

Mallikarjun Residence, Bangalore

India / Bangalore, Karnataka

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Client Name: Mallikarjun Family

Project website: <http://bsb-architects.com/?cat=101>

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Project Description

It is a single residence in a new upper class area in Bangalore. A mid size plot and built with passive use of climate promoting natural ventilation and light with minimal use of artificial ventilators like electric fans.

Building Details

Type of Building

Single Residential Building

Type of project

New construction

Site Area

240 m²

Number of Floors

2

Gross floor area

210 m²

Net floor area

140 m²

Non Air-conditioned area

140 m²

Performance Standards

none officially done

Total Cost

INR 4000000

Cost per m²

INR 17390

Year of completion

2007

Year of occupancy

2007

Project Team

Organisation

BSB Architects, Bangalore and Mysore

Website

www.bsb-architects.com

General contractor

Owner built

Structural Engineer

C N Yadunandan

Architech

Dr. B S Bhooshan

Architect's profile

Principal Architect, BSB architects, Mysore and Bangalore. Has been in practice since 1988. Was a teacher at Mysore University earlier. Won several national awards. Has been in visiting professor guiding Doctoral Research students.

Other (Please specify)

Sathya Narayan Interior contractor

Climate Analysis

Describe the local climate

Bangalore is located in the southern edge of Deccan Plateau. Elevation 923M above MSL. It has a tropical wet / dry climate. The dry season in the low-sun months, no very cold season, wet season is in the high-sun months. Temperatures are moderate. Never goes below 10 degree Celsius in winter nights and hardly goes above 35 even in summer. Very rarely reaches 40. However fairly good and heavy rain lashes Bangalore. spread over 7-8 months. It receives good winds from West and Southwest as well as from East and North east.. For a comfortable Living good ventilation and circulation of air with insulation of roof from direct heat gain would suffice.

Design Approach

Concept

An inward looking house internalizing part of the exterior spaces on the side backs with high pergolas and providing sky lights and ventilators and thus increasing the circulation of air was the primary concept. Fluid spaces help air circulation in summer.

Site integration

Site was small 12 x 18 meters. with similar size plots on both sides and behind. An access road of 12 meters at the east. High density development with 2 -3 stories around. Area was fully developed. Ground level. The building was designed to fit the area leaving largish required set back at the front. The trees on the road were preserved. The approach road is a shaded street now.

Building design

The house is designed for a small family of 4 adults. Father, an small scale industrialist and a photographer, mother and children. The setbacks on the sides are internalized by making them as semi landscaped courts with high level pergolas and insect proofing. The with large openings between these courts and the double height living spaces are fluid spaces. No windows or doors used there so that the inside space merges with semi enclosed outside. One bed room is on the GF besides, living dining and kitchen and the entrance. Cars and vehicles like 2 wheeler can be parked in the front open yard that also double as basket ball practice space. Two more bed rooms on the West and a study in the East are of first floor connected by an wooden bridge. This and an open wood plank stairs landing on to the bridge are supported on steel. High density single residence development all round insulate the house from Northern or Western afternoon sun.

Special Feature

Natural Lighting

ventillators, indirect sky lights, punctures on roof with glass cover.

Water efficiency

Nothing specifically attempted.

Passive heating/cooling

Heating is not required for Bangalore's climate. Good ventilation and provision of air movement is sufficient most of the times. Only during summer months when temperature touches and sometime cross 35 degree celsius, the place need cooling. It is achived by reducing heat gain from roof using vaulted shapes thus increasing internal volume and height. Further hollow clay blocks conducts less heat from the screed concrete on top to the inner space. Convection of hot air

moving up the double height escape through ventilators just between two levels of roof is used as a design feature

Cost effective features

It is not designed as a cost effective building. But not as a higher cost as well. Exposed stone and bricks, minimal openings has not increased the cost beyond average.

Eco-friendly features

Reduction of embedded energy by local and labour intensive materials. Recycled waste wood (pine wood packing cases reused

Energy systems

Interior Lighting

30 + nos with open points to fit any bulb. CFL, LED or Incadescend or plain tubes

Exterior Lighting

8-9 nos with bulk heads

Ceiling Fans

5 nos

Air-conditioning

none. provision of points for split AC in bed rooms

Lift

none

Energy efficient systems

none special. except solar water heater on roof with hot water on all bath rooms. picture below

Energy efficient systems

Solar water heating system for bathing only. Picture below
