

Architecture, Modernity, and Preservation: The Tower House of Sana'a, Yemen

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The Yemen Arab Republic is located on the southwestern tip of the Arabian Peninsula in an area the Romans called "Arabia Felix" because of its lush fertility amidst the surrounding desert. Yemen is a land of geographic extremes: harsh coastal plains, rugged mountains, and austere plateaus, whose history of human settlement traces back 3,000 years. The severity of the resulting geography and a recent history of xenophobia, dictated by Imamic rule, provide keys to understanding the Yemenis' remote isolation as well as their need to build in order to survive.

Within the context of regional variations, Yemeni architecture can be defined by the geographic features from which the indigenous materials are taken. In the coastal plain, reed, mud, and coral stone are used. In the mountainous regions, stone is the most predominant building material. In the high plateau areas, both local mud and nearby imported stone form a hybrid of construction materials. All Yemeni buildings exhibit superb craftsmanship in a tradition of mud and stone masonry that has been maintained for centuries.

On the central plateau lies the capital of the Yemen Arab Republic and one of the oldest cities in the world: Sana'a. This dense, walled city projects the urban character typical of traditional Arab cities and contains many building types unique to Southern Arabia. The most striking of these is the tower house, which looms above as one walks through the narrow, winding streets of the old city.

Most tower houses are at least five stories high, and some reach as many as eight or nine. Their origin lies in the remote villages where farmland was scarce and verticality was the only means of accommodating the settlement of people with efficient use of the land. Height also provided the necessary overview to protect a settlement and its crops from marauding tribes.

That tower houses existed during pre-Islamic times is proven by the historical accounts of the Ghumdan palace, built in the third century A.D. and later destroyed in the seventh century. It was described as a grand palace, as tall as 20 stories, with each wall built of different colored stone and including a top room with an alabaster ceiling and windows built of marble, teak, and ebony.

The vertical arrangement of these multistoried houses represents an upward transition from public to private space. The ground floor and its mezzanine are reserved for animals and the storage of timber, fruit, and grain, as well as a small compartment for the collection of dry excrement from the bathrooms above.

The second floor is the first habitable level and also where visitors are received in the public sitting room, or



Window tracery, made by special craftsmen, adorns internal surfaces of many Yemeni homes.

diwan. This room is usually rectangular in plan and furnished in a manner typical of almost all Yemeni rooms, whether they are used for eating, sitting, sleeping, or all three. The walls are fringed with a continuous seat of cushions, leaving a narrow carpeted area in the center and a space next to the door for the removal of shoes. The windows have low sills, to accommodate a seated position, and consist of two sets of openings. The lower window is for ventilation and is controlled with shutters, and the upper opening is an arched or circular transom window that allows light to enter even when the shutters are closed. The transom window is made of either a thin piece of alabaster, called *qamariya* (meaning "of the moon"), or colored glass set in a delicate tracery of gypsum, called *takhrim*. The translucency of the *qamariya* emits a soft amber light, while the colors and pattern of the *takhrim* transmit a joyful play of light on the interior walls. The walls of the room are articulated with niches and high shelves made of unreinforced gypsum plaster on which personal articles are placed.

On the third floor is the main family *diwan*, reserved for special ceremonial occasions such as weddings, births, and



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funerals. Above this level are additional semiprivate rooms and the kitchen, usually located one level below the top to accommodate service to both upper and lower levels. Here the women have their primary domain. Though they are not restricted within any part of the house, it is this level that contains the kitchen and an adjacent outside terrace with high

screened walls, from which the women may see without being seen from the street or other houses. The kitchen is usually smoke-blackened from the bread ovens being fueled by wood, whose smoke escapes through the vents that pierce the outside wall.

The highest level, dominated by one private sitting room called the *mufraj*, is reserved for special guests or family members. Here, the afternoon social gatherings are held, usually between men, where they smoke the water pipe and chew *qat* while exchanging conversation, reading poetry, or listening to the music of the Yemeni *'ud*. The *mufraj* is the most decorated of the rooms. It provides magnificent views as well as the play of colored shadows of the walls cast by the stained-glass *takhrim* windows above, increasing the delight during the afternoon *qat* session.

A central staircase, rising throughout the height of the house, provides the central stability around which the structural distribution of the house is supported. The thermal capacity of the stone and masonry walls produces a thermal lag, which tempers the extreme day and night temperatures. Ventilation is provided throughout the house by means of projecting masonry cooling boxes (*shubaq*) positioned within the walls of the staircase and lobbies of each floor.

The facade of the house, showing similarity to textile or jewelry designs, seems to pay little attention to the adjoining facade, either in alignment or proportion. Yet the innate aesthetic sense of the Yemenis leads to an unerring contentment of spatial relationships. Interior proportion appears to be of importance to Yemeni builders. Significant modules, such as the cross section of the *diwan*, are based on a square, with its length being two or three squares in plan. Orientation is also considered important, in that any house facing other than south is said to be less than a full house.

The tower houses of Sana'a are a hybrid construction of stone and baked brick. The foundation walls are approximately 45 cm thick, composed of facing stones inside and out and a center core of clay plaster and rubble. Crosswalls are constructed of rough rubble and connect to the outside face of the external wall. The areas created within the crosswalls are based on the module of a 3-m timber member for easy floor spans throughout the height of the house. Brickwork begins between 3 and 10 m above ground level, the weight and flexibility of bricks making them more suitable for the construction of the large openings that appear in the upper

walls. Wooden bands run around many of the houses, providing a tensile girdle for the stone and brick walls.

Window tracery (*takhrim*) is made by special craftsmen, though much of the finest work in plaster window tracery was done by the Jews before the mass emigration of 1949-50. Tracery patterns are hand drawn on slabs of wet gypsum plaster, and the inner pieces are cut out, leaving spaces for the colored glass. A second slab, whose pattern is traced from the first, is laid on top. Finally, a second, glassless tracery of a different design is placed on the external wall, creating a fanciful play of patterns on the inside and leaving the exterior surface devoid of color. Gypsum plaster is also used as a decorative form on internal surfaces. Intricate plaster wall reliefs are often found in the *mufrajs* of many tower



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houses, some professing verses from the *Qoran* in extravagant calligraphy.

Exterior ornamentation of the tower houses is quite elaborate and often resembles patterns of latticework, jewelry, or textiles. Stars, snakes, and naturalistic elements appear often, though now much of such decoration represents modern themes such as cars, planes, and weapons.

Doors are also a source of decoration, containing wood fretwork and pounded metal door knockers. Traditionally, door frames carry intricately carved inscriptions as an expression of the symbolic importance of the threshold. An interesting modern phenomenon has been the introduction of metal doors to Yemen, which have all but replaced the traditional carved and painted wooden doors. Metal doors with intricate wrought iron patterns and bright colors are externalizing the delight formerly reserved for private interior spaces.

Modernity

Since the 1962 civil war, the face of Yemen has changed drastically. The previous lack of modern development made Yemenis aware of the ever-increasing need for modernization, and they embraced it wholeheartedly when it arrived. Along with modern amenities such as public services, cars, and foreign consumer goods, change brought massive urban migration, traffic, litter, cheap foreign construction materials, and an obsession to become a modern state even at the expense of traditional culture.

People abandoned buildings in Sana'a's old city and moved into comfortable modern villas in the suburbs where new development was sprawling to meet the demands of a

the need not only to preserve and repair but also to revitalize the traditional way of life, which means creating centers of training for young workers while there are a few remaining masters of old building techniques still alive. In addition to architectural concerns, the campaign also includes social, commercial, educational, and economic projects. Financing is provided by the Yemeni government with the continued help of foreign aid.

Through the efforts of this campaign, the international community has become aware of the need for a cooperative effort to preserve Sana'a's unique architectural heritage from the accelerated modernity overtaking all aspects of Yemeni life. While the international community is keen to implement its preservation ethic in Yemen, Yemen itself has yet to complete its infatuation with technology as an expression of modernity.

Reappreciation of traditional values, as defined by preservation ethics, is a cyclical phenomenon whose time has come in many parts of the world. As much of the world was once infatuated with technology as a modern savior, many developing nations were introduced to these ethics in the name of foreign development. Though the introduction of

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foreign development to Yemen has greatly contributed to the destruction of its traditional architectural environment, Yemen has creatively adopted this modern vocabulary to express the symbolic language inherent in all Yemeni art forms.

Yemen is a country whose development is accelerating at an incredible rate. For it to establish a valid preservation ethic, Yemen must be allowed to follow through with its technological expression of modernity. The international community must make itself aware of the overall implications of establishing such preservation programs within the context of current Yemeni culture, so as not to suppress the Yemenis' inevitable quest to catch up with the rest of the world. The danger that exists for Yemen lies not in the importation of technologies to satisfy Yemeni goals of accelerated modernity, but in the importation of ethics that may not be consistent with the country's goals.

population explosion. Much of the commercial activity vital to the old city has left the market area. The importation of cheaper goods has caused many of the traditional crafts, along with their shops, to disappear. Buildings of the old city have fallen into disrepair because the need for annual maintenance is often disregarded. As a result, a new generation of builders lack the necessary skills to repair traditional buildings and consequently substitute modern and often inappropriate techniques.

Preservation

In 1984, UNESCO and the Yemen government established the "Campaign for the Preservation of the Old City of Sana'a," with the goal of preserving the architectural heritage of the old city. Those who initiated the campaign recognized

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