

# Mariannas' Home, Puducherry

India / Puducherry

+11.9, +79.8

**Client Name:** Denise and Pascal Marianna

**Project website:**

249,99,58,0.6

## Project Description

The house for Mariannas is a unique solution to a very typical Puducherry oblong plot, where wall to wall construction is prevalent in the modern times. The house has been designed in 'section' to maximize on natural lighting, ventilation, cooling as well as integrating building and techniques which are locally available, ecologically efficient and practical to maintain. Overall aesthetics of amalgamation of Moroccan and Tamil Architecture has been followed in essence of their spirit and function and nowhere as merely visual pastiche elements.

## Building Details

Type of Building

Residence

Type of project

New building project

Site Area

165.21 m<sup>2</sup>

Number of Floors

3

Type of unit

N/A

Gross floor area

265.83 m<sup>2</sup>

Net floor area

212.15 m<sup>2</sup>

Non Air-conditioned area

N/A m<sup>2</sup>

Performance Standards

N/A

Total Cost

INR 57 lakhs

Cost per m<sup>2</sup>

INR 21,442

Year of completion

2008

Year of occupancy

2008

## Project Team

Organisation

Ovoid Atelier

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#### Website

N/A

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#### General contractor

Ovoid Service

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#### Structural Engineer

Mr. A.K.Das

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#### Architech

Neelratn

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#### Architect's profile

Neelratn graduated from school of planning and architecture, New Delhi in 1997. After working for three years each with Dean D'Cruz (Architect) in Goa and Kanu Mistry ( Contractor) in Pondicherry, he, along with Supriti co-founded Ovoid Atelier, a multi-disciplinary practice spanning from architectural design to interiors, furniture and graphic design. His key assets are the detailed brief building with clients which leads to a holistic and comprehensive design process integrating all stake holders related to the project - clients, contractors, consultants, design and drawing team all alike as well as finding appropriate design solutions for all scales of projects.

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#### Architech

Supriti Mittal

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#### Architect's profile

Supriti graduated from School Of Planning & Architecture, New Delhi in 1999. After working with architect Helmut in Auroville for 3 years, she along with Neelratn, co-founded Ovoid Atelier. In the 14 years of practice, since its inception, Ovoid Atelier has specialized in unique design solutions for challenging design problems. It has worked over 500 projects of varying scale, scope of work and degree of complexity. Her keen sense of organisation and detailing is a great asset which has been imperative for the institution of the past and the present projects.

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## Climate Analysis

#### Describe the local climate

Located about 1 km distance from the Indian Ocean, the climate is characterized by hot and humid conditions almost throughout the year. Since the temperature of the ambient air does not rise as much as exterior uncovered spaces, it can be channelized into the interior spaces to achieve passive cooling effectively.

## Design Approach

#### Concept

The plot being oblong, the primary challenge was to get all spaces well-lit and ventilated. This was achieved by alternating open spaces so that all covered spaces opened into at least one of them if not more . The segregation of public and private spaces is achieved in section. The public spaces (the living room and the entertainment room) are in the front, one above another, overlooked by the kitchen and dining across the patio. The four rooms are at the back, enjoying the south openings into the rear garden, not visible directly from the living, patio or the kitchen. The terraces have been given characters, one with a bench shaded under a vault, a basin with a tap, level difference and wooden steps; another one covered with a wooden sloped roof, benches with backrests, view of the church spire towards the south east; yet another one houses the clothes drying arrangement and solar water heater. The spaces have been characterized in their essence as spaces in some of traditional Moroccan architecture as we observed (and discussed in length with the Mariannas) in a book gifted by them at the onset of the design process. 'Moroccan Style' is a beautifully illustrated book. One of the most interesting characteristics was spaces opening into and looking down into some spaces of our own house , thus introducing 'stand-in' balconies in the entertainment room and master bedroom overlooking the patio and the staircase, arched openings in the main staircase overlooking into the kitchen and dining etc. This phenomenon gives visual and aural connections in the house otherwise so linear that it is very easy to get cut off from your family.

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#### Site integration

There were two to three storeyed buildings on the three sides of the plot. Unlike larger plots, here the site integration deals with the choice of construction process and structural system. The existing house on the plot was built such that the west wall, though built on our plot was the main structural wall for the west neighbors. This is a typical phenomenon in wall to wall construction in Puducherry. Though it took a precious 30 cm out of 545 cm width, demolishing it would have endangered the

structural strength of the neighbor's house. In addition, it would have practically been impossible to live in the house with one wall gone during the construction period. East wall, on the other hand did not pose this problem as the situation was reverse, i.e., the main structural wall was built on the east neighbor's plot and our walls and roof could be demolished without disturbing them. Given the proportion of the plot, the otherwise obvious structural system would have been to span in shorter direction, which would have meant to excavate foundations along the long edges of the plot, again becoming a cause of danger to the neighbor's structures. Thus, it was chosen to span in longer direction in smaller bays. Even during the excavation, the foundations were dug alternatively in phased manner, i.e., all odd ones were excavated, foundation brick work undertaken, back-filling completed and then the same for the even ones.

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### Building design

The process of design began with our involvement even in the selection of the site. They had explored three different plots out of which the smallest one suited their preference for location as well as the budget limitation. Being oblong and particularly narrow (17'-10" X 95' or 5.45 m X 29 m), their primary concern was whether a well-lit and ventilated house was possible at all in such a plot. On the three sides, there were two to three storeyed neighboring buildings abutting the plot boundary. According to the bye-laws for the within the Boulevards area, set-backs are not required and coverage should not exceed 2/3rd the plot area. With these in consideration, we developed a concept (almost 'overnight' and very close to what was finally built) which convinced them that it would be a good house. They bought the plot and we started to develop and fine-tune the design. The further development of the design spanned across multiple discussion with our structural engineer Mr. Das, e-mails and skype calls with the clients in Paris and their next visit to India. The Marianna family loves to travel and amongst their favourite places, they had a special penchant for Moroccan architecture. Being situated and rooted in Puducherry and South India, the love for local building elements was equally strong. As a design team, we agreed that we will incorporate these seemingly disparate elements in an integral manner and in essence of their spirit and function, rather than as merely visual pastiche elements. Also, the choice of building methods and materials would be such that they are available locally and are practical to maintain. Abiding with these premises throughout the design and construction process, not only gave a clear direction for decision-making at each step, but also kept the house as an integrated whole.

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## Special Feature

### Natural Lighting

The plan layout is such that there are alternate bays of open spaces, the verandah, the patio, the service O.T.S and rear garden as seen from the north to south. Ample natural light is available in all spaces which is glare free as well as uniformly diffused.

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### Water efficiency

The Rain water is collected and put into a ground re-charge pit after sand filters.

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### Passive heating/cooling

The heat gain from direct sunlight is minimum due to the orientation (north facing), the longer sides of the plot (east and west) fully shaded by G+2 neighboring buildings and roof terraces well-insulated due to adapted 'Madras Terrace'. The shaded patio becomes like a cool sink. The alternate open and covered spaces allows for breeze to get channelized through the house, providing cross-ventilation in all spaces. The central stairwell wall has been punctured, as much as structural stability is not compromised upon, allowing itself and the bathroom lobbies to ventilate too.

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### Cost effective features

The choice of structural system is the primary measure of cost-effectiveness. The volume of RCC used is 25% of any other framed building. In addition to that the wooden rafters reclaimed from the existing building have been re-used in the adapted "Madras Terrace" system. Materials used for finishing are low-cost, maximizing their aesthetic appeal by effective design and detailing

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### Eco-friendly features

The use of Eco-friendly and local materials as described in 'cost-effective measures' and 'structural materials'. Ample natural lighting and ventilation ensures minimum usage of electric power for the same.

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### Other features

N/A

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## Energy systems

### Interior Lighting

13 Concealed LED fittings for ceiling, 84 Wall Mounted CFL Lamps.

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Exterior Lighting

4 Wall mounted CFL Lamps.

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Ceiling Fans

Efficient and Quiet

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Air-conditioning

N/A

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Lift

N/A

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Energy efficient systems

N/A

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Energy efficient systems

Solar water heater has been installed for full hot water requirement. A complete power back-up has been provided which can be plugged into SPV.

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