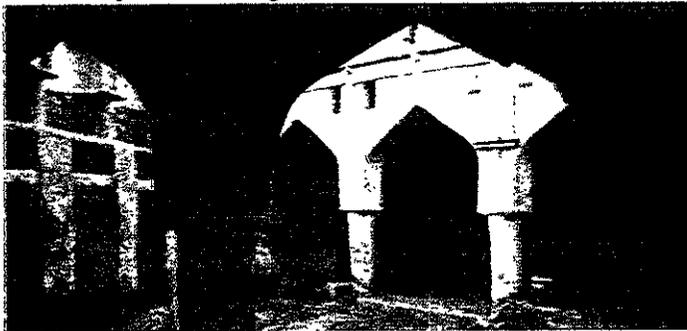


Diagrammatic explanation of the climatic cycles each at night, noon and afternoon



Courtyard of a *husaniyah* (community building) in Qatif

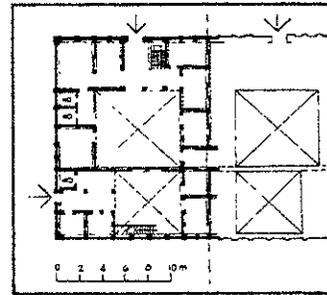
a plot of land selected by the family. Well-defined land ownership laws did not exist in the past, so anyone could "capture" a patch of land in his settlement as long as he did not harm the interest of other members of the community. This required an excellent sense of responsibility and understanding among the members of a community.

The atrium house in such communities grew from a nucleus of a small single family house into an extended family house of an irregular, lumpy form. Over a period of time a "systemic" approach or understanding emerged towards the development of a traditional settlement in which all of the following were defined: courtyards; location of entrances and windows; building heights in relation to the neighbours; design of terraces for sleeping (*sitieh*) roofs, parapet and external wall treatment; width and angular layout of narrow streets; etc. The overall fabric of such a community emphasized cooperative communal interaction outdoors as well as privacy indoors.

During the initial stage for new settlers such as young couples establishing a new household;

two or three rooms might be built around a small courtyard on the ground level to provide for a nuclear family. At a later stage, rooms may be added as required over a period of several generations as the children grow or the sons get married and the extended family develops. Other rooms might be added gradually on the ground floor if extra land is available. Sometimes the house might be extended at the ground level around a second courtyard and linked by a passage to the nuclear house.

Construction of the nuclear house is carried out in such a way that future extension is possible. For example, the timber members in the roof are left uncut and extended through the wall to the outside so that when a room is constructed adjacent to it, the new beams can be connected to the old to form a continuous structure. Similarly, the ground floor is built with walls much thicker than necessary for a single-storey structure, thus making it possible to add a second storey in the future. Married sons who stay with the nuclear family might build an extension around a courtyard of their own. In such situations, two or more



Vernacular urban courtyard houses



Courtyard of King Abdul Aziz Castle in Riyadh.

houses might be interconnected by an internal passage or door. The extended family lives in such an enlarged house by sharing services, with women helping each other in the household duties and the men sharing their income for a happy co-existence.

Rural vs. Urban Atrium Houses

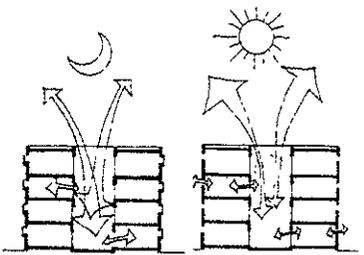
In rural parts of the Eastern Province of Saudi Arabia, several atrium houses were surveyed by the author assisted by the students of housing from the University of Petroleum & Minerals. Similarly several atrium houses built only thirty to forty years ago were surveyed in the nearby metropolitan areas of Al-Khobar and Dammam.

The rural and urban atrium houses serve the needs of similar lifestyles but are dissimilar in form and often in the use of materials and method of construction. Rural atrium houses are irregular in form, as they developed over a period of time. In Al-Qalah, the old quarter of Qatif, two houses with irregular layouts forming part of the lump were surveyed. On the left of the diagram is a larger house with two courtyards used by an extended

family, as shown in the plan above. The smaller house is used by a nuclear family and only one courtyard. The *mayles* (reception room) in both cases is placed on the upper floor; thus the stairs are placed in the entrance hall. Upstairs, there is a terrace (*satieh*) which may also be used for sleeping. A small storage room for mattresses and a bathroom are also provided on the terrace. The lower part of the house has a kitchen, a bathroom and a multi-purpose room or rooms that are used by the family only.

During the initial phase of the development of the cities in Saudi Arabia, the atrium houses developed to conform to the new rectilinear road patterns. A group of four to six houses were built for housing one extended family. Such groups of courtyard houses occupied partial or whole blocks of land in the city. Although few of these houses still exist, they represent an interesting link in the adaptation of atrium housing to the urban context.

Such houses are rectangular compared with irregular "mud-lumps" of the traditional rural communities. The rooms that surround the square or rectangular courtyards are also rectangular. Such houses in the cities of the Eastern Province are built with more permanent materials such as coral stones, rubble, or cut stones. They are also better finished both inside and outside with gypsum plaster as compared with the irregular rural forms, which were poorly constructed. Built mainly by settlers of Iranian and Iraqi descent, the decorations in such houses show some influence of their origins. The use of the (*badgir*) is also derived from the wind towers and (*badgirs*) found in Iranian buildings.



In tall atrium buildings, the atrium acts more like a ventilation shaft

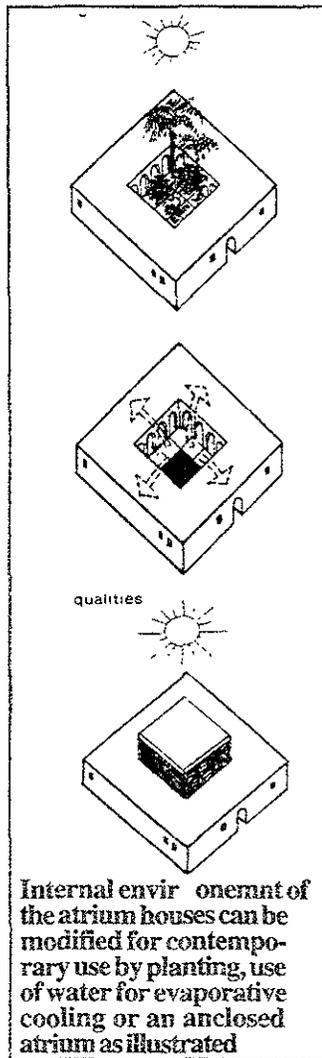
In the illustration above a transient form of the urban atrium house surveyed in the city of Al-Khobar shows a symmetrical rectilinear grouping of four houses around four courtyards. In the two larger houses towards the top of the illustration, the courtyard and the rooms around it are proportionately larger. There is only one entry to each house, and the *majles* - a reception room and dining room for visitors- is placed next to the entrance. The kitchen is placed next to the staircase and the other rooms around the courtyard are used by the families in both houses. The services are minimized by placing toilets next to each other. In the smaller houses towards the lower part of the plan, the courtyards are smaller and the house consists of only four small rooms and a bathroom. Upstairs on the terrace (*satieh*), there is space for sleeping, and storage space is provided for the mattresses.

The transitional forms of atrium houses in the city ultimately face destruction and disappearance because they happen to be located on valuable urban land. This particular house type is effectively derived from the traditional adobe atrium house. It demonstrates how the atrium houses can provide culturally and climatically desirable environments for living in the city.

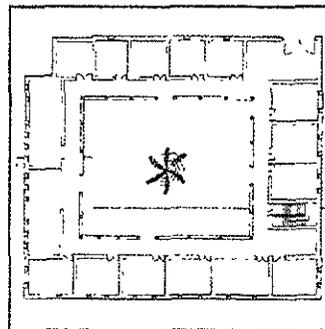
The rectilinear groups of houses illustrated here show the influence of new street layouts adapted for vehicular traffic. Once again, such low-rise developments of atrium houses demonstrate how high density can be achieved effectively without giving up the basic pattern of living. Such low-rise, high-density developments also provide a better form of living in cities than high-rise apartment buildings, which are unsuitable for the indigenous way of life.

The atrium houses satisfy climatic as well as cultural requirements in the Arab countries. The atrium is an introverted, intimate outdoor space within the house. Its application to the contemporary way of life either in the rural

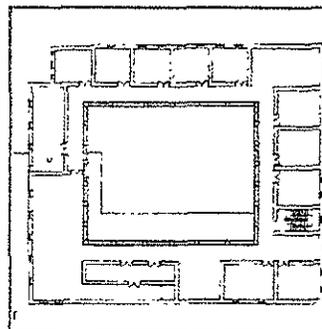
of urban context is not difficult. In the city, the quality of privacy that the courtyard house can provide is immeasurable. In the hot-arid Arab countries, there is a new trend towards "modern houses" which are airconditioned and neglect the basic concept of the vernacular courtyard houses. In the temperate European countries and in the cities of the USA, the atrium house is being revived. The atrium house is probably more suitable for urban living and may be described as an "urban type of dwelling". In town house developments, where houses may not be able to acquire daylight or fresh air, the atrium could be introduced. For contemporary use, it can be modified in many ways to accommodate a private garden within the house. In the hot-dry regions, water may be used in the form of a pool or a fountain to enhance internal comfort and the living environment. The atrium can also be enclosed completely, or it can be designed as a selective ventilator. The atrium can be designed as a greenhouse to capture solar energy in the inner core of the house for passive heating. The atrium house in this respect may find universal applications to provide a private "room" in the very heat of the house with immeasurable, magical qualities. ☀



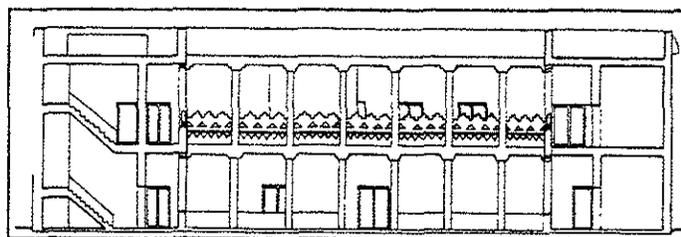
Internal environment of the atrium houses can be modified for contemporary use by planting, use of water for evaporative cooling or an enclosed atrium as illustrated



Ground Floor Plan



First Floor Plan



Section

Synopsis

Subject of the Issue
Analytical study for structural methods used in building in the old urban communities in Bahariya Oases.

Arch. Mahmoud Tarek Hammad

This subject reviews the study of building materials used in the old residential buildings with respect to their natural characteristics and influence of this on planning and architecture in Bahariya Oases. Also it reviews the study of old construction methods used in building.

Project of the Issue

- Villa of Nabil El-Sarraf

Arch. Gaafar Touquan

The Villa is located in the southern-western part of Amman city in Jordan. The city was built on many hills and its architecture is characterized by using natural stone in finishing external facades of the buildings. The western and northern facades of the villa are semi-solid in which cylindrical and cubical masses are sculptured to enrich the view of the facades, while the others are opened in the areas of reception, dining & living.

- The City Hall Building
Project-Amman Secr etariat General

Arch. Gaafar Touquan

In the frame of urban development occurring in Amman, this project was erected in the center of Amman. It consists of a building of three floors, comprising official celebrations, halls and general purposes of the city, behind which lies a linear building of five floors comprising employers offices. The building was considered to be an imposing structure to express the historical value of the place with keeping the clear contemporary impression of the design.

- Premises of Abu-Dhabi Oil Company for Distribution - Abu-Dhabi - UAE (1995)

Arch. Gaafar Touquan

This project was the subject of an architectural competition proposed by the owner company of the project. The area of the project is 80 Feet x 100 Feet and the requirements were determined so that the design would combine contemporary architecture with Islamic architecture.

Technical Article
Original & Contemporary Architecture

Arch. Gaafar Touquan

The concept of original & contemporary architecture and the architectural aspects, which are permanent or changeable, making the link between old architecture and new architecture.