the data for Homs indicate the correlation between military control and the intensity of destruction. For Hama, informal areas and city expansion areas were most affected by the destruction. As for Homs, it was the informal areas as well as the old city. The low correlation of destruction with the main protesting areas shows that the regime used the war as a pretext to engage in demolitions for urban and social restructuring rather than military necessity. With the announcement of regulatory proposals for several neighbourhoods in an effort to reshape the urban fabric, it has been argued that the plans of destruction closely resemble the pre-war urban development scheme also known as Homs Dream.¹³

The process of construction and destruction go hand in hand. The planned destruction is determined even before the conflict while extending into the post-conflict period.

While the case of the Syrian conflict may involve power and financial greed, similar efforts carried out by Israel in the Occupied territories of Palestine are mostly driven by ideological factors. As we will see later, the building of walls, the systematic bulldozing of houses, the construction of settlements and roads are all part of the broader project of restructuring the urban landscape and identity of Israel.

¹³ Talebi.

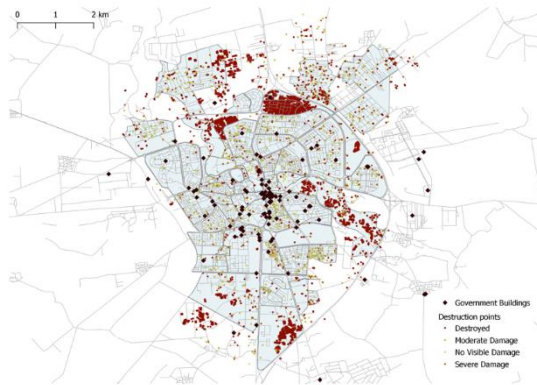


Figure 2: Intensity of destruction in Hama

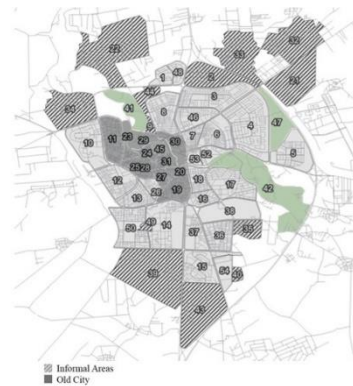


Figure 3: Hama city and its neighbourhoods

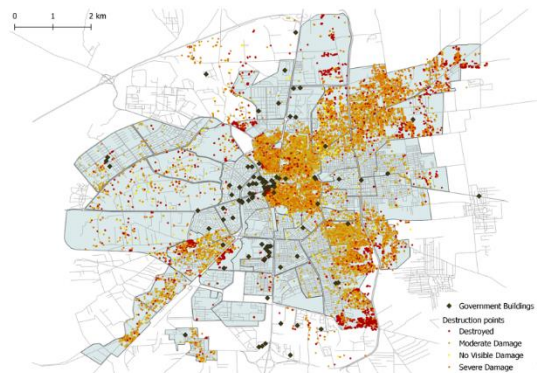


Figure 4 Intensity of destruction in Homs

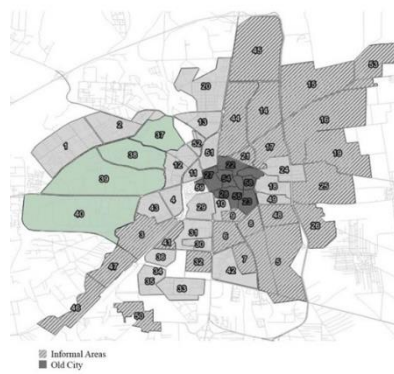


Figure 5: Homs city and its neighborhoods

CHAPTER 2: THE THREAT OF AIRSPACE

Though the previous chapter reviews looting and demolitions as “post conflict” devastation, the main dynamic of destruction during open war is aerial bombing. This type of warfare became prevalent during World War I and more expansive during World War II and recent wars. This form minimizes resources of manpower for a ground operation. Technology of war has advanced to the point that aerial warfare could completely obliterate a city within seconds rendering the airspace an important threat. Simultaneously, buildings have also occupied more of this space making the built environment much more susceptible to violence.ⁱ

Beyond strategic control and military operation, urban warfare targets the buildings not just as a physical structure but in essence their function that are vital for a population. Educational institutions, healthcare facilities, housing, roads, power supplies, and sewage system have been the target of destruction in recent conflicts. In Syria, 50% of hospitals were destroyed¹⁴ and a similar situation is seen in the current war in Gaza where schools were also involved. Although the justification remained for military necessity, it is evident that such destruction extends into the future of a society disabling it from possible means of recovery. History, identity, and cultural values also perish in the process.

One of the most devastating weapons in recent military warfare are the 2000-pound bombs. Breaking through all of the building floor, it blows up under the foundations completely annihilating the structure. The blast wave can affect anything around up to 1000m of distance. This munition was seen frequently used in the current war in Gaza. Through satellite imagery and artificial intelligence, an investigation conducted by the New York Times had detected around 200 crater bombs in areas designated safe for civilians. Although a smaller bomb, the GBU-39, is recently meant to be utilized in the conflict, its impact can still go up to 340 m in all directions. An additional danger comes from the fragmentation of metal shards that can propel out till at least 30 m around.¹⁵ Regardless, these weapons impact not only a singular building but effectively wrecks all the surrounding area as well. Other buildings are made to fully collapse even if they aren't directly targeted.

¹⁴ Al-Shoubaki, *War Victims and the Right to a City*, p.46

¹⁵ Stein et al, 'Video'.



Figure 6: MK-84, the 2000 pound bomb, 3.84x0.46m



Figure 7: "An aerial view of heavily damaged, collapsed buildings caused by Israeli attacks during the 4-day humanitarian pause at Al-Zabra region in Gaza City, Gaza on November 25, 2023."

Other than sophisticated and expensive munitions, there are other forms of weaponry that are improvised and more accessible in its production while still having a high destructive capacity. The barrel bomb is known for its cheap and makeshift design. An outer casing in the shape of a barrel is filled with explosive material, sharp metal or glass fragments and any other deadly material. These bombs are then simply dropped from above. Notably, it was used in the 1948 Arab Israeli war marking one of the earliest use of this type of bomb.¹⁶

¹⁶The barrel bomb particularly gained recognition due to its indiscriminate use in the Syrian conflict. This weapon was indeed useful due to the regime lack of advanced military arsenal and manpower. It is estimated that 82'000 barrel bombs have been dropped in the nine years of conflict causing a death toll of about 11'000 civilians and the displacement of about 9.5 million people.¹⁷

In contrast to the previously mentioned bombs, barrels bombs tend only partly destroys and destabilizes the buildings as the throw is significantly imprecise.

Not only is the airspace a threat for the launching of weapons but in the aftermath of war the air continues to carry significant threat due to the dust and substances released from pulverised building materials creating an environment potentially causing long-term health risks.

^{16,17} 'In Nine Years, the Syrian Regime Has Dropped Nearly 82,000 Barrel Bombs, Killing 11,087 Civilians, Including 1,821 Children - Syrian Arab Republic | ReliefWeb'.



Figure 8: "an unexploded barrel bomb in Hama, Syria"



Figure 9: Destruction of Aleppo © Patrick Tombola/ laif/ Redux

An innovative weaponry that is worth mentioning is the concrete bomb. Though conventional aerial bombs typically consist of a metal casing containing either an explosive charge or submunitions, other materials were also employed. With the rapid development of military aviation, it became necessary to establish proper training programs for pilots which included the teaching of bombing techniques. However, the use of large combat bombs was economically unviable and unsafe, requiring an alternative solution. The use of concrete proved to be relatively cheap and easy to manufacture while also accurately imitating actual ammunition. As concrete weapons were used for training purposes, they later found application in real strikes. Due to the shortage of metal resources in the phase of World War II, Germany witnessed the introduction of the first mass concrete combat bombs.¹⁸

Concrete bombs were employed during the Iraqi no-fly zones conflict by the US as well as the military intervention in Libya by France. Typically used for destroying military vehicles and artillery in urban environments, it represented a form of low-level war tactic.¹⁹ Released from above, it could crush a tank without causing a substantial explosion that would result in numerous casualties.²⁰ In Iraq, this tactic was deemed particularly useful as military targets were positioned in residential neighbourhoods.²¹

"It can stub your toe," Lieut. Col. Michael S. Waters, a spokesman for the American operation here in this base near the Mediterranean, said of the concrete. "But there's no chance of collateral damage," he added, using the military's euphemism for civilian deaths.²²

This is to highlight that concrete has also quite literally been used as the building material for weapons. Initially, it was used to “practice” destruction while later on was actively employed claiming to minimizing collateral damage and civilian casualties. This in contrast to the previous bombs that attempt to ruin the surrounding environment as well. Depending on the military and political motivation, the scale of buildings and people dying together varies.

¹⁸ Witcher, ‘For Study and for Combat. Concrete Bombs’.

¹⁹ ‘Concrete Bomb’.

²⁰ Martin, ‘France Is Dropping Concrete Chunks on Libya’.

²¹ Lee Myers, ‘Something New in the Iraqi Conflict: Concrete Bombs’.

²² Lee Myers.



Figure 10 German concrete bomb

While buildings are subject to intentional destruction, some weapons were precisely developed with the specific aim of eliminating an individual instead of the building. This is the case with the drone strikes that have been employed in Pakistan, Afghanistan, Yemen, Somalia, and Gaza. Initially conceptualised to target moving armoured vehicles, residential buildings became more of common target. Regardless of the position of room nestled deep within the building, the slight delay allows the missile to penetrate multiple layers of roofs, walls, and floors whether it's thatched, bricked or concrete before detonating within the intended room. The missile carries a payload of hundreds of deadly steel shrapnel that disintegrate human bodies while maintaining the integrity of the building's structure. The holes in the roof and floors render a particular pattern of destruction on residential buildings.²³

This is to understand the various dynamics of the built environment and the weapons used in war. The physical protection materialised by the concrete roof is either traversed or made to collapse. When it is traversed, like in the case of drone strike, the weapon is the direct cause of killing. When a bombardment collapses the floors and walls, it is the building that becomes the cause of death. In both cases the concrete roof fails at its fundamental function which is to provide shelter. In both cases, the building is affected by a form of destruction. In both cases, human death is the outcome.

However, it is the rhetoric of collateral damage that differs. The drone strikes have been framed as a humanitarian technology that minimizes collateral damage and “saves” human life. Although deadly, it is presented as a forgivable method.²⁴ This “humane” practice is defined as such because of its supposed precision, and the damage occurs inside and remains hidden. This vertical breaching of the architectural boundaries is also applied horizontally in a military practice explored in the next chapter.

²³ Weizman, *La Vérité En Ruines* - Eyal Weizman - Éditions La Découverte.

²⁴ Weizman.

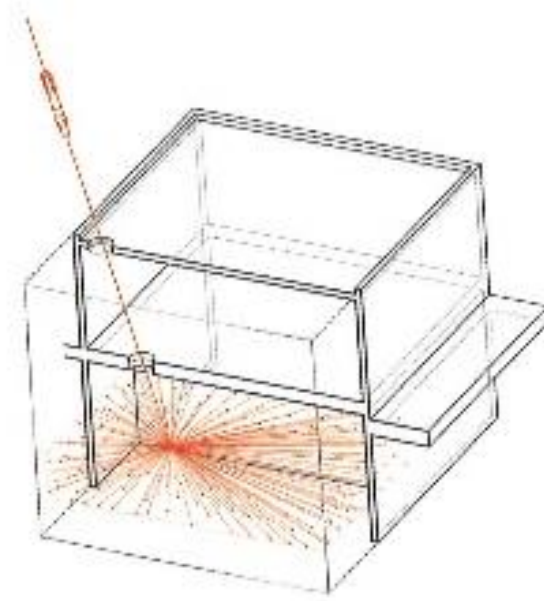


Figure 11: Trajectory of drone strike

CHAPTER 3: DOMESTIC SPACES AS THE BATTLEGROUND

One of the prominent issues brought up when addressing the Israeli-Palestinian conflict are the policies of home demolitions in the Occupied Territories. They are a major component of the Israeli project that aims to reconfigure the country's landscape.

Most often, the news highlight cases of punitive house demolitions used as a form of collective punishment. This is because it is indeed a highly contentious subject that has long been debated in terms of its legality. However, these punitive demolitions only represent a fraction of the overall demolitions. There are three main categories of demolitions: military, administrative and punitive.

Military demolitions also known as land clearing operations account for most of demolitions by 66%.²⁵ These demolitions have been the main reason for the massive displacement and destruction of around 530 Palestinian villages namely 52'000 homes during the Nakba and the following years. These villages most probably were built with traditional building material which was stone. Since 1967, an added 56'500 homes were demolished in the Occupied Territory.

It is to be noted that most of these towns, around 77%, have never been built over. Demolition is usually carried out to make way for new buildings or infrastructure. This would mean that a new project is already anticipated as discussed in chapter 1, where the demolitions in the case of the Syrian conflict served as a pretext for urban development. However, in the case of Israel, the priority is on the action of eliminating the building rather than rebuilding. It is an instrument meant to first erase the material presence of the previous population making the domestic spaces, specifically the home, an important component and an active target in the process of elimination. The *house* is the material element that contains the *home*, the symbolic element.

The demolition practices manifest as a continuum in the history of Israel and Palestine as part of an ongoing colonial project.²⁶ A conflict that sees no end...

²⁵ UK, 'Statistics on House / Structure Demolitions - November 1947-November 2023'.

²⁶ Eitan, Merza Bronstein, and Abu Riyya, 'maps'.

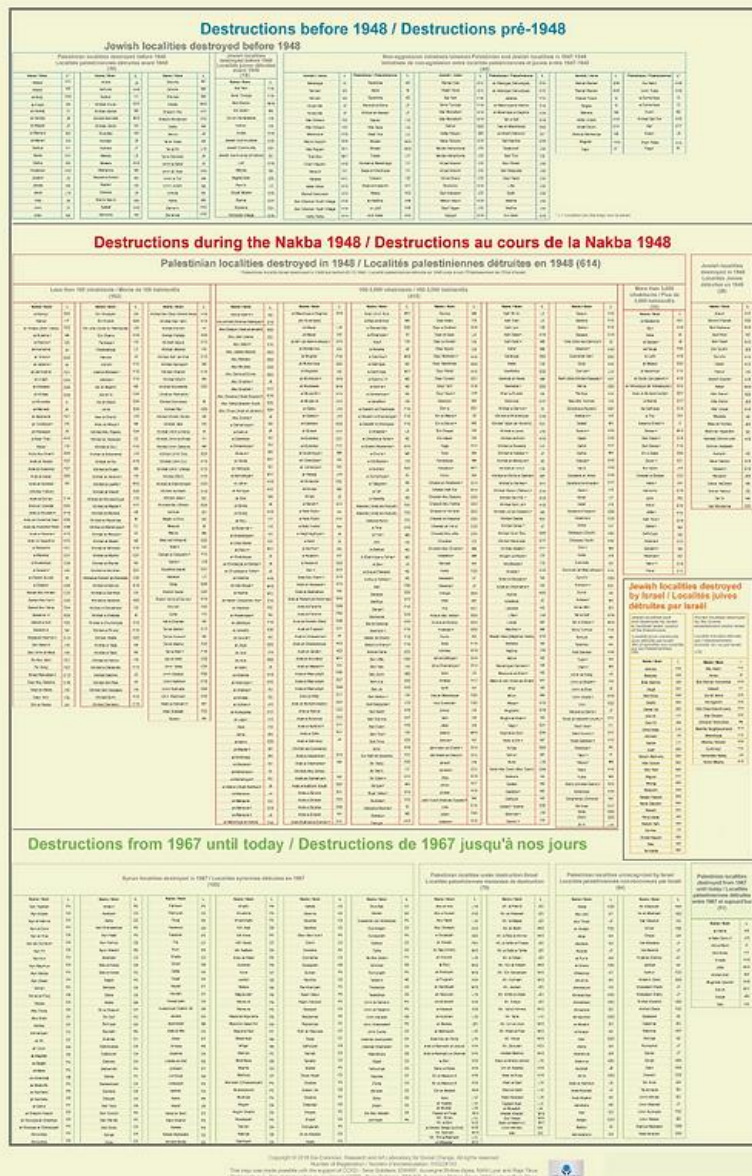


Figure 12: Research named « Colonialism in destru(a)ction » on the continous destruction since the Zionist immigration © De-Colonizer

Administrative demolitions refer to those carried out due to lack of permit and account for about 20% of demolitions. This occurs mainly in Area C and East Jerusalem where the authority is strictly under Israeli state and attempts to enforce building codes and regulations specifically the *Planning and Building Law of 1965*. Many Palestinians build illegally as a result of not being granted building permits.²⁷ This demonstrates the constant struggle of being prevented to construct or rebuild oneself while also having systematically one's private house destroyed.²⁸ This sort of spatial injustice is what precedes the common notion of social injustice. The "illegal" engagement in building represents not only a practical reaction to the daily struggles they face but also presents a form of spatial protest. This is especially the case in East Jerusalem where a cycle of construction and destruction has been a continuous occurrence.²⁹

Nonetheless, Muhammad contends: "We will build again and again. We will build even if they promise to destroy; we will build until the occupation ends. Only then will there be hope for our home."³⁰

This process of expropriation and demolition through legal means also occurred in Syria such as Damascus and Hama. The controversial *Law 10* is the legal mechanism upon which Syria's post-war urban planning projects were established. As a result, many buildings in the "informal" settlements that happened to be inhabited by opposition communities were decreed for demolition.³¹ The definition of these informal settlements has been a point of contention as they represented a large proportion of around 30-40% of overall housing pre conflict.³²

These so-called administrative demolitions have greatly undermined the right of a home generating an increased sense of "placelessness" for the local population.

Punitive demolitions are used as a deterrence tactic. It targets the house of people who are suspected of acting out against Israelis or the state but also those who might be related to the suspect.

²⁷ UK.

²⁸ Lambert, *Weaponized Architecture*, p.91

²⁹ Braverman, 'Powers of Illegality'.

³⁰ Braverman.

³¹ Daaboul, "'A New Syria'".

³² Sukkar, Zainedin, and Fakhani, 'INFORMAL SETTLEMENTS IN SYRIA: WHAT APPROACH AFTER THE CONFLICT?'

Since the occupation began in 1967, Israel has punitively demolished or sealed approximately 2,000 Palestinian homes in the occupied territories.⁶² These targeted homes have included not only dwellings owned by a purported perpetrator of a crime, but also homes where he or she lived with their immediate families or other relatives and/ or where the family homes were rented from a landlord. These demolitions proceeded even though the families or owners played no proven role in the alleged offence, having never been charged, let alone convicted. In the vast majority of cases, the home was not involved in the commission of the purported act.³³

This practice was suspended in 2005 only to be resumed three years later. This was due to its ineffectiveness in deterring possible threats. In fact, this method ended up fuelling more anger and consequently more attacks indicating that destruction always generates a cycle of reaction.

Selective house demolitions are not the only practice that violates and penetrates the domestic and private. In one of his writings, Eyal Weizmann addresses an unprecedented tactic used by the Israeli army as part of the military operations of Defensive Shield carried out during Second Intifada in 2002 that sieged the refugee camp in Nablus in the West Bank. This was also the case in 2004 where Operation Rainbow carried out in the Gaza strip and the Rafah refugee camp suffered major demolitions.

Conceptualized under “inversed geometry”, this strategy consists of navigating and breaching through walls and floors of the existing houses instead of moving within the limits of the existing roads and passageways. The horizontal movement of the bulldozer D9 was used to progressively destroy houses in the way and widen alleyways.³⁴

The advantage of infiltrating domestic spaces is that it catches the opponents off guard and forces them to venture outside making them vulnerable to the snipers waiting outside. Moreover, the damage caused by such method is internal, hidden inside the houses deeming it as an “elegant” alternative to destruction.³⁵ As discussed in the previous chapter, the same rhetoric was applied for the use of drone strikes. However,

³³ Human Rights Council, ‘Report of the Special Rapporteur on the Situation of Human Rights in the Palestinian Territories Occupied since 1967’.

³⁴ Weizman, ‘Passer à travers les murs’.

³⁵ Weizman.

in this practice the process and the outcome aren't simply destruction and the elimination of the enemy but an urban reorganisation. As soldiers become the urban practitioners, *destruct* and *restructure* are two actions that find themselves juxtaposing. Walking through the walls, penetrating through the roofs, all axis of the built environment is mobilized...

The impact of these demolitions is quite evident, from loss of family wealth and essential belongings to generational memories and traditions all reduced to rubble. But, possibly still recoverable... As we will see in part two, that even this aspect doesn't seem to exist for a practice like concrete home sealings.

Here, the concrete rubble acts as a witness and physical embodiment of shattered lives. Concrete combined with its process of destruction creates not only a visual spectacle but also an auditory one. "*sound can be deployed to produce discomfort, express threat, or create an ambience of fear or dread*"³⁶. The material is not present simply as a physical outcome but also effects the psyche of the person. Although these selective demolitions target the private spaces of families, on a larger scale it destructs the social and urban fabric and cripples any means of structuring the very needs for daily life.

The main actor for these demolitions is the famous bulldozer Caterpillar D9, a vehicle specifically designed by the IDF in way that protects the driver from any possible resistance by the Palestinians notably by the throwing of stones. "*retrofitted with steel armor plates, tiny bullet-proof cabin windows, special blades and buckets optimized for concrete demolition, and a powerful asphalt ripper in the rear.*"³⁷

The process of these house demolition includes various other tools such as excavators (for multistorey buildings), wheel-loaders (for small houses), explosives and hand drills. However, the D9 bulldozer is a vehicle symbolically embedded in the movement of this conflict. A weapon of war, a tool for postwar clearance, an instrument for urban planning. The bulldozer takes on various roles but accomplishes one mission: Permanently alter and topple an inhabited landscape of history, life, and people through destruction.

³⁶ Goodman, Sonic warfare. Sound, affect, and the ecology of fear cited in Delso, 'Concrete Punishment'.

³⁷ Zeitoun, 'IDF Infrastructure Destruction by Bulldozer'.



Figure 13:IDF D9 Caterpillar bulldozer

We notice that some demolitions are not carried out fully. For example, certain measures require damaging a single appartement in a building or some individual houses are simply destroyed in an unsophisticated way. I would argue that the action of only partly destroying a house is somewhat more dreadful than a house completely turned to rubble. Whether its deliberate or not, the aftermath of these homes presents themselves as public artefact. There is always a message to be sent through these acts. Half destroyed building are much more impactful, as they render an image where the recognisable home could be potentially saved while quite evidently presents itself as too dangerous to approach due it being structurally unstable. This incomplete way of carried out this operation is a recurring aspect found in another practice such as concrete punishment that we address in part II.

Although the discourse focused on domestic spaces as being target of violence, structures containing collective memories and symbolic value such as places of worship have equally a profound impact. This picture is a photo taken during the Gaza war of 2014 as one of the mosques was devastated due to Israeli airstrikes. The toppled minaret in one direction along with the men prostrating in prayer and leaning in the opposite direction perfectly depicts the state of Palestinian people. The instability and uncertainty are countered with *sumud*, a Palestinian cultural value that stands for steadfastness and perseverance. *The source for resistance.*



Figure 14: Minaret of Soussi mosque toppled by Israeli strikes in Gaza city, 2014 ©AP/Khalil Hamra

CHAPTER 4: PATTERNS OF DESTRUCTION, A POTENTIAL REUSE

The previous chapters gave an insight into different mediums and motivations for violence on the built environment used during conflict and war. As a result of these operations, different typologies of the destruction of concrete emerge. Patterns of destruction is an attempt to catalogue the damage of buildings based on different types of weapons.

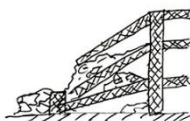
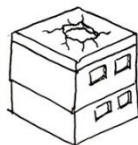
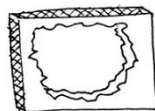
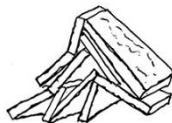
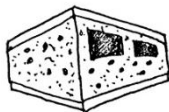
Both the process of construction and destruction are reflected in the geometry and irregularity of the fragmented concrete. On one hand, the uneven distribution concrete reveals the improvised nature of certain concrete structure. On the other hand, the geometry of the concrete pile indicates the instrument used.³⁸ Understanding how the weapons are used to destroy the concrete will give an idea of the resulting fragments that could be potentially recovered and reused.

It is important to keep in mind that this categorization is mainly based on the material's geometry. There are multiple factors to consider when exploring the idea of reuse particularly in the context of war and conflict. The process generally starts with collecting damage information. The challenge is usually the unpredictable and irregular nature of the concrete debris. Research on concrete reuse have been combining digital design in order to assess concrete fragments. However, these tools are certainly not an available resource in situations of conflict. These necessities would present as obstacles to the practice of reuse. Which is why I try to categorize through the simple means of photos and descriptions of how weapons are employed. Hand drawn sketches allow to visualize the various pattern of concrete rubble and understand what shapes can be recovered.

Another important factor to consider is the health risks due to exposure to dust and material particles resulting from explosive weapons. Pulverized building material (PBM) pose major threat to health as the various materials involved in concrete can be dangerous. For example, in Gaza UNEP (United Nations Environment Programme) had found asbestos in the debris. As we know, being a carcinogenic component, it has been banned in many countries.³⁹

³⁸ *Forensic Architecture*, p.143

³⁹ 'Conflict Rubble'.



In recent years, many studies and strategies have emerged in order to find alternative uses for concrete waste, notably recycling presents as an important scope. When it comes to the issue of managing concrete waste post conflict in Syria, Israel-Palestine and even Iraq, all have aimed at putting measures in place for recycling the concrete rubble. Although recycling is a major relevant and important practice for rebuilding and recovery from conflict, the subject of this paper focuses on the reuse. Recycling does require additional steps and more importantly more energy for processing concrete debris into new aggregates.

In Gaza, the general management process of rubble starts of with the removal. This step is either done by locals, through a private contractor or by the UNDP (The United Nation Development Program) or other organisations. After the 2021, it was in majority the citizen themselves that handles the rubbles.

Several steps are put in place: cutting concrete elements into a maximum of 50x50x50 cm blocks, extracting and cutting of the steel rebars, demolishing damaged buildings, loading after which the rubble is transported to a location for the recycling process.⁴⁰

Some recycling practices have previously been implemented by locals with the help of small-scale equipment on the damage site itself. Drill excavator and bulldozer are difficult to access or simply too expensive to rent.⁴¹ In the case of Israel and Palestine, there is an ambiguous aspect regarding the access to such resources. On one hand, Israel is known to possess a significant number of means invested in demolition equipment. On the other hand, we see the Palestinians struggle due to the severe lack of equipment making the recovery heavily reliant on manpower.

Transport is a major factor when it comes handling concrete waste. Given the lack of access to big vehicles, the use of donkey carts has been especially useful for locals handling the rubbles themselves. Depending on different size of carts, we can imagine their use to transport bigger blocks of at least 1x1m.

⁴⁰ AbuHamed et al., 'Managing Post-Conflict Demolition Wastes in Gaza Strip'.

⁴¹ Amra, 'Gaza Recycles Rubble as Israel Upholds Ban on Construction Goods'.

Agency handle the rubbles removal	Rubbles amount (tons)	# of buildings removed	% of removal involvement
Citizens themselves	155,415	311	42%
UNDP (Fund from Japanese Government)	122,525	151	33%
Egyptians Support	63,504	13	17%
Joint coordination between agencies	18,521	16	5%
Arabian Committee for Reconstruction	13,120	16	4%
Total	373,085	507	100%

Figure 15: "The amount of rubbles linked with number of damaged buildings, which have been generated in Gaza Strip during the May 2021 conflict segregated by different agencies that handled the rubbles removal"



Figure 16: "A Palestinian woman, Jihan Abu Muhsen, unloads a cart of concrete rubble she has collected from bomb sites." ©Ibraheem Abu Mustafa/ Reuters



Figure 17: "Wreckage is filtered then crushed to mark two types of a weaker quality of gravel" ©Ashraf Amra/ Al Jazeera



Figure 19: "Palestinian workers modify steel rods for the construction of buildings destroyed by Israeli fighter jets during the recent attacks on the Gaza Strip "©Ashraf Amra/ Al Jazeera



Figure 18: "Concrete blocks are made from the remains of destroyed homes after recycling" ©Ashraf Amra/ Al Jazeera

When trying to find specifically reuse practices, I came across only one compelling case in Gaza. In the management of conflict debris, one important process requires retrieving concrete foundations and large concrete blocks from the damaged buildings. These blocks were reused and placed along the coast for shoreline protection. This is because the coast of Gaza had been experiencing issues with sand erosion and sedimentation patterns and risk of significant stability by constructing roads near the shoreline. Consequently, approximately 4000 tons of material were utilized to safeguard the shoreline. The large concrete blocks were either laid horizontally or at an inclined angle.⁴² Beyond this practice, I have not found much discussion regarding reuse rather than recycling. Most of the time these two terms are used interchangeably indicating that these notions are not yet differentiated in logistical terms as well as ecological. The following part tries to propose a way to look at various types of debris with the intention of potentially reusing rather than letting all of the rubble be crushed and recycled.

⁴² AbuHamed et al., 'Managing Post-Conflict Demolition Wastes in Gaza Strip'.



Figure 20: Large concrete blocks and foundation elements sorted out from rubble



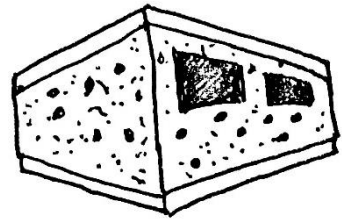
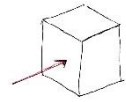
Figure 21_ Foundation blocks reused for shoreline protection in Gaza Beach

/!\ All the following hand sketches are done by the author

PERFORATED WALLS

Small arms, Armoured personnel carrier (APCs)

The least damage caused to a building and its structural integrity comes from strikes of small arms and armoured personal carriers. However, they leave emblematic traces of the conflict. Almost reminiscent of the perforated wall from Arabic architecture used as a decorative as well as ventilative function, this version presents a violent story behind it.



Knowing that the building stays intact, it is possible to still inhabit it since the damage caused is mainly on the outer layer.

Therefore, the facade needs to be addressed.

One option is to restore to the previous state by erasing the damage. Infilling the holes and adding a new protective and finishing layer all over.

Second option is to repair by patching the holes without plaster a whole new layer.

Keeping the traces visible that would create a subtle pattern recalling the event.

The third is to *reuse* the cavities produced in the concrete. That space could be possibly appropriated by earth and vegetation or small animal species.



repair



reuse

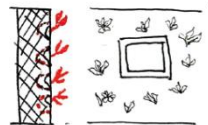




Figure 23: Israeli troops operating in Gaza, 2023 © IDF

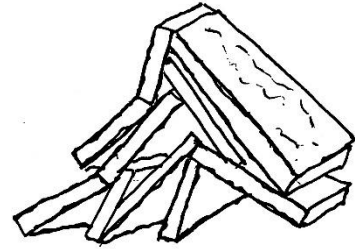
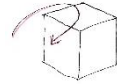


Figure 22: A building in Rafah refugee camp in Gaza ©Ibraheem Abu Mustafa/Reuters

PYRAMID

Caterpillar Bulldozer D9s

Since the bulldozer can only topple the peripheral columns of the building with its short front blade, the floor slabs snap at midpoint and fold downwards while the internal columns are maintained forming a “pyramid” like shape.



While the columns and walls of the corners are reduced to rubble, the slabs split in half can be recovered as they can provide elements of large surface. The columns in the middle not directly touched by the bulldozer may serve as larger elements too.

Depending on the floor, the position of split could differ. For the first floor, the corner and edges may be reduced to rubble due its impact on the floor. The second floor might have the half slab split into half again.

The third floor appears to have the largest surface of slab available with a 1/4 and 3/4 split.

However recovering these elements require bigger equipment for transport or movement.

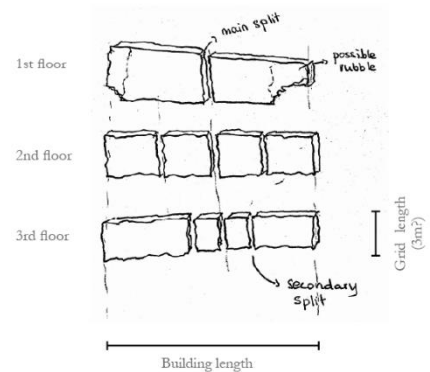




Figure 24: A bulldozer demolishing a Palestinian home



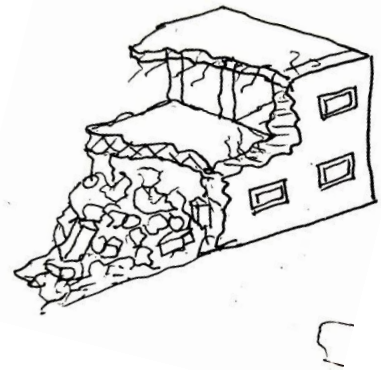
Figure 25: A Palestinian child in Gaza sits atop rubble after Israel's Operation Cast Lead in 2009. © (andlun1 / Flickr)

PIECE BY PIECE

Excavator

The excavator are also commonly used for demolitions. Various attachments allow for different destruction efficiency. With its “arm”, it is more efficient in capturing elements that are situated behind and away from the machine. This sort of destruction results in the most diverse material fragments due to use of different attachments, such as the shovel, shear and hydraulic hammer. Wherever the excavator directly touches the concrete, structural elements are reduced to smaller chunks of concrete. The other parts of the building that are collapsed as a result of the previous operation, may resemble the pattern of the “pyramid” or “pancake”.

The most common is the shovel attachment which is effective in dismantling slabs. Working horizontally, longer elements of slabs would be the resulting debris. The shear attachment with its rotating capacity can easily capture columns and walls allowing the building to collapse on its own. It has almost a zoomorphic character with its visible teeth and biting like movement which adds to the visual spectacle of the demolition. The fragments would be more irregular and may have sharper marks on the edges of the rubble pieces. The hydraulic hammers can “poke” both walls and slabs resulting in chunks of smaller debris. Except for where the hammer is applied, the edges would be smoother in comparison due to the fracture effect.



W < 0.5m
L = 1.2 m - 3m (width of attachment)



rubble size < 1m



rubble size depends on process
from stone size to small slabs

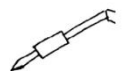




Figure 26: House demolition with shovel attachment



Figure 27: Demolition with shear attachment

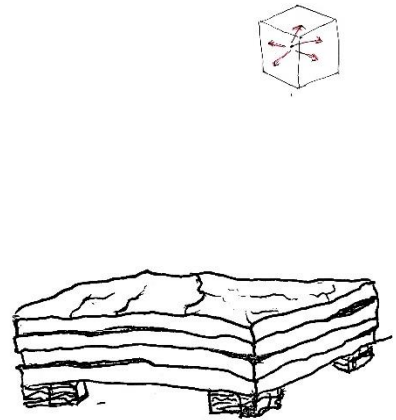


Figure 28: Demolition with hydraulic hammer

PANCAKE

Explosives

This type of destruction is also typically used in the house demolitions procedures undertaken for example in the Palestinian territory of West Bank as well as Hama and Damascus in Syria (chapter 1 & 3). The explosives are placed close to structural columns resulting in a series of floors pancaked over each other.

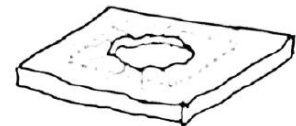


Similar to the pyramid type damage, this destruction allows for large surface areas of slabs.

Since the entire building slab is less likely to have split, it would be required to cut the concrete on site due to transportation constraints. Especially, if the building is of larger scale than a single-family house.

If the explosives are placed on upper floors, one or more slabs may contain a big hole. Depending on the distribution of the explosives on the floor, the fracturing in the slabs can differ. Due to the shock waves of the explosive the structural properties of these slabs may be significantly less than those resulting from the bulldozer and excavators.

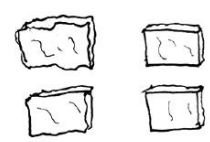
Slab from where the explosion occurred



Recovered concrete around hole



Recovered concrete from extremity



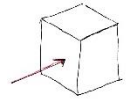
Depending on the tools used for cutting, the edges can be rough or smooth.



Figure 29: Palestinian building blown up by Israeli forces © Mussa Qawasma/Reuters

HOLE IN WALL

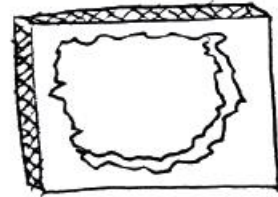
Tank shells, Hand drills



During open war, tanks used to propel shells on buildings result in large holes across walls. Some even have the capacity to traverse several walls at a time.

Hand drills are used on internal walls in the case of a punitive demolition where a single apartment is affected and leaving the rest of the building.

Although this damage is quite significant, the overall building seems to be structurally intact yet also very fragile.



Although violent, this operation returns the building to its primary concrete framework, becoming potential carcass for accommodating new functions and aesthetics. The internal disposition can be rearranged for new typologies. The external facade can welcome innovative ways for closing a fragmented wall, making way for a revived street requiring the participation of collective thinking and labour.

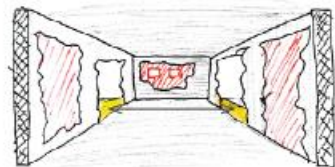
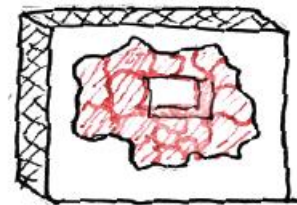




Figure 30: A merkava tank roaming in Palestine



Figure 31: A building in Gaza struck by tank shells

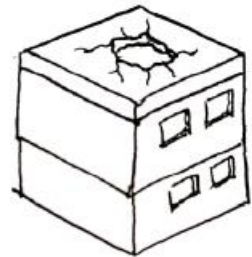
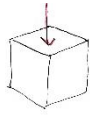


Figure 32: A punitive demolition of an appartement in the Wesk Bank

HOLE IN CEILING

Drone strikes

As seen in chapter 2, this use of drones strikes mainly target a human suspect rather than the building itself. However, it's still very destructive especially considering the hole it creates in a ceiling. Depending on the model, some contain a delay fuse whose shock wave could also affect the existing walls.



Similar to the previous case, this damage still leaves the building intact. But the ceiling no longer provides the protection it should. Could it also be seen as new source of light, an outlet for ventilation, a new entry and exit...?

Although optimistic these suggestions are meant to initiate unconventional ways of living such a space instead of simply repairing, abandoning or demolishing the house. It can be experimented and implemented by the inhabitants themselves.

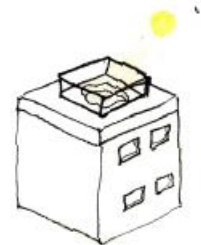




Figure 33: House struck by drone in North Gaza, Kent Klich

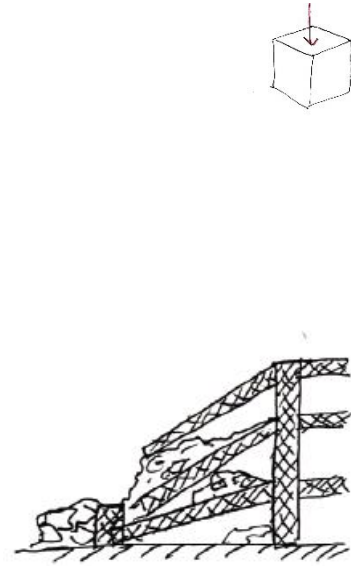


*Figure 34: A roof struck by american drone in Pakistan ©Tariq Mahmood
AFP/Getty*

SUSPENDED DEBRIS

Aerial bombs, barrel bombs

One of the most severe damage to buildings is caused by aerial bombs. It directly affects load bearing structures and internal non-load bearing structures. The shock wave can also hit nearby constructions proving that the building itself isn't structurally safe anymore. When a multistorey building is struck, the part that is effectively destroyed causes also major damage to the remaining standing part. With half standing and half destroyed buildings, the first part remains often non salvageable and requiring an additional step of demolition.



In this case, the material that can be recovered is also very diverse and irregular. From sand like particles, big chunks of debris to suspending slabs. However, it could be possible to plan the process of demolition in a way that desired sizes of concrete can be obtained. For example, if large surfaces of slabs are required, the method would consist of targeting the columns so the rest of the building can collapse similar to the “pyramid” and “pancake”.

This process does require extra machinery in order to achieve the desired materials.

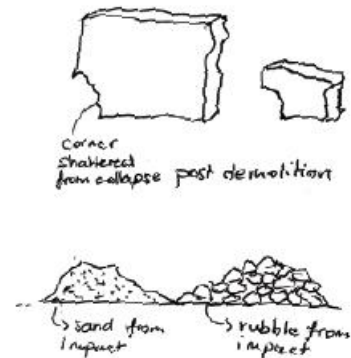




Figure 36: Destruction in Gaza, 2023 © AP

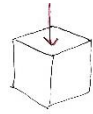


Figure 35: Demolition in Gaza after 2022 attacks

CONIC CRATER

2000 pound aerial bomb

The deadliest form of attack on the built environment are the 2000 pound aerials bombs. With the speed and weight, it directly targets the foundations of a building completely obliterating it to rubbles. The result is a conic like crater that replaces the building. Some bigger elements from the outer part of the building may remain.



Due to the effectiveness and destructiveness, it is mostly a pile of rubble that results. Although, often times, the debris is collected by bigger equipment, the size allows it to be collected by individuals too. The use of manual small tool such as the hammers can be seen used. Practices of recycling the metal rebars from the concrete were also seen.

Sand and small rubble from direct impact



Larger debris from outer building





Figure 37: Aftermath of bombardement on Jabalia camp in Gaza, 2023©CNN



Figure 38 Bomb crater in Khan Younis, from 2023 Gaza war ©AP/Fatima Shbair

PART II NEW CONCRETE STRUCTURES, A MEANS OF OPPRESSION OR SURVIVAL?

As much as destruction is an inherent part of the war and conflicts, construction of the built environment equally contributes to its “destruction”.

Part II aims to showcase how concrete is in fact used as a political material and tool. Particularly in the context of the Israel-Palestinian conflict, it is rather by means of urban development than destruction that a landscape of violence takes shape namely through projects such as the settlements, refugee camps, walls, underground tunnels. Concrete becomes an instrumental material and medium through which both parties manifest their control and struggle for land.⁴³ While concrete structures emerge as means to control and repress, its access becomes also symbolically linked to the possibility of survival and resistance.

*Their effect, nevertheless, could not be more concrete to the Palestinian people.*⁴⁴

⁴³ Siegfried, ‘Making Settler Colonialism Concrete’.

⁴⁴ Lambert, *Weaponized Architecture*, p.67



Figure 39 »Debeishe Camp, 2011; self-built cement-based structures stretch across the surrounding hillside » (photo by Abourahme Nasser)

CHAPTER 5: COLONY AND CAMP, A CONCRETE ENTANGLEMENT

Concrete's dual use manifests on one hand through the Jewish settlements and on the other, through the construction of concrete shelters for Palestinian refugees and Palestinians "civilians" who attempt to rebuild their homeland. The political discourse frames concrete as a permanent material, consequently entangling both parties in a race for statehood, control and resistance.

The earliest exposure to major concrete structures for the native Palestinians began during the British Mandate with the construction of giant concrete forts, known as Tegart forts. Named after the designer, Sir Charles Tegart, these forts were installed across the landscape as a response to the Arab Revolt of 1936. It is interesting to point out that Sir Charles Tegart was a police officer who served not only in Palestine but also in British India. This shows how imperial counterinsurgency structures were in fact imported across colonies.⁴⁵ The construction of a series of massive concrete forts initiated a major restructuring of space. Around fifty-five of these structures spread across hills and laid the foundations for the modern state security of Israel. Concrete came to reinforce the control and existence of the British power and subsequently the Israeli authority. These structures indeed inspired the formation of the wall and stockade also referred to as *Homa Oumigdal*.⁴⁶

⁴⁷

Representing the main paradigm of Israeli architecture, this concept was crucial in the establishment of the state. This new type of settlement developed in response to the growing opposition from the Arab population and British regarding the purchase of land by Zionists and the continuous influx of migrants. The main condition for its construction was to be able to build quickly, overnight even. This was to establish a Jewish presence on the land and guarantee a sustainable state of Israel. The first settlers took advantage of the Turkish Ottoman Law that remained valid during British Mandate. It stipulated that any illegal buildings containing a wall and a tower could not be demolished. To bypass the laws imposed by the Mandate, the settlers would arrive clandestinely at night equipped with prefabricated wall and tower. Within hours the

⁴⁵ Cahill, 'The Tegart Police Fortresses in British Mandate Palestine'.

⁴⁶ Nasser Abourahme, 'Beneath the Concrete: Camp, Colony, Palestine'.

⁴⁷ 'Tegart Forts in Palestine: Adopted and Adapted Monuments of Supervision | Quaderns 2011 – 2016'.



Figure 40: Tégart forts

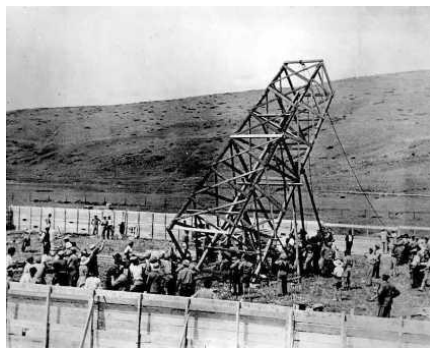


Figure 41: Establishment of primary structure of the tower



Figure 42: Tower and stockade, 1938

construction could be completed making it difficult for the Mandate to intervene. Between 1936 and 1939, fifty-seven of these were constructed across the country.⁴⁸

The system was based on the rudimentary construction of an enclosure made up of prefabricated wooden molds filled with gravel and surrounded by a barbed wire fence. This resulted in an enclosure measuring 35 m x 35 m. There, a prefabricated wooden tower was installed, which overlooked the surroundings, along with four barracks that served as housing for a "battalion" of forty "conquerors".⁴⁹ (Translated from French)

Interestingly, the act of illegal building also served as a form of resistance and represented a determination for establishing a presence on the land. As we saw in chapter 3, Palestinians are seen struggling through similar mean of illegal building. However, law being an important weapon in the politics of state building in Israel, Palestinian are not granted that same protection against demolition that Jewish settlers had under the Turkish Ottoman Law. This act eventually laid the foundations for the future establishment of the Israeli state.

The Homa Oumigdal is the basis for the settlement villages known as kibbutzim.⁵⁰ Originally built as an agriculture settlement based on collective farming overtime shifted towards a “city” settlement. Serving two main purposes of fortification and observation, it remains a concept that embodies an architecture built for constant and looming potential for conflict.

Due the shortage following World War II, cement emerged as a widespread material used in especially in reconstruction projects. Subsequently it became essential in the state building projects such as the settlements that further anchored the Jewish presence on land. Simultaneously, it became one the reasons for the uprooting of native Palestinians.

It is not only the consumption but also the production that poses complex entanglement with ideas of national identity. The legitimization of national identity was contingent upon the idea of Jewish labor building the Jewish state. The discourse was framed around the notion of superiority of skills of Jewish labourers since Palestinians labourers

⁴⁸ ‘Ein Hashofet, a Tower and Stockade Settlement, 1938’.

⁴⁹ Weizman and Segal, *Une occupation civile*.

⁵⁰ ‘Ein Hashofet, a Tower and Stockade Settlement, 1938’.



Figure 43: "Palestinians displaced by the settlement, visible as concrete structures in the background." Photo by Kali Rubaii.

"These [concrete homes] are in the way. These [tents and tin dwellings] are not permanent, so we don't care [about them]." He explains that his priority is to demolish the concrete homes surrounding the village center, since they appear on aerial photographs "as if they are meant to stay forever" and thus interfere with this concentration process.⁵¹



Figure 44: A Village Home built with concrete, a struggle for reestablishing the homeland. Photo by Kali Rubaii.

⁵¹ colinhoag, 'Concrete and Livability in Occupied Palestine'.

originally mastered stone masonry not concrete. However, this concept failed as Palestinian labourers would end up playing an important role in constructing the Jewish state. Added to that, another contradicting and disconcerting situation would be from the point of view of the Palestinian worker. For the survival of one individual and family, one must engage in the project building process of a state (Israel) that continuously undermines his own statehood (Palestine).

The politics of this building material was also shaped through the Nesher Portland Cement Company that carried a Jewish monopoly over cement production for decades. It presented as a major obstacle for the Arab Cement Works that was resisting the monopoly and struggling for economic independence.⁵²

Concrete weaves through the struggle of state building as a material, political, economical and social agent.

The 1948 war and establishment of the state of Israel resulted in the displacement of 750'000 Palestinians, many of whom fled to the Gaza strip and West Bank while others sought refuge in neighbouring countries. All of these areas hosting refugees who suffered major socioeconomic challenges assigned the assistance of displaced people to the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA). It was meant to address the insufficient housing by provision of proper shelter. By the early 60s, it quickly evolved from a humanitarian organisation for short-term relief for displaced people to an agency of development and construction. Alongside being the largest employer of refugees in the Middle East, it emerged as a significant importer of cement. Eventually, concrete became the primary building material employed by the UNRWA in both the West Bank and Gaza. Concrete was deemed cheaper and quicker in providing shelter for refugees as it reduced the need to replace tents every few years.⁵³ Most tents were replaced with concrete shelters by 1959.⁵⁴

In the camps, concrete or more precisely cement despite being extremely mundane represents a vital material for the people living there. It played a significant role in transforming and urbanizing the camps' overall structure. Following the 1967 war, access to cement increased, thus allowing refugees to gain knowledge and skills in construction. As cement not only served as a building material but also a binding agent that could form solid concrete blocks, it was possible to produce building units on-site. This allowed the

⁵² 'Building to Survive'.

⁵³ Abreek-Zubiedat and Avermaete, 'Concrete Conflicts'.

⁵⁴ 'The Evolving Infrastructure of Palestinian Refugee Camps'.



Figure 45: Dheisheh refugee camp, 1952 (UNRWA archive)

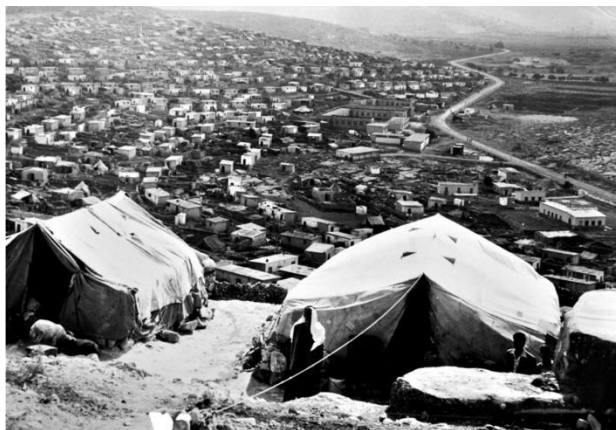


Figure 46: Dheisheh refugee camp, 1959 (UNRWA archive)



Figure 47: Dheisheh refugee camp, 2011 (Brave New Alps)

vertical expansion of the camp resulting in a higher population density making way for emerging commercial spaces.⁵⁵ From clothed tents to build structures, the nature of the camp became increasingly questionable. These concrete structures introduce complexities given the temporary nature of a camp. It creates a temporal space that lies between the permanence of the concrete-built camp and the temporariness of the political condition of the refugee.⁵⁵ Although concrete represents a medium for survival and improved conditions, it became the very reason to diminish the right of return by permanently anchoring refugees to the camps.

*In other words, the camps emerged as the spatial effect of the engineered political irresolvability of the question of Palestine.*⁵⁶

*[...] concrete increasingly became an instrument in the Israeli campaign to combat the sumud (steadfastness) of the Palestinians and to undermine their right of return*⁵⁷

The Concrete Tent is a project developed by DAAR, the Decolonizing Architecture Art Residency. It is meant to materially symbolize this permanent state of temporariness. It attempts to preserve and represent a history of those who fled and struggled following the Nakba.

At first sight, it seems like provocative and almost too literal in its form. But as one comes to understand the complex and ambiguous nature of the camps, this materialisation through its simplest and purest form perfectly embodies the contention of temporality of the refugee camps. It also allows to provide an architectural form to narrations and depictions of camps that moves beyond poverty and marginalization. Regarding its function, it serves as collective space for communal gathering making it a site for sharing, exchanging, and learning.⁵⁸ How much ever practices of demolitions and construction obstruct and perturb the Palestinian day to day life, the act of gathering will always serve as a potential for negotiating contested spaces.

⁵⁵ Abourahme, 'Assembling and Spilling-Over'.

⁵⁶ Nasser Abourahme, 'Beneath the Concrete: Camp, Colony, Palestine', p.6

⁵⁷ Abreek-Zubiedat and Avermaete, 'Concrete Conflicts'.

⁵⁸ 'Concrete Tent, Dheisheh (2015)'.



Figure 48: Concrete tent exterior



Figure 49: Concrete tent gathering

In contrast, we see the example of the Syrian refugee crisis specifically in Lebanon where they are pressurized to demolish or dismantle their shelters. The addition of concrete walls for the shelters suggests an anchoring to the land. The fact that the shelter resembles more of a house than a tent poses a threat, as the rhetoric of a permanent building is associated with the taking over of land. Although on the basis of housing regulations, it is said to be a purely political decision to pressure Syrian refugees to return to their country.⁵⁹ This further emphasises how the presence of concrete as permanent element has a major impact on the political and military course of actions. Overall, this material's ability to concretize building projects have posed complex and rather vexing uncertainties regarding the fate of a displaced population. Concrete engages in a temporality that makes it complicit to such position.

⁵⁹ 'Lebanon'.



Figure 50: Men dismantling shelters in Syrian camp in Lebanon © Bill Frelick/Human Rights Watch



Figure 51: "Dismantled shelters in a Syrian refugee camp in Aarsal, Lebanon, June 20, 2019." © 2019 Bill Frelick/Human Rights Watch

CHAPTER 6: WALLED LANDSCAPES

Having visited Iraq in the summer of 2023, I was struck by a significant element present across the country, modular concrete walls reminiscent of the Berlin and the separation barrier in Israël. Although the conflicts of this country seem to have ended, these prefabricated elements constantly echoed the 8- year long conflict. They were present in the city, notably Baghdad, but they also stretched across the landscape towards the outskirts when travelling between cities.

The landscape of this war is shaped not by the bunkers and trenches of World War I and World War II, but by domesticized architectures inclusive of military detritus in waste spaces and in public spaces that absorb t-walls, barbed wire barriers, and surveillance technologies.⁶⁰

Delving into these extremely basic looking structures confirmed that concrete is indeed as significant tool used in managing conflicts but also operating active military strategies on the battleground.

In the case of the Iraqi conflict, concrete walls were introduced after 2003 as the US forces needed to secure the landscape for their military bases but also prevent sectarian violence. Different military strategies were used in the process for diverse reasons.

There first use came as response to IED (Improvised Explosive Devices) also known as homemade bombs. The strategy was to firstly put up the T walls along every major roadway and then concrete barriers for smaller roads. Even though the threat of IED wasn't eliminated, the placement of these barriers did manage to restrict the movement of insurgents this is an important aspect that is characteristic to the use of concrete walls. Protecting local populations by limiting the sectarian violence was another significant reason for walling off neighbourhoods creating what was deemed as "safe communities" by the construction of enclaves becoming a distinctive part of the Iraqi landscape.⁶¹ Meant to provide safety, the walls essentially became more divisive and ended up reinforcing hostilities due to the construction of "exclusionary spaces" evoking a certain fear of the other.⁶²

⁶⁰ Rubaii, "Concrete Soldiers".

⁶¹ Spencer, "The Most Effective Weapon on the Modern Battlefield Is Concrete".

⁶² Riley, "To What Extent Is the "Battle of Sadr City" a Case of Urbicide?"



Figure 52: Part of a concrete wall in Al Adhamiya, a district in Baghdad



Figure 53: Deployment of concrete wall in Iraq Image credit: Spc. Kiyoshi Freeman, US Army

The example of the battle of Sadr City in 2008 is prime example of an active military operation that involved not just destruction but also the construction of concrete walls. This battle presented one of the most intense periods of fighting since the invasion and another case of an urban maze becoming the battleground for war. The main principle of the second phase (Operation Gold Wall) of the battle was to isolate an area with concrete T walls allowing to control infiltration and access. With mobile cranes and trucks, soldiers were able to place barriers overnight while simultaneously being attacked by enemy forces. Over a month, 3000 T walls were placed creating a 4.6 km wall encircling the Sadr city.⁶³

As former US Army officer, John W. Spencer states: *Many soldiers deployed to Iraq became experts in concrete during combat tours.* The skills of US force soldiers in concrete allowed them to navigate in urban environments freely as they could easily employ concrete to have newly walled compounds with guard towers in a short amount of time.⁶⁴ This shows how soldiers become urban practitioners who actively render the landscape and urban configuration.

*Concrete contributed to reducing the complexity of the urban environment, served as a major tool in establishing stability, and functioned as a powerful weapon against enemies using safe havens within the city.*⁶⁵

Knowing that concrete was actively used during conflict, naturally its demand must have been high. The conflict was ultimately dependant on the presence of concrete factories across the country. In 2004, it was a local business owned by Heresh Khoshnaw named Company 77 who was building these barriers. The US elaborated a new design that could reduce damage caused by an explosion by 70%, rubble going upward instead of around.⁶⁶ The effort put into making these walls blast proof show that the production of this concrete element is based upon its own potential destruction and the surrounding environment as well. The company was producing around 1000 walls a day in five

⁶³ Johnson, Markel, and Shannon, 'The 2008 Battle of Sadr City'.

⁶⁴ Spencer, 'The Most Effective Weapon on the Modern Battlefield Is Concrete'.

⁶⁵ Spencer.

⁶⁶ Shkar Ahmed, 'Fifteen Years of Blast Barriers in Iraq with a Kurdish Twist'.



Figure 54 concrete T wall mold, 2021 Photograph by the Kali Rubaii



Figure 55 : Soldier putting up walls Image credit: Senior Airman Eunike Stevens, US Air Force; Staff Sgt. James Selesnick, US Army

different factories across the country but still was unable to meet the demands at the time. However, more than 100 companies came about later. The demand remained high until 2007. Since the war ended and after the expulsion of al-Qaeda from Iraq the demand declined.⁶⁷ They are however still in production in currently three companies but with aggressive secrecy. As Rubaii mentions, it's a secrecy that is imbedded in the need for security to produce security walls.⁶⁸

The use of T walls is not exclusive to military demand but has extended to embassies and municipal compounds also becoming the language for civil architecture post conflict and beyond the urgency of war.⁶⁹

The infamous separation barrier between Israel and Palestine is situated in the West Bank was meant to materialize the border between the two state entities.

Initially, the wall was built as temporary measure against increasing tension during Second Intifada in 2000. However, it has been argued that it is representative of social division and discrimination. The seemingly temporary feature gradually become permanently and symbolically anchored within the Israeli-Palestinian landscape as Lambert states the *infinite temporariness defined by the continuous state of exception*. The previous chapter brings up the same case where concrete becomes the medium for establishing a permanent state of temporariness.

Lambert expresses that the barrier mainly serves two purposes, one that restricts the movement of Palestinian people, and the other is to insure the *largest possible amount of Jewish settlements on the Israeli side of the wall*.⁷⁰ Similar to Iraq, the separation barrier creates a landscape of enclaves.

There have been countless testimonies of the wall hindering the ability of Palestinians to navigate daily life through its intense restriction of movement. Its materialization isn't only through concrete walls but also various other concrete structures such as checkpoints, roadblocks, and segregated roads. affecting social and economic situation. The checkpoints manifested by huge concrete towers are meant to filter and prevent movement of Palestinians. They represent an overwhelming uncertainty that comes from the changing mood of the soldiers who allow to pass though. The general sense of an

⁶⁷ Shkar Ahmed.

⁶⁸ Rubaii, "Concrete Soldiers".

⁶⁹ Rubaii

⁷⁰ Lambert, *Weaponized Architecture*, p.70



Figure 56: The separation barrier ©Kai Wiedenböfer



Figure 57: Machmoud al-Azra and a mother and child attempt to cross a temporary 2.5m barrier in 2003. The border patrol officers were indifferent and ordered them to use the next Israeli checkpoint, a detour of 8km. ©Kai Wiedenböfer



Figure 58: Abu Adnan Schavarib, 70, walks alongside the barrier in Nazlat Isa. On the Israeli side of the barrier the town of Baqa ar-Rarbiya is inhabited by Palestinians with Israeli citizenship. Many families were split when the barrier was constructed. ©Kai Wiedenböfer

ever-changing political situation determines whether these checkpoints remain open and accessible to cross.⁷¹

Concrete roadblocks as harmless as they seem, can create significant disruption in the flow of traffic if a single block is placed on a road. Other longer elements exist to block larger roads. They are also used at checkpoints to separate people into queues visually creating an obstacle even before one can attempt to cross.

Segregated road infrastructure translates into disproportional and discriminatory mobility where one population can travel with significant ease while the other has to may not even be able to reach their destination due uncertain circumstances.

At every possible scale, obstacles are presented for simple daily life activities. The physical isolation resulting in social isolation is indirectly meant to hinder any possibility of recovery.

The restructuring of spaces is a major instrument of spatial and social violence whether it is by bulldozing through houses (chapter 3) or putting up walls. There is constant reconfiguration of spaces where concrete tends to be at the centre of it.

Although much of this constructed landscape of violence has dismantled the social fabric of the Palestinians, expressions of resistance emerge through new building practices.

One way is to attempt to reverse the imposed conditions of an architecture apparatus.

⁷¹ Lambert.



Figure 59: Concrete barrier from the Betlehem side in the occupied West Bank



Figure 60: Palestinians wait to cross the Qalandia checkpoint between the West Bank city of Ramallah and Jerusalem
©apaimages

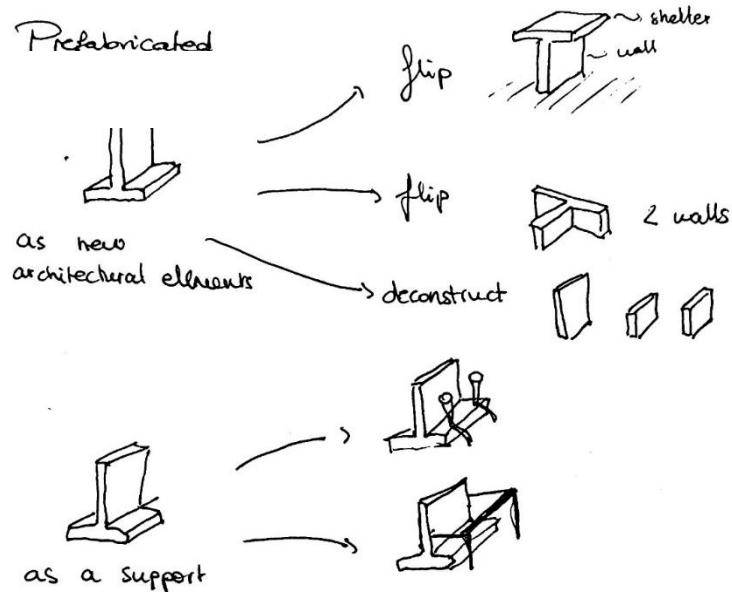


Figure 61: reimagining the concrete T wall, sketch by author

CHAPTER 7: CONCRETE REBELLION, CONCRETE PUNISHMENT

The lack of control over mobility and land seems to have translated into the control over what lies beneath the surface. As the world saw the current situation unfold in Gaza on October 7th, the underground tunnels have resurfaced as the important topic of discussion in main headlines.

*The tunnels represent "a new strategy in confronting the occupation and in the conflict with the enemy from underground and from above the ground," former Hamas Prime Minister Ismail Haniya has said.*⁷²

The tangible network of tunnels is what this chapter refers to as concrete rebellion aiming to reveal a remarkable tale of ingenuity and survival. Compelling photos taken from inside these tunnels showcase the sophisticated use of concrete.

Two years before the current war, Hamas admitted that the network built consisted of about 500 km of tunnels, around the length of the New York subway system. Which why it is also named as the Gaza metro.⁷³

Initially these tunnels were built mainly to smuggle consumer goods due to the Israeli blockade after Hamas took control of Gaza in 2007. However, they also began using them as warfare, by storing weapons, launch attacks, transport hostages etc.⁷⁴ Beyond the political and military discourse surrounding this subject, it is worth highlighting the impressive construction of these tunnels despite the significant constraints given the circumstances.⁷⁵ Clearly not designed through conventional engineering methods, it serves as compelling example of human adaptability to gather knowledge and develop engineering skills despite the lack of formal education in the field.

⁷² 'Gaza's Tunnels, Now Used to Attack Israel, Began as Economic Lifelines'.

⁷³ Arranz et al., 'Inside the Tunnels of Gaza'.

⁷⁴ 'Gaza's Tunnels, Now Used to Attack Israel, Began as Economic Lifelines'.

⁷⁵ Reporter, 'Engineering Resilience in the Tunnels of Gaza'.

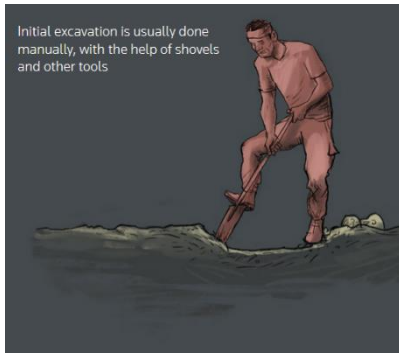


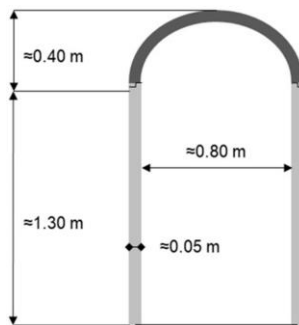
Figure 62 :First step



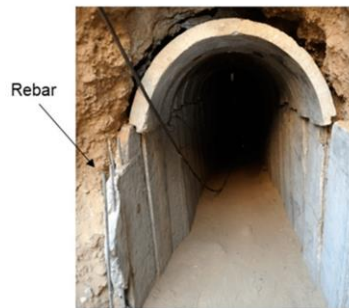
Figure 63 :second step



Figure 64:third step



(a)



(b)

Figure 65:Dimension of a tunnel in Gaza

As the Israeli army maximizes its movement by breaching through walls (chapter 3) while also putting up concrete walls throughout the landscape (chapter 6), the Palestinian side moves underground and reinforces the tunnel walls with precast concrete panels.

The same material used to restrict and oppress is the same used to resist and create new forms of structures for survival. However, with the current war, we see this very structure subject to yet again the threat of destruction. The dismantling of these tunnels served as the primary goal for eradicating Hamas' leadership. Moreover, it served as a justification for targeting civilian areas as Israel has claimed multiple times that the tunnels were located under densely populated areas. Creating a momentum of construction and destruction that never ends.

While concrete is used to create new ways of mobility, it is also used to immobilize. The same material used for survival and resistance is also the same employed to punish.

Concrete punishment refers to a lesser-known practice than the house demolitions we typically hear of in the Israeli-Palestinian conflict. It is a highly contentious form of punishment employed by the Israeli military that consists of pouring concrete into the house of a Palestinian accused of acting out against the Israeli state. It has been used as a new method for counterinsurgency and collective punishment. Up until 2017, roughly 1000m² of Palestinian spaces are known to have been sealed with concrete.⁷⁶ Data on this practice is quite limited or is often combined with house demolitions making it seem negligible in the grand scope.

East Jerusalem is where this practice was carried out. This area was annexed to the city of Jerusalem upon the acquisition of Israel of the West Bank and Gaza in 1967. After which the Israeli legislation was promptly enforced resulting in the Palestinian people residing within the 7000 ha area being given "permanent resident" status. Subsequently, the Israeli government tried to implement different methods to diminish the Palestinian within this area where the process of urbanization is central. Among the methods are restriction of building permits as seen in part one, designating surrounding areas as national parks, or creating shortages in infrastructure.⁷⁷

In regard to this last tactic, we have also seen the pouring of concrete in water wells. Some might call it another act of oppression debilitating farmers others might justify it by saying that these are necessary operations carried out in response to illegal drilling

⁷⁶ Delso, 'Concrete Punishment'.

⁷⁷ Delso.



Figure 68 : « Mu'taz Ibrahim Khalil Hijazi's window before the hose was introduced to pour the cement »



Figure 66: "Mu'taz Ibrahim Khalil Hijazi's bedroom and bathroom."



Figure 69: "Workers seal the Abu Dahim family home"
Photo by 'Amar 'Awad, Reuter



Figure 67: "Udai 'Abed 'Ali Abu Jamal's bouse."

that is diverting and harming the existing water system. Regardless, concrete plays a crucial role either by disrupting or controlling the very necessities of daily life whether it's a house for shelter or water for food. Moreover, when we are trying to restrict the use of concrete in the construction industry due to its ecological impact or simply the lack of resources, ironically such wasteful tactics are being implemented. The weight of concrete not only manifests in its physical form but sinks and weighs down on the collective memory and imaginary.

Given that this is a military operation, it is clear when looking at the photos that the equipment would be the same as for a new construction site. A more or less uniform result of the poured concrete in the rooms suggests that it wasn't merely a process of throwing concrete filled buckets into a house. The traces of waves in the dried concrete (figure) show that some pipe might have been introduced from the top and directly poured until the room fills up.

Undoubtedly, the reason for this harsh practice is that it makes the domestic space unusable by the inhabitants, however Delso argues that it provides more than that. The house becomes a *communicational artefact* that gives out a permanent warning where the aesthetic display contributes to its efficacy⁷⁸. Interestingly, we notice that it is never filled to the top. Two third, half or even at least one fourth is left always giving clues of the lived spaces. Some domestic objects such as bowls, pans, teapots etc. are stuck in concrete and others on higher shelves left untouched, but overall rendering a permanent image of dispossession.

*[...] it is consciously designed to affect and punish large populations via collective imaginary. Concrete punishment uses temporality to extend the duration of punishment to all the neighbourhood's inhabitants and memories..*⁷⁹

This act in a way memorializes the sealed house and the previous family transforming the home like some sort of relic or monument. As a result, the home becomes *public art*.⁸⁰ The way a concreted house is internally destroyed evokes a pattern similarly seen in the previous chapter three, where the urban fabric is constantly reversing within itself. The private become public and public becomes private. Domestic spaces becoming the state's battleground for a seemingly never-ending conflict.

⁷⁸ Delso.

⁷⁹ Delso.

⁸⁰ Siegfried, 'Making Settler Colonialism Concrete'.

The temporal dimension of this practice is weaponized and quite provocative. This act immobilizes architecture not only in space but also time since it seems quite evidently irreversible and irrecoverable. In comparison, house demolitions at least leave an empty space with the potential to reclaim land and be rebuilt. The durable nature of concrete is used against architecture itself as the very function of concrete for making an inhabitable space is used to make the space *uninhabitable*.⁸¹

Needless to say that this operation *destroys* not the physical concrete structure but the lived space. A space that poses a supposed threat. Kate Siegfried argues that this tactic reflects the fear of the Israeli state of Palestinian “compositional power” referring to the collective ability to organize. It is well known that homes have often been utilized to hide mechanisms for acting out against the state such as entrance shafts for the underground network of tunnels. The space confined in the house is essentially the place from which collective and organised systems emerge posing a potential threat to the state of Israel.⁸²

*In Palestine, the home operates as a sphere of virtual potentiality for compositional power.[...]Thus, Israeli defences are trying to fill a virtual space with actual concrete.*⁸³

The process of concrete sealings effectively pushes out the Palestinian from inside to be exposed outside for better surveillance. The sealed house becomes a restricted area where one can no longer pass through. Both the static and movement are completely paralysed.

*Much like the border wall, the home walls transform into an expression of Israeli state power that defines where a body can and cannot go.*⁸⁴

⁸¹ Delso, ‘Concrete Punishment’.

⁸² Siegfried, ‘Making Settler Colonialism Concrete’.

⁸³ Siegfried.

⁸⁴ Siegfried.

CHAPTER 8: POSSIBILITIES OF RESISTANCE

In view of the second part of the master's thesis project, this last chapter gives possible directions for developing a project embodying a vision that responds to the idea of living the destruction through reuse. Two distinct possibilities have emerged from the various aspects addressed in this whole research.

One first proposal would be a project that would develop around concrete punishment. The second would involve half destroyed buildings. Both are based on a same principle to *create the new from the damaged old*, as the American architect describes in his manifesto as the third principle of rebuilding cities post-conflict.⁸⁵

Reclaiming the concreted house, a prototype of resistance

There is certain ambiguity that lies in the specific act of pouring concrete of previous Palestinian homeowners. On one hand, this practice aims to eliminate traces of previous life. On the other hand, pouring only half of the building showcases the previous domestic elements of the space making it a remainder of the consequences if one attempts to attack/resist. The interesting dichotomy of wanting to erase while also purposely preserving traces of domestic presence allows to challenge to very idea of this irreversible act.

*That is why, each Palestinian building's ruin is a symbol of the Israeli oppression, but more importantly the physical mark of existence of the Palestinian people.*⁸⁶

So why not concretize this challenge by building from this concrete block of punishment? Playing into the duality and game of reversal that has long characterized the conflict. Solidifying the traces of memory of this practice by eliminating the ambiguous nature of wanting to erase the traces while also keeping them visible. Like the project of the concrete tent, attributing a narrative beyond its devastation of space would allow for an architecture of resistance and reflection.

From the perspective of the ecologist, concrete may be hostile to life: from the perspective of the anti-colonial nationalist, concrete is life. And in Palestine, it is strangely, both. Concrete offers not an impasse but a set of productive

⁸⁵ Woods, 'WAR AND ARCHITECTURE'.

⁸⁶ Lambert, *Weaponized Architecture*., p.159

*contradictions. Valuing lifeways is not simply about the connections between species or things, but about the ability to choose the terms of how those connections are made and changed.*⁸⁷

From my enquiry with the author of the article concrete punishment, Rodrigo Delso, the concreted houses are not planned for demolition and remains forbidden to build upon it, but the land is free to walk on. Although this clearly means that nothing can really come in affect, those exact two “issues” could play into the concept. The first point shows the intention to keep the devastated house as a warning is in a way that temporality is weaponized. This can be reversed as a potential for preservation.

For the second point, as seen in chapter 3, the very act of building illegally either as a form of protest or just survival is a recurring theme. The never-ending uncertainty of the situation and the legal but not so legal mechanisms can utilize the game of reinterpretation often seen in the Israeli discourse of urban warfare. It is forbidden to build on the concreted house. The concreted house is itself illegal in the view of International Law. The reasoning for concreted house is illegal activities. But the illegal activities are often justified because of the higher illegal control. As Braverman puts it, both parties share a strong commonality that is the ubiquitous use of illegality.⁸⁸ Which is why I came to be less preoccupied by the legal feasibility of the realisation of such project. However, because of this constant shift between construction and destruction, the aim would be to develop a design for an anticipated destruction, incorporating the permanent and temporary dimension. The concrete block could serve as a foundation around which various elements could construct or deconstruct. Given the limited resources, it could be possible to combine different types of rubble.

Throughout this research, we could understand how important the single unit of the home was in the overall discourse. A micro scale of the house that incorporates various aspects of resistance would help contemplate other possibilities in the scope of a larger and complex conflict.

In his thesis, Abourahme mentions an interesting story regarding his father who spent his last decade trying to restore his family home in Galilee. The home was a 350-year-old solid stone of mid-18th century vernacular architecture. The first step consisted of removing a tick layer of concrete that was added to the exterior and interior walls. This was because in the 1960s and 70s, the military government imposed the use of available

⁸⁷ colinhoag, ‘Concrete and Livability in Occupied Palestine’.

⁸⁸ Braverman, ‘Powers of Illegality’.

concrete bricks for new construction as well as the plastering with concrete spread of older stone structures. The process took days to remove by hammering, pounding and scraping.⁸⁹

The act of removal and its process emulate a resistance through construction. A similar process, but more radical, can be envisioned. The dismantling of the house's original walls which became the *expression of Israeli state power* as quoted in the previous chapter. This symbolic yet physically challenging task can explore the limits of concrete as a solid matter and a political agent.

Jabal al-Mukabber a predominantly Palestinian neighbourhood under Israeli Occupation in East Jerusalem known to be the place for protests for the Palestinian cause. It is where concrete sealings and administrative demolitions have occurred. The separation barrier also divides this neighbourhood in half leaving some of the resident on the Palestinian territory of the West Bank. It could an interesting area to focus on given its high contention.

Reclaiming half ruins, spaces of negotiations

The second proposition involves half standing buildings. As seen in chapter 4, some instances of such buildings seem like their framework is still recoverable. The precarity of the structure combined with collective needs of a population would qualify as an important and relevant exercise for negotiating spaces.

The photo shows the precarity of a war-torn country where the education of millions of children is under threat. Despite the conditions of the structure and the general socio-economic situation of the country, the picture demonstrates how people can adapt to their spaces with the aim of obtaining basic needs.ⁱⁱⁱ This isn't to say that such measures should be encouraged but that type of determination should.

An example of a project exploring partially destroyed buildings is one developed by the architecture office WZMH that attempts to salvage structures damaged by the war in Ukraine. They designed modular system of prefabricated building blocks that can be inserted in existing damaged buildings. Nonetheless, the process requires an offsite prefabrication and some form of advanced materials and equipment.⁹⁰

⁸⁹ Nasser Abourahme, 'Beneath the Concrete: Camp, Colony, Palestine'.

⁹⁰ 'WZMH Develops Modular System to Save Partially or Fully Destroyed Structures'.



Figure 70: Kitchen of sealed house of 'Udai 'Abed 'Ali Abu Jamal'



Figure 71 : "Yemeni pupils attend class on the first day of the new academic year, in a makeshift classroom in their school compound » ©Ahmad al-Basha/AFP

The concept that I envision is precisely the opposite of a systematic construction but more about integrating makeshift practices. A sort of collective self-build project that would rely less on external assistance but more on existing skills and on-site resources. The reason for concept of improvised building is due to the uncertain nature of the geopolitical position and the fact that the reclaimed structure may be subject to future destruction. The objection against a prefabricated system is not only for its reliance on technology and machinery but also for its aesthetics (even though one might not priorities that aspect in conflict areas). Regardless of destruction, concrete structures that have emerged in the past decades have often presented to be, quite frankly, lifeless. Modular prefabricated elements being a repetition of the same elements add to that mundaneness of the building. Furthermore, they evoke an ambiguous state of temporariness reminiscent of the concrete shed found in refugee camps. However, the idea is to mark a certain presence that is unique and characteristic to the people who choose to build with certain materials and methods. The collective efforts that create new informal networks of survival emerges as form of steady resistance.

CONCLUSION

On broader sense, this work brought a different perspective of the notions of destruction and construction itself. Destruction can be seen as the construction of new empty space. Whereas construction can be the destruction of an existing space.

The first part was crucial in understanding that destruction isn't simply a byproduct of war but in fact planned and constructed strategically, and goes beyond military necessity. Urbicide has become an essential tool in the process of urban planning. The built environment has become the battlefield stage that often involves a violent restructuration and consequently the massive displacements of populations.

The second part demonstrates how the construction of concrete can completely uproot one population while securing the presence of another. The duality of architectural apparatuses was explored. Between the refugee camp and the settlements. Between the separation barrier and the underground tunnels. Between the underground tunnels and the concreted house. Overall, it demonstrated the inherent dichotomous nature of concrete that involves a constant shift from being an instrument of violence to a target of destruction, a means of relief to a tool of dispossession.

Beyond its visible mundaneness, concrete carries a multifaceted role. While on the ecological standpoint, it increasingly renders itself a negative image, this sort of work doesn't necessarily alleviate it. However, it broadens the perspective that is generally associated with it. From binding communities through new forms of skills and resistance to physical separation from families, concrete as solid as it appears in its final form proves to be a material that easily spills.

From the perspective of the ecologist, concrete may be hostile to life: from the perspective of the anti-colonial nationalist, concrete is life. And in Palestine, it is strangely, both.⁹¹

⁹¹ colinhoag.

ILLUSTRATIONS

Figure 1 :

Yaser, Bo. *English: Destruction in Bab Dreeb Area in Homs, Syria*. 5 April 2012. Own work.
[https://commons.wikimedia.org/wiki/File:Destruction_in_Homs_\(4\).jpg](https://commons.wikimedia.org/wiki/File:Destruction_in_Homs_(4).jpg).

Figure 2, 3,4,5:

Talebi, Tessa. 'The Politics and Economics of Urbicide: Why Were Syrian Cities Destroyed?' *Project on Middle East Political Science* (blog), 27 September 2023.
<https://pomeps.org/the-politics-and-economics-of-urbicide-why-were-syrian-cities-destroyed>.

Figure 6:

'File:Mk-84 Xxl.Jpg - Wikimedia Commons'. Accessed 15 January 2024.
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ⁱ It is to be noted that while technological warfare continues to develop, buildings conceptualised by possible destruction also evolve.

ⁱⁱ The densification and vertical expansion of refugee camps through concrete construction is not only sought as a means of survival but also revival in the case of non-refugee construction in the Palestinian territory. Following the Oslo Peace Agreement that split the West Bank in three regions, Area A, B and C. Area A is under Palestinian civil and security control, Area B is an ambiguous area under which there is Palestinian civil control and Israeli security control, Area C is entirely under civil and security control. This fragmentation created major obstacles especially in planning and construction in way that the established zoning wouldn't allow natural expansion of cities. Moreover, the lack of planning on the Palestinian side contributed to chaotic building practices. In an attempt of building revival, new urban ideas and architecture of emerged. As Sharif says, the “imported” capitalist ideologies applied in the creation of certain Palestinian neighbourhoods further exacerbated fragmentation within the Palestinian social groups. The scarcity of land led to the construction of high-rise concrete buildings, permanently altering the historic landscape of red bricked roofs characterised in Palestinian villages. Through its construction, concrete acts as an agent that eventually dismantles the Palestinian fabric.

ⁱⁱⁱ I am aware that in this research I haven't addressed the war in Yemen. The picture is one I found at the very beginning of my research as it was extremely striking and compelling.

