

M. Hosam Jiroudy

The Unknown Masons

Los albañiles desconocidos

Os pedreiros desconhecidos

Abstract | Resumen | Resumo

My traditional practice has taken me to many cities and through a variety of building experiences in the Arab world, three of which I wish to share. One in Syria, and two in Saudi Arabia. I will briefly present the materials, the methods, and the people who worked on them. Even though one builder had no previous experience of load-bearing work and the others had little, after some training and once stretched beyond what they were used to, they demonstrated ability and grit beyond expectations. For as soon as they realized what was required, they all gradually became capable masons, making them the heroes of this story.

Mi viaje en pos de lo tradicional me ha llevado a conocer muchas ciudades y a diferentes experiencias de construcción en el mundo árabe, de las que deseo dar a conocer tres: una en Siria y dos en Arabia Saudita. Presentaré brevemente los materiales, los métodos y las personas que han trabajado en ellos. Aunque uno de los albañiles no tenía experiencia previa en obras con estructuras portantes y la experiencia del otro era más bien escasa, tras una breve formación que les abrió los ojos, demostraron más habilidad y determinación de lo esperado. En cuanto se dieron cuenta de lo que tenían que hacer, enseguida fueron capaces de construir estructuras portantes, convirtiéndose en los protagonistas de esta historia.

A minha viagem tradicional levou-me a muitas cidades e a uma diversidade de experiências de construção no mundo árabe, três das quais gostaria de partilhar. Uma na Síria e duas na Arábia Saudita. Apresentarei brevemente os materiais, os métodos e as pessoas que trabalharam neles. Apesar de um dos construtores não ter qualquer experiência anterior em trabalhos com suporte de carga, e o outro ter pouca, após alguma formação e uma vez levados para além dos seus limites habituais, demonstraram uma capacidade e uma garra para além das expectativas. Assim que se aperceberam do que era necessário, ambos se tornaram capazes de construir estruturas de suporte de carga, tornando-se os heróis desta história.

The manifestation of collective culture through the union of local master and matter is an art of the highest order, timeless, deeply rooted in place and history. The Arab world is home to ancient crafts and diverse building traditions, celebrated worldwide for its rich townscapes. Yet for many reasons, traditional art is almost disappearing from that part of the world – and possibly from the rest of the globe. Perhaps due to present politics, economics, and education hindering its realization. One can certainly argue that a major cause is the propagation of “Modern” thinking and commodities, which were meant to enforce a paradigm shift, but failed to connect with place, whether socially, environmentally, or historically. Their monotonous global reach has, temporarily, interrupted the age-old sequence of reliance on accumulated wisdom, local resources, and manpower to address questions about the built environment.

For over a decade I have been working in practice and research with traditional design and load-bearing construction for urban regeneration, mosques, and private dwellings. So I cannot fail to see the limitations in experience with unreinforced structures among architects, engineers, and contractors, for even if someone can advise, the now “divided” trades of building practice are almost impossible to combine. But the more pressing challenge in this line of work is finding local masons experienced with walls and acquainted with curved ceilings. Although skilled builders can be invited from neighboring regions, such an approach feels counterintuitive and unsustainable, for the building no longer grows organically from its social setting.

Of course, this natural system of design and construction has been revived by some architects, led by the late Hassan Fathy and a few others across the Arab world. Together they left key traditionally

Making of composite basalt blocks.
Top left: crushed lava stone from a nearby quarry. Top center: preparing and mixing block components. Top right: pressing the mixture into a mold. Bottom left: stacking and drying the blocks. Bottom center: multiple sizes of block for different functions. Bottom right: lab test of compression strength. Dar Al-Shiek - Horan, Syria



built examples and competent workforces from the 1960s to the late 1990s. But their great endeavors remain the exception rather than the norm, and lack continuation in its true structural and cultural essence. Nowadays only a small fraction of schools, associations, or building specialists practice traditional design and construction. Yet almost none seem to offer a comprehensive answer, perhaps because of current market trends and the global mentality centered on capital and consumption, as well as the scarcity of informed patrons. This leaves subsequent generations that wish to pursue a traditional path having to start over, resorting to self-education or seeking out a rare authority in the field.



1: Construction of vaulted ceilings using composite blocks. Dar Al-Shiek - Horan, Syria

2: Ali Al-Shiekh working on the main dome centering. Dar Al-Shiek - Horan, Syria

In 2007, after working for years under the auspices of Abdel Wahed El-Wakil, I went back home to Syria, where I took a tour around the major cities, historic sites, and rural areas, seeking to better understand old and current building achievements and methods. One thing I found was a loss of know-how for transforming available resources into affordable buildings. After a while I encountered an owner in rural Horan for a project that later became my initiation into traditional design and construction and is still dear to me, for it was my first independently built project, and in my homeland.

The 220 m² Dar Al-Shiek house is in the village of Dier El-Boukhet in southwest Syria, known for its volcanic stone and fertile soil. Most of its 8,000 inhabitants at the time had middle-to-low income. Stone construction had prevailed in the area before modern materials took hold. Residents nowadays use reinforced concrete to build substandard conventional houses mainly financed through government loans. The mortgage loan takes up around 50% of the debtor's income and almost half of the construction cost is consumed by a single commodity: flat-ceiling steel reinforcement.

On making Dier El-Boukhet my second home by going back and forth from Damascus during the project, I had the chance to explore some social and functional aspects and to get to know the owner's family. Thus the design proposal sought to address current needs in a fresh traditional sense. It reintroduces the courtyard as a microclimate regulator, thick walls for insulation, curved roofs for thermal and acoustic comfort, solid-wood doors and windows, stained glass, and stone flooring for coolness underfoot.



The project is an attempt to provide a model for cost-efficient sustainable housing integrating local conditions with comfort. East elevation. Dar Al-Shiek - Horan, Syria

The structural masonry system mainly requires the use of materials that work in compression (stone or bricks) and far less materials working in tension (wood). Hence the use of arches, vaults, and domes resting on proportionally thick walls, to counteract the forces from the ceilings. Our initial plan was to build the house using basalt, readily available in the vicinity. But it was difficult to find a local mason familiar with curved ceilings who could work within our tight finances. Only after extensive research, training, and experimentation did we manage to develop an alternative material made from local lava – a solid block of crushed volcanic aggregates, with some limestone powder, cement, and water. It was made on site, less expensive than stone-cutting, strong (average compressive strength of 160 kg/cm²), durable, and providing thermal insulation akin to that of raw stone. The block enabled us to go up to three floors without any use of steel reinforcement. So we decided to build the house using our composite material.

Instead of employing a contractor that would inflate the cost, we agreed with the owner and his extended family, of all ages, to build it ourselves. Our small team had no previous experience of unreinforced structures. From creating the stone block to simple techniques for erecting interlocking load-bearing walls, all the way to building vaulted roofs over wooden forms and frameless domed ceilings – all were trained in these skills on site as we progressed.

The lack of funding and some technical difficulties may have delayed that progress, but with joint forces and collaboration of hearts and minds in our modest team, we overcame manifold challenges, notably through the dedication of Ali Al-Shiekh, the owner's uncle, who understood the system by sheer instinct, from foundations to wall assemblies and various types of ceilings, and became a skilled

builder. In mid-2011, by the grace of God, the team completed the house with their own hands, after a great learning experience for everyone, including myself. Thus our combined effort in block-making, construction, and finishing provided the owner and his family with an affordable house and regenerated experience for repetitions of the approach, locally or in nearby villages, with a little technical supervision. But the devastating events occurring in Syria shortly afterwards prevented any further attempt.

Following the completion of Dar Al-Shiek, I was offered opportunities to work on various scales at other locations. One of the largest projects was a congregational mosque with structural masonry walls, arches, cross vaults, and domes of locally made fired brick, which offered a deep understanding of the integral relationship between material, traditional structure, and form.

Soon afterwards I was invited by a remarkable gentleman to work on a large plot at the edge of the city of Taif in western Saudi Arabia. The scope was to design and build three pavilions with hardscaping and landscaping features over a third of the rugged 4.5-hectare property. Al-Shafa Pavilions functions as a summer retreat for the owner's family and his many guests. Locally quarried granite was the unifying material, with each piece hand-carved to suit its position and used structurally for walls, fences, and flooring, internally and externally with different finishes. Most of the curved ceilings were built of fired brick.

We faced plenty of constraints, from working to a tight budget and the lack of a contractor to the scarcity of supplies and of skilled labor. But what was most challenging was to simultaneously design and build without drawings. Except for some hand sketches, the project was completed without production documents, with an old-time traditional approach to architecture in which craftspeople are trained in building methods, working within a geometric frame of reference. So rather than relying on construction documents, the design intent was communicated to the team verbally, and gradually. The role of the "architect" was that of an agent merging with the construction team, and our collective effort was to perform the project in an improvised yet harmonious fashion. Its heroes were the construction team and chiefly Mohamad Ali Abdo, the lead stonemason. When he started to work with us, he knew how to cut stones and build walls without any knowledge in vaulting. But through practical training he proved to have an intuitive understanding of structural forces and the way that intersecting curved roofing rests on walls and rises up to enclose the space, following the unwritten rules of empirical structural design. This is a knowledge that he now carries in his heart wherever his work takes him.

1: Summer courtyard. Dar Al-Shiek - Horan, Syria

2: Reception hall. Dar Al-Shiek - Horan, Syria



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1: Construction of guest pavilion No. 1. Al-Shafa Pavilions - Taif, Saudi Arabia

2 : Mohamad Ali Abdo, lead stonemason, working on the centering of the guest pavilion No. 1 dome. Al-Shafa Pavilions - Taif, Saudi Arabia

Following its opening during Ramadan in 2017, the project received praise from the owner and his visiting dignitaries, was nominated for two international awards, and attracted like-minded patrons. One such was a gentleman deeply connected to his hometown of Baljurashi in the Al-Baha region of southern Saudi Arabia, who chose us to build his retirement home with local granite.



Main entrance of guest pavilion No. 2. Al-Shafa Pavilions - Taif, Saudi Arabia

The current lack of contractors able to build structural masonry led me to guide Faisal Alshehri, who worked on Al-Shafa Pavilions, to group and organize our trained masons and expand the specialized workforce to act as a construction arm for our work on a regional scale. This allowed us to easily mobilize workers and start our Dar Al-A'mir project in Baljurashi, with a stonework and woodwork camp set up in situ for building a house that we aim to complete by the end of 2023.

3: The project has three main buildings, each with a slightly different layout according to its location and intended use, reflecting and complementing each other functionally and aesthetically. They unfold along a thin line between architecture and landscaping and thereby form an ensemble. Al-Shafa Pavilions - Taif, Saudi Arabia (Yazid F. Alshehri)

4: South elevation of the main pavilion. Al-Shafa Pavilions - Taif, Saudi Arabia (Mohammed S. Alashi)

5: Reception hall in the main pavilion. Al-Shafa Pavilions - Taif, Saudi Arabia



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1: Sadek, a skilled mason who instinctively transforms local granite boulders into solid building blocks, working with our masonry team. Dar Al-A'mir - Baljurashi, Saudi Arabia

2: Interior articulation of the dining hall after assembling the wooden ceiling. Dar Al-A'mir - Baljurashi, Saudi Arabia

3: Solid stone columns and beams inspired by local architectural vocabulary. Dar Al-A'mir - Baljurashi, Saudi Arabia

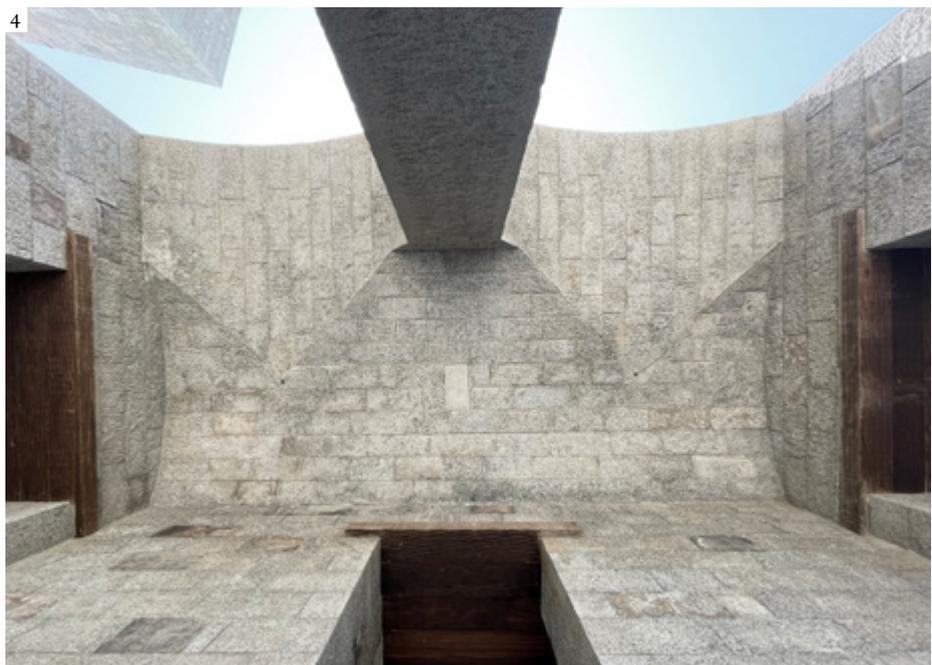
4: Structural walls and vault forming an entrance arcade. Dar Al-A'mir - Baljurashi, Saudi Arabia

To end, I should emphasize that one of the greatest challenges to build today in this manner is an unawareness of what traditional architecture is able to achieve. As it takes material shape, it allows us to apprehend the physical world, to see its limitations and potentials, and to use the inherent capacity of materials to meet structural and spatial requirements almost effortlessly, without exhausting nature, inflating costs, consuming lots of energy, or jeopardizing local cultures.

Having said that, the application of traditional construction is never limited to one place, nor to one model or material. The method can be implemented anywhere using naturally occurring or locally sourced ingredients provided it offers a certain strength as well as an efficient and environmental solution, and perpetuates local character. The wealth of historic monuments found across the Arab world shows a mastery of engineering and craftsmanship with locally available resources, confirming



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The growth of the structure assimilates a fruit tree that bears the mix and the savor of its own soil, through the use of local stone. Dar Al-A'mir - Baljurashi, Saudi Arabia (Yazid F. Alshehr)

the unity of traditional principle and the diversity of its application, be it in a city or in remote parts. A particular attitude to materials is inherent to this worldview. Indeed, the nature of a material is related to place and suggests the structural system expressive of its character, e.g. mountains are quarried into stone blocks, riverbed silt is transformed into bricks, or trees are fashioned into timber structures. Regardless of the historical period, traditional art uses the ingredients available in its context—as much as possible¹—to express itself and carry out its purposes. And by doing so it tells the story of local inhabitants, eventually creating a culture. Hence I believe a building should use local resources with scarcity in mind, rather than being subject in its form to shifting trends and a false sense of abundance. Architecture should convey substance and values rather than merely reflect circumstance.

Basic knowledge and local materials have always been present, but the question is how to empower a workforce to transform physical matter into objective meaning, and to communicate expertise as opposed to importing ready-made technologies. This demanding responsibility may be undertaken by individuals, but what is needed chiefly is a collaboration of the public and private sectors through value-added economic models founded on long-term return on investment, to be cultivated by succeeding generations. I sincerely believe we do not need architects to change the world, for enough has been created already, but to be able to understand nature and to become one with it. And because nothing lives forever, we aspire only for what we do to endure, to emulate that elegant equilibrium of nature.

¹ Some materials may be brought from afar for specific parts of the structure, but for symbolic or structural reasons, where locally available materials do not suffice.

Biography | Biografia | Biografia

M. Hosam Jiroudy

Born in Damascus, M. Hosam Jiroudy graduated from the Damascus School of Architecture in 2000. Described as “an eminent force of traditional Islamic architecture”, he has been involved with projects in the Arab world and also in Malaysia, Japan, and the U.K. During his postgraduate research he practiced with Abdel-Wahed El-Wakil, a leading figure in traditional architecture and structures. In 2010 he went into private practice, working on transforming human capacities and material properties into a harmonious expression of local conditions and culture. His work and research ranges from urban planning to mosques, including public and private buildings and also rural dwellings.