

House of Bhooshan family at Mysore

India / Mysore, Karnataka

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Client Name: B S Bhooshan and family

Project website: <http://www.bsb-architects.com/?cat=110>

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Project Description

This is a modest size building in a small site in a higher income locality in Mysore City. Built in 1985-1989 with path breaking techniques of Stabilized Mud Blocks and filler slab roofs as well as uncommon spacial sequence and openings all responding to the smallness of the site and the local moderate climate. Designed for a low energy consumption utilizing climate responsive design needing very little artificial ventilation using at the most ceiling fans.

Building Details

Type of Building

Single family Residence

Type of project

New building

Site Area

211.00 m²

Number of Floors

2

Gross floor area

150 m²

Net floor area

125 m²

Non Air-conditioned area

100 percent m²

Performance Standards

not done

Total Cost

INR 350000

Cost per m²

INR 2333

Year of completion

1989 marginal modification of toilets and kichen cabinets in 2010

Year of occupancy

1989

Project Team

Organisation

BSB Architects, Bangalore and Mysore

Website

WWW.BSB-ARCHITECTS.COM

General contractor

Owner built. with Labour Contractors

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. at CEPT, Ahmedabad, Manipal University , Anna University, Chennai and BMS College Bangalore

Electrical engineer

M S Vijayakumar

Other (Please specify)

SMB consultant : Prof. K S Jagadish of ASTRA, Ind. Inst. of Science, Bangalore

Climate Analysis

Describe the local climate

Located on the Southern tip of Deccan Plateau, Mysore city enjoys a very comfortable climate. Its temperature hardly crosses 35 degree Celsius in summer and hardly touches 15 in winter nights. It also gets good breeze from south west and enjoys fairly good rain spread most of the year. The design parameters are to respond to hot Summer months between April and August and heavy down pours on many days spread over the year, mostly during June to December.. It becomes sultry summer as relative humidity would range between 50-60 during. Needs good air movement.

Design Approach

Concept

Perched up on eight columns, this small house for a young family at a tight budget was designed responding to hot months.. At the same time, compactness to maintain easily was a consideration. The double pitched roof was a response to the form of houses found around in the traditional rural Mysore. Leaving lot of space for greening with trees was part of the concept..

Site integration

Very small site with major set back regulations as it was part of a large sites upper class area. A coverage of about 100 sq.m was possible. Leaving larger area of Ground Floor unbuilt for landscape, composting, storage and vehicle parking as well as childrens' play, this house when built for two working parents and two school going children, tried to fit in the locality and the site. It was to be most un-intrusive and to hide behind greenery.

Building design

The main living floor with living, dining, kitchen and two bedrooms with toilets and an attic study was all housed at First floor while the entrance level at ground have a small entry space for casual visitors and a guest bed room as well a book store. The ground floor bed room 600 mm below the entry level is a largish room opening to a enclosed garden at rear. A small area of about 15 sq.m at northwest corner is used for composting, rain water harvesting, a sump well , water pump and UPS, rough store and gas cylinder. An open covered space is used as parking and multipurpose space.. A small deck at first floor over the entrance at First Floor and the front green space in Ground floor are used for summer evenings. A water tank, solar water heater are housed over the roof. '

Special Feature

Natural Lighting

Natural diffused light using a central skylight, all round strip ventilator openings in split level roof ,long windows to light floors make the spaces pleasant and bright with changing moods through out the day. Even in night the house is never in total darkness.

Water efficiency

Use of sump wells and overhead tank manages erratic civic water supply.. Rain water harvesting with centrifugal filter use 90 percent of the roof capture. The pavements of drive way with pebbles and local granite slab with gaps percolates rain to

the ground. So does green areas.

Passive heating/cooling

Mysore's climate is mild. never too hot, nor too cold. Summer temperature could reach 35 degree Celsius and could go up to 38 rarely. Good air circulation and allowing hot air to escape from top could make the building comfortable. The center of the building has the perforated stairs raising up like a chimney with a glass box ventilator on top. This makes the hot air raise and sucks in fresh air at various levels. See section. Even the walls of the bedroom do not reach the ceiling to allow air circulation at higher level. 2.. The roof is a low radiating filler slab with hollow clay blocks and screed concrete on top. This reduces heat by 5 to 8 degree celsius during hight of summer.between external and internal temperature. Cieling fans are used largely for air movement and also because of mosquito menace at summer nights.

Cost effective features

The house was designed as cost conscious building. The curtain walls and internal walls are of stabilised mud bricks made at site using the mud from excavation. the openings were of profile steels of very small sections with low quality wood with glazed shutters. Specially designed 3D windows divert air to lower levels and can work with out curtain mostly .The shutter hanging vertically down can prevent breeze letting in rain drops even with heavy winds. . Most cabinetry and some cladding as well as sliding shutters are made of recycled deal wood (pine wood) boxes. The roof is of filler slab with hollow clay hurdis, flooring with traditional clay tiles except in kitchen 9where it had to be changed after 10 years to granite) reduced the cost..

Eco-friendly features

rain water harvesting as said above. Composting of kitchen waste. plantation of trees in available areas. Recycling of wood. reuse of pine wood packing cases.

Other features

Mostof the rain falling on the site is either harvested or allowed to percolate down through unpaved stone slab and pebble drive ways and greenery. No kitchen waste or waste paper are sent to municipal collection. they are stored and send to news paper and paper recycle agents.biannually.

Energy systems

Interior Lighting

about 30 nos for anyfitting LED, CFL or incandescent. Mostly CFL and LED used.

Exterior Lighting

5 bulk heads.

Ceiling Fans

4 fans.

Air-conditioning

No a/c

Lift

none

Energy efficient systems

Solar water heater for bathing. Gas cooking system.

Energy efficient systems

None so far. UPS system can be recharged with solar photo voltaic system in due course. And can be linked to public grid now as Government is allowing it now. The total consumption is about 180-200 units (kwh) per month.
