Durable Fragilities. Maintenance and Care in Mud-Domed Villages of Syria

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Abstract

Mud-domed houses in northern Syria represent a living architecture shaped by fragility, care, and cyclical renewal. Rather than relying on permanence, their resilience is rooted in ease of repair, material intelligence, and cultural practices of maintenance. These structures blur the boundaries between dwelling and movement, stability and impermanence – offering a model of adaptability shaped by environmental and political disruption. Through community-led construction and repair, they reveal a different architectural logic: one where fragility is not weakness, but a deliberate strategy for survival. In a context of displacement and return, these homes reflect both the erosion and revival of intergenerational knowledge. Their ongoing presence challenges dominant architectural narratives and invites broader reflection on sustainability, vernacular heritage, and the rhythms of building, inhabiting, and letting go.

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Introduction: Reframing fragility

The mud-domed houses of northern Syria have long fascinated passersby and travelers (Al Asali, 2023). Since the 18th century, they have been described through various analogies – sugarloaf, beehive, haystack houses – each evoking the striking visual presence of these clustered earthen forms. Alongside these vivid descriptions, travelers often noted a duality: some domes stood in ruins, while others remained inhabited and well-kept.

This dual condition remains visible today along the plains between Homs and Aleppo. The mud-dome villages are simultaneously abandoned and inhabited. Some are left to decay, their surfaces eroded and collapsed, while others appear freshly plastered, still actively maintained. This elasticity, between decline and renewal, reflects the nature of the societies

Fig. 1 - Mud-domed houses in Al-Sfiera, abandoned during the war. Grass now covers the domes, and the plaster on the walls has deteriorated.

that have built and inhabited these homes: communities that are neither fully sedentary nor entirely nomadic (Coockson, 2009).
These structures negotiate thresholds: between dwelling and movement, permanence and re-making. Rather than romanticizing decay, this essay explores the current condition of Syria's mud-domed villages, situating their fragility within the broader contexts of environmental change, war-induced displacement, and shifting construction markets. It approaches fragility through ethnographic engagement, visual documentation, and community-based restoration activities. In these processes, residents and builders provide intimate insights into the rhythms of construction, care, and everyday inhabitation.

Mud-dome villages in Syria, often called beehive villages, have been widely studied in both ethnographic and architectural contexts. Aljundi's (1984) study documented their social and architectural features, focusing on how familial hierarchies shape spatial organization. Archaeological studies have highlighted both the historical continuity and the contemporary use of these villages. In a major study by Saverio Mecca, Letizia Dipasquale (2009), domed-building tradition through detailed typologies, construction lexicons, and conservation insights. During the conflict in Syria in the last decade, several studies have approached mud dome villages either as an endangered heritage to preserve or as a reference to forge homegrown earthen solutions for post-war reconstruction (Kassatly, Puett, 2011; Al Asali, Shahin, 2016).

Fig. 2 - Mud brick-making for the construction of the walls and domes in Um Myal Project.

This visual essay expands studies on domed earth housing in Syria in two directions. The first is temporal: it examines the construction and reconstruction of mud villages during times of extreme vulnerability: wartime. The essay shows how cycles of displacement and return have revealed a generational knowledge gap in the maintenance and care of these structures (Fig. 1).

The second contribution concerns fragility vis-à-vis mud dome construction. This essay approaches mud-domed housing through, not against, the lens of fragility. It frames Syrian mud domes as part of a social vernacular tradition that understands fragility not as failure, but as a generative design principle within broader ecological and cultural continuity (Fig. 2).

Fig. 3 - Al Haj Ali in his house in Al Safira after his return. The Kitchen dome is shown across the courtyard.

Fig. 4 - Analysis of Al Haj Ali House, spatial, material, and environmental conditions.

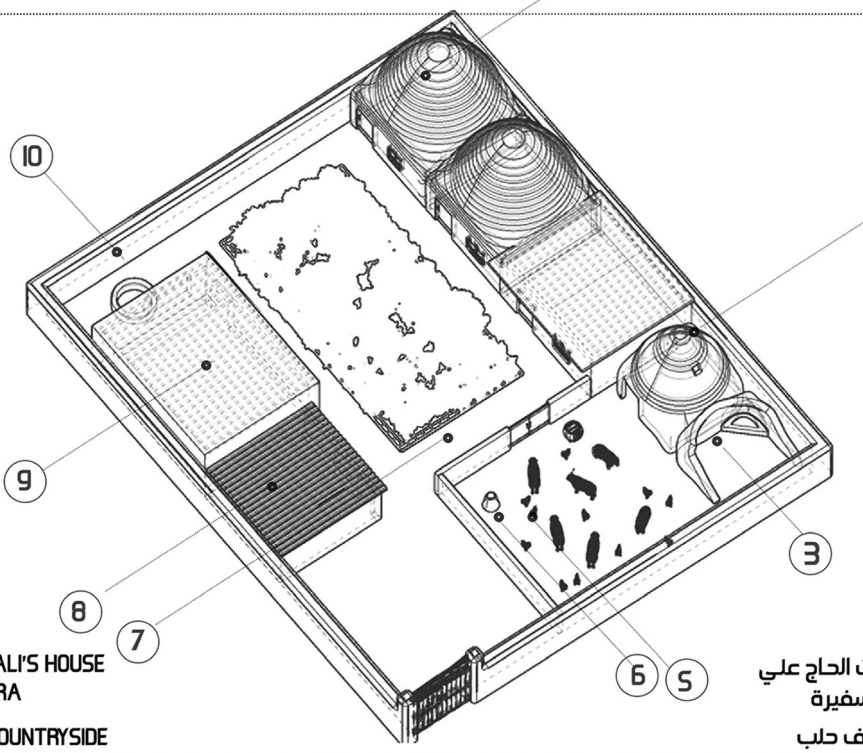
The house we built together: Collective construction of earthen domes

In Al-Safira, near Aleppo, Haj Ali lives in a three-dome earthen house: one dome for the kitchen, one for living, and a smaller, un-plastered dome – once used for storing hay and wheat straw – known as the *matban*. Nearby stands a ruined dome that once served as a tannour for baking bread (Fig. 3).

In Haj Ali's world, building and living are inseparable – the house reflects its inhabitants. He dates his home's domes not by numbers but by memory: who was there when it was built, who shaped the bricks. The large dome is over a hundred years old; neither he nor his father witnessed its construction. The smaller domes – once used for straw storage and as a clay oven – are about sixty years old. He remembers helping build them, and he remembers the hands that worked alongside his father. (Fig. 4).

The construction of the dome follows ergonomic principles. Haj Ali explains that the shift between brick rows begins with the width of a finger, gradually increasing until it reaches the full finger's length. Builders stand on the *tiakh* (wall corners) and use stones or wooden planks (*dawassat*) as ladders for building and maintenance, shaping the dome through their physical movement.

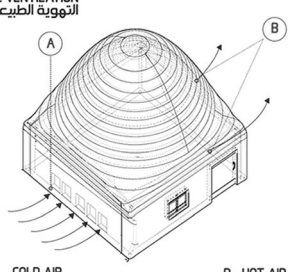
.N	DESCRIPTION	.N	DESCRIPTION
1	تهوية طبيعية NATURAL VENTILATION	6	مكان الطبخ الخارجي OUTDOOR COOKING AREA
2	مكان تخزين العلف HAY- STRAW STORAGE	7	حوش YARD
3	تنور قديم OLD TANNOUR	8	غرفة تخزين STORAGE ROOM
4	عزل INSULATION	9	فراغ المعيشة الرئيسي MAIN LIVING SPACE
5	مكان لتربية المواشي LIVESTOCK AREA	10	بئر مياه WATERWELL



AL-HAJ ALI'S HOUSE
AL- SAFIRA
ALEPPO COUNTRYSIDE

بيت الحاج علي
السفيرة
ريف حلب

1 NATURAL VENTILATION
التهوية الطبيعية

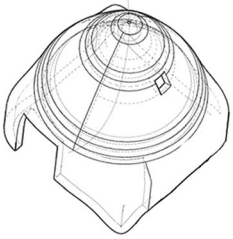


A- COLD AIR
هواء بارد

B- HOT AIR
هواء ساخن

2 KITCHEN DOME VENTILATION
تهوية قبة المطبخ

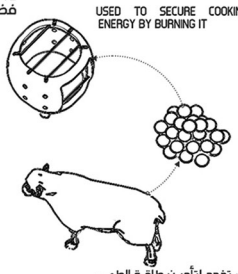
VENTILATION OCCURS THROUGH AN OPENING AT THE TOP OF THE DOME



تحدث التهوية من خلال فتحة في أعلى القبة

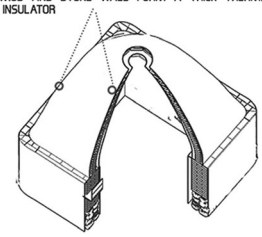
3 ANIMAL WASTE
فضلات الحيوانات

USED TO SECURE COOKING ENERGY BY BURNING IT



تستخدم لتأمين طاقة الطهي
عن طريق حرقها

MUD AND STONE WALL FORM A THICK THERMAL INSULATOR



4 INSULATION
العزل

يشكل جدار الطين والحجر عازلًا حراريًا سميكًا

After the main structure is complete, a clay layer – sometimes mixed with straw – is applied and renewed every 4-5 years. The final coat uses *hajar al-hawar*, a chalkstone dissolved in water to a milky consistency, used for interior walls and framing openings (Fig. 5).
This generational transfer has been disrupted by displacement. Many residents of mud-domed villages have moved to camps in northern Syria. After nearly a decade, returnees like Haj Ali find their children, now grown, have lost their connection to these houses. The intertwined relationship between memory, materials, and practice has been interrupted. Since returning, Haj Ali has been restoring the three domes of his home, involving his children as much as he can in the process (Fig. 6).

Fig. 5 - Materials and practices of construction and maintenance of mud-domed houses. Top left: fresh mud and straw mix. Top right: Weathered renders of the mud house. Bottom left: an adobe brick. Down right: chalk stones for interior finishes.

Fig. 6 - Mud-domed houses today, courtyard, animals, domes, and concrete expansions.

The dome will not fall: Repair and care
When asked about his house today, Al-Haj Ali says with great enthusiasm, "The dome will not fall." At the beginning of every winter, Al-Haj Ali climbs onto the *tiakh* to inspect the domes. He removes bird nests, and grass roots, then seals them with a bit of clay. Every five years, he replaces the upper part of the dome's coating. The task takes no more than a day or two; it is a straightforward, periodic job. The durability of fragile mud requires climbing on *tiakh*. A human activity similar to cooking, sewing, and cleaning (Fig. 7).
The repetitive and seasonal act of care reflects how fragility is compartmentalized into cycles of repair in vernacular architecture. This

Fig. 7 - Activities of mud dome repair and maintenance, including the removal of damaged plaster and partial or full recladding with a fresh mix of soil and straw.

approach reveals a form of cultural resilience – structures endure not in spite of their fragility, but because of it.
When a building is no longer needed, its decay is intentional and seamless, returning from soil to soil. Despite their weight, mud-domed buildings function as temporary structures, oscillating between a tent and a cave. Ruins and inhabited villages coexist, ensuring the continuity of communities amid environmental and political upheaval. In this context, fragility is not passive – it is an active architectural strategy of circularity conditioned with care (Fig. 8).

Conclusion: Durability through fragility
Mud-domed houses in Syria challenge conventional notions of architecture by redefining durability through fragility, care, and cyclical renewal. Their resilience lies not in permanence, but in the ease of building, decay, and rebuilding – a process embedded in cultural practice and material

intelligence. Rather than resisting change, these structures embrace it, offering a model where continuity is sustained through adaptability and maintenance. Far from being relics, they are living architectures that speak to a future shaped by environmental and political uncertainty (Fig. 9). In this context, fragility emerges not as weakness, but as a powerful architectural strategy rooted in resilience and communal memory.

Fig. 8 - Discussion on construction and costs between members of one of the mud dome villages in the Aleppo countryside.

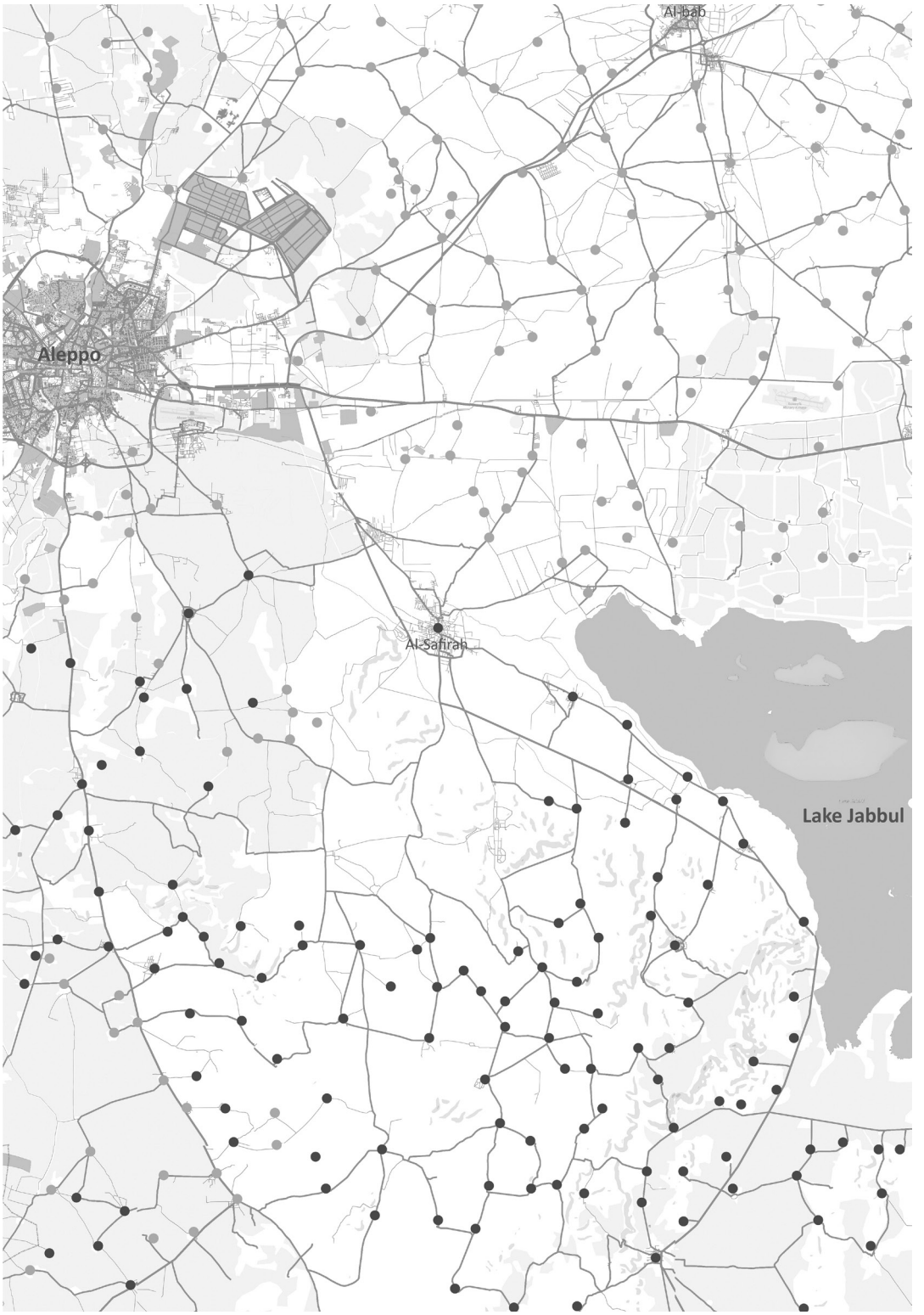

Al-Bab
Aleppo
Al-Safirah
Lake Jabbul

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Fig. 9 - Map of muddomed villages from satellite photos, some decayed (light grey) and some still standing (dark grey).

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