



*by Khaled Asfour*

## **Villa Anbar**

*Dammam, Saudi Arabia*



### **Architects**

*Nohad Al-Turki and Peter Barber*

### **Client**

*Wasfiah Anbar*

### **Design**

*1991-1992*

### **Completed**

*1993*

## **I. Introduction**

The Villa Anbar is a fairly small Saudi residence, executed under a tight budget, located in a middle class neighbourhood. It is 300 m<sup>2</sup> of built area and occupies a 510-m<sup>2</sup> site. It is one storey high and has a tiny courtyard that pierces the centre, dividing the house into two sections; the front is for daytime use and receiving guests, the rear part is for sleeping and repose.

The villa is owned by a Saudi novelist who divides her time between London and Dammam. She is an elderly widow who lives alone in the house, yet she fills her life with social and professional activities.

## **II. Contextual Information**

### *a. Historical Background*

Instead of purchasing an empty lot, the owner asked the architect to remodel an already existing villa. In April 1991, the architects were commissioned to do the project. The villa was occupied in May 1993.

### *b. Local architectural character*

The local character of the neighbourhood within the context of the region's traditional architecture is very different. In the past, houses had spaces for non-relatives, particularly male guests. The tendency to form a continuous fabric of courtyard houses, two to three stories high, clustering around party walls, was prevalent. The establishment of air circulation through courtyards, wind-scoops and cavity walls was designed to reduce the effect of humidity and heat during two-thirds of the year.

The character of the neighbourhood in the context of present-day modernisation is a product of the local mentality of the 1960s and 1970s. This led to the grid pattern in neighbourhood design, with the central service block. One and two storey villas were located on rectangular lots and complied with building setback regulations. Many residences retained the tradition of a secluded space for non-relatives. However, they discarded the design sensitivity toward climate. The orientation of spaces with respect to the sun and the induction of air currents inside spaces became accidental. A reliance on mechanical systems for cooling and heating houses increased as a result. The use of concrete frames for structure and masonry blocks for infill, as opposed to traditional coral rocks, also helped such growth.

### *c. Climate conditions*

It is quite significant to mention that the climate is hot (35–45°C) during seven months of the year, and the humidity can reach 90 percent during the hot season. It makes sense to create air currents inside isolated living spaces to reduce the reliance upon air-conditioners. Also, orienting the building along a north-south axis allows the inhabitants to enjoy the natural climate for a longer period of the day without using mechanical means, especially in the transitional months between the hot and cold climates.

### *d. Site context*

The immediate surroundings of the site reflect a middle-class Saudi neighbourhood that is over thirty years old, located in the eastern province. This neighbourhood is characterised by shabby façades which, though clean, are not maintained. Internal streets are 15 metres wide and the houses are one to two stories high; colour is mostly fading and light in tone; the walls are made of bricks with an

external layer of paint which is cracking and worn out in certain areas. There is some street life such as children playing football. Essentially it is a quiet neighbourhood with limited car ownership (one per household). Landscaping in the neighbourhood hardly exists along the streets, but passers-by occasionally get some shading from trees projecting from private gardens.

e. *Site topography*

Topography of the site is flat and does not play any role in design.

### III. Programme

a. *Conditions of programme formulation*

The owner's special needs gave rise to the villa programme; she is a widow, an intellectual, and is aware of European culture through her permanent residence in London. The owner felt the need to anchor herself in her own culture by building a house in Dammam. She would then be encouraged to return to her roots and socialise with her relatives, old friends, and professional peers.

b. *Objectives*

To design a three-bedroom family house for seasonal use.

c. *Functional requirements*

- To pay special attention to the courtyard, garden, pool, and roof terrace.
- To provide maid and driver's rooms.
- To provide formal rooms for guests as well as intimate areas for the family.
- To minimise the need for mechanical air-conditioning through building orientation, heat insulation, window orientation and size.
- To use cheap available reinforced concrete frame and block infill.

### IV. Description

a. *Project data*

- The plan of the house is rectangular with a small courtyard in the middle and a single frontage on the street from the west side.
- Total site area is 510 m<sup>2</sup>.
- Total ground floor area is 225 m<sup>2</sup>.
- Total combined floor area (excluding roof terrace) is 300 m<sup>2</sup>.
- The house consists of two reception rooms, a kitchen, two bathrooms, two water closets, three bedrooms, and a maid's room with another kitchen on the roof terrace. There is a driver's room located on top of the garage that overlooks a swimming pool/waterfall located in the front yard.

b. *Evolution of design concepts*

*Response to physical constraints*

The site has a single frontage on the street and is surrounded by neighbours on three sides. The site is rectangular with the short side facing the street, and is oriented toward the West. The sides facing the neighbours comply with the setback rules, leaving a two-metre air gap between boundary wall and

building.

The original villa on the site was constructed two decades ago during the development of the neighbourhood. The architects kept the rear façade of the existing structure (eastern façade), which contained three bedrooms and a courtyard. The rest of the structure was remodelled.

The courtyard illuminates corridors inside the house on three of its four sides. The remaining side directly faces the reception hall. Courtyard openings are small and appear to be scattered informally along the façades.

#### *Response to user requirements*

The house can be entered from two sides. The main entrance is from the West, overlooking a garden and the street. The first room one enters is a reception hall, the largest space of the building. From this space one can proceed to the dining room, or walk through two corridors, which flank a small courtyard.

Through the first corridor, to the South, are the kitchen, a WC, and the master bedroom. The small courtyard is also accessible. This latter has a narrow and steep staircase leading to the roof where a second kitchen facility is located.

The second corridor leads north to a foyer where the second entrance is located. From this foyer one could enter either a small living room or a WC. After the foyer, the corridor leads to the bedroom area located at the rear of the house.

#### *Formal aspects*

The project is rectangular on all sides. In two locations the form is irregular with some slanting planes. The first of these is the driver's apartment, a separate room on top of the garage. The second is a mechanical room located on the roof terrace.

The façades of the villa are simple with openings that vary significantly in size, shape, and level. Sizes range from 3.75 to 0.09 m<sup>2</sup>. Shapes can take the form of either a rectangle (with ratios 1:1.5 to 1:7), square, or "L". The distance of openings from the ground ranges from 0 to 2.4 m. These variations can be seen on a single façade.

The Western façade facing the front yard is different from the rest because of a large window that is as high as the building and wider than the main entrance.

Traditional motifs do not exist. Souvenirs and vases are placed inside small rectangular and square niches in the walls.

#### *Landscaping*

There are three one-metre-high trees clustered in a small rectangle. The rest of the outdoor area is paved with tiles.

### *c. Structure, Material, Technology*

#### *Structural systems*

Post and lintel structural system built on site.

## *Materials*

Foundations: reinforced concrete pad foundations poured on site.  
Structural elements: reinforced concrete columns and slabs poured on site.  
Infill: insulated lightweight block, aluminium frame glazing, and double-glazed windowpanes in some locations, aluminium venetian blinds.  
Façade: white sand cement.  
Floors: travertine marble  
Ceilings: suspended plasterboard  
Roofing: concrete slab with integrated insulation finished with tiles

## *Construction technology*

Reinforced concrete frame structure with block insulation infill, made on site.

## *Building services, site utilities*

Electricity, water, sewage, telephone lines are conventional.

### *d. Origin of technology, materials, labour force, professionals*

#### *Technology*

Western conventional construction technology widespread in Saudi Arabia.

#### *Material*

Local materials, except for marble and tiles imported from Italy and China respectively.

#### *Labour force*

Totally foreign: Indian and Pakistani (unskilled: 70 percent of the total force).

#### *Professionals:*

Architects: London based  
Contractor: Local

## **V. Construction Schedule and Costs**

### *a. History of project*

Commission: April 91  
Design: May 91–June 92  
Construction: July 92–December 92  
Project Occupancy: May 1993

### *b. Total cost and main source of finance*

Total construction costs without land: USD 75'000  
Source of finance: the son (contractor) and daughter (co-designer) of the owner.

c. *Comparative costs*

Compared to similar projects the project's cost is below average.

d. *Qualitative analysis of costs*

USD 250 per square metre

e. *Maintenance costs*

The primary cost is the electric bill during the hot season. The house uses split air-conditioning units located in reception rooms and dining areas. Thus the bill is far less costly than that of a central air-conditioning system. Compared to window units, it is more expensive. The advantage of using a split unit rather than the window type is that it is far less noisy and more efficient in cooling. All bedrooms are provided with window type air-conditioning.

## VI. **Technical Assessment**

a. *Functional assessment*

In terms of function, this house is not a typical Saudi house especially with respect to privacy. In a typical house, the reception hall is separated from the rest of the house by a lobby, a corridor, or at least a door. Sometimes, it is an independent structure located in the front yard of the house. With this arrangement, a visitor (usually a non-relation) might enter and exit the house without seeing most of it. In Villa Anbar nothing like this is present. Stemming from the large reception hall are two corridors, at the end of which are entrances to two bedrooms. Thus guests who are sitting in the hall or standing at its entrance door, could see down the corridors into the bedrooms if their doors are left ajar.

A similar situation occurs between the kitchen and the dining room. Nothing separates the former from the latter except a U-shaped partition wall. The kitchen does not have a door to separate it from the dining space. In addition, there is no door that can close the entrance of the kitchen from the corridor side. Guests who are on their way to use the WC, are bound to pass by the kitchen entrance and see any activity inside. This is not typical of the culture.

The functional assessment presented so far is placed in the context of a mentality familiar to a Saudi household. If we apply such an assessment to the particular case of Mrs. Anbar, the situation is less critical. As mentioned, the owner lives alone in the house. She has been living in England for more than two decades and occasionally returns to use her Dammam house. People visiting her are typically relatives or professional peers. Because of this situation, privacy is not as crucial as it would be if a family permanently lived in the house. Furthermore, her particular situation leads to an atypical use of the two reception rooms. In a typical Saudi family, one room is for non-relative guests, the other for the family. In her case, it is only a matter of size. If the number of guests is large, then the big formal hall is used; otherwise, she prefers to receive guests in the smaller, more intimate, room.

Aside from the privacy issue raised by the layout, there is the smell of cooking. Arab cuisine seasoned with Far Eastern spices has a strong smell and lingers for a long time if there is no adequate ventilation, and if there is no means of closing off the kitchen from the dining room and the corridors. The openness of the kitchen in Villa Anbar is not very practical in this respect, and necessitated the construction of another cooking facility on the roof terrace to be used in the event of large parties. However, the only stair leading to the top is from the tiny courtyard, and it is very narrow and steep.



The staircase will pose a problem for an ageing woman, if she chooses to monitor cooking activity in the upper kitchen.

*b. Climatic performance*

Strong sunlight is very characteristic to this region, especially in the summer. The western façade of this house is subject to the most direct sunlight. The architects increased its wall thickness to reduce thermal induction to interior spaces. They also used double-glazed windowpanes for the same purpose.

The owner preferred an abundance of daylight in her house, as opposed to the continuous fog and grey skies of London. Daylight was brought inside the spaces, especially those on the western side of the house, where she sits most of the day. The presence of small openings scattered across the façades, together with normal to large sized windowpanes, ensure an abundance of daylight inside the house. On the latter type of panes, metal venetian blinds were used.

Using metal venetian blinds on aluminium framed windows is highly uncommon in Saudi residential interiors; they are usually seen inside office spaces, yet one can understand the reason for their use. The glare is very strong, especially through openings in the western façade. If these were left uncovered, user comfort would be at jeopardised.

As for the other façades, they have less fenestration than the western wall. They are also pulled two metres away from the property walls, the latter being almost the same height as the building, which results in continuous shade for those façades most of the day.

If air-conditioners are not used, sitting in a place where breezes touch one's skin and reduce the humidity is always favourable in this region. The optimal orientation for facing the wind is generally North or Northwest. However, the north elevation is blocked since it is only two metres away from property walls, which are of comparable heights. The western side is the only one that has enough space to allow for air movement in front of it.

The idea of a courtyard as a source of air is plausible in this region. Villa Anbar has a courtyard from the original layout but it is more a source of light (mostly to corridors) than of ventilation. The only space that can potentially make use of the courtyard is the large reception hall, but more than half of its windows are permanently closed, thus impeding the movement of air.

Another observation concerns the location of the two WCs for guests. Both are mechanically ventilated. Also, each receives natural light from an adjacent bathroom through a common small permanently-closed window. Performance could be improved with the addition of natural ventilation.

The most well-oriented spaces, in the context of the region and site, are the bedrooms. They all face East. It is a logical solution that was retained from the original plan.

*c. Choice of materials, level of technology*

The choice of material is common within the limited Saudi building budget. The level of technology is a standard issue.

*d. Ageing and maintenance problems*

The cracking of plaster is evenly distributed on the exterior walls, particularly those facing the sun for long periods of the day. Also there is trapped water vapour inside the cavity of the double-glazed windowpanes.

The partition between the kitchen takes a U shape in plan to accommodate built-in electric appliances such as refrigerator and deep freezer. It seems there was not enough space for ventilating them which resulted in malfunction. This gave the contractor (the owner's son) the idea to rebuild the wall using perforated blocks to ventilate the back of the appliances. The interior of the dining space became a bit decorated as a result; but whatever heat emitted from the appliances now pours directly into the dining room, which is already oriented towards the West and South. This heat radiation should not pose too much of a problem for it soon disappears once the air conditioners are switched on.

e. *Design features*

The overall massing of the house is common to the modern style of the region. The massing of the driver's room located on top of the garage, however, is extraordinary, as is the massing of the mechanical room located on the roof terrace. Both have sides that slant at oblique angles, forming irregular shapes. When viewed from a distance, they succeed in differentiating the house from the rest of the street façade.

Space articulation is logical, retained from the original plan: sleeping zone in the back, living zone in the front, and toward the middle a court that acts as a buffer zone.

Integration of building and site is successful, with respect to building codes and privacy of neighbours.

## VII. Users

a. *Beneficiaries of the programme*

Mrs. Anbar is the owner of the house and the primary user. She is a well-known novelist who writes romantic stories for teenagers. She has been interviewed by a handful of satellite channels in the Arab world. Yet the house neither reflects sophisticated taste nor a high level of income. This is evidenced by the house's construction and finish, which are of average quality. It is also apparent in the style and class of furniture. However, as this is her second or third home, one should assume that she must be of a higher income level than the house suggests..

The cultural profile is more impressive. Quite a number of her family members worked in diplomatic circles. Her husband was the educational attaché of the Saudi Embassy in London, which explains why she has been living there since the 1970s. Her children, as a result, received the best education and are all enjoying bright careers, some in Saudi Arabia, others abroad.

b. *Response to project*

People who visit the house are struck by two things: the oblique projection of the driver's room, which overlooks the front yard of the house, and by the interior's fenestration. In the reception hall a horizontal rectangular window 0.30 x 2.0 m is placed close to the ceiling, alongside another huge vertical window 1.2 x 3.0 m. The entrance door also has a window pane of 0.7 x 0.8 m. In the living room, one wall has a 0.3 x 0.3 m window at the same level as the floor, a small square opening close to the ceiling, and a third normal sized 1.0 x 1.0 m window is in between. This contrast in scale, shape and location of window openings captures the attention of anybody entering the house. One understands the house to have been designed by an architect who plays with form and shapes. This playfulness reappears in the placement of a narrow slot in the wall between the living room and the large reception hall. While sitting in the small room people can monitor occupants of the large hall through this slot, as in medieval times. A canvas was permanently hung on top of the slot by the owner, to hide it.



Coupled with this treatment is the presence of frequent niches of contrasting shape, scale, and location carved into walls. This is another source of attraction for people visiting the house.

The owner of the house did not have much initial input in the house, perhaps because she relied on her daughter's presence on the design team.

## **VIII. Persons involved**

### *Project personnel*

- The client, Mrs. Wasfiah Anbar, is the principal user of the house.
- The architect, Nohad Al-Turki, is the daughter of the client.
- Peter Barber participated in the design and acted as the project supervisor.
- The contractor, Abdulaziz Al-Turki, is the son of the client.

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