

"Bird Cage" - Ramanayake Residence

Sri Lanka / Colombo

6.8979472, 79.8813194

Client Name: Sanjaya and Ruvini Ramanayake

Project website:

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Project Description

Right in the heart of Colombo, perched in the middle of a dense urban fabric, spanning social classes and structures that reveal a diverse community, the 'Bird Cage' rises in stark contrast due to its originality and perforated enclosure. It is a magnanimous response that draws together three permanent geographical concerns of building production: climate (with its connections to environmental comfort); physical form (morphology); and building materials. The physical circumstances of where we build – our sites – provide a socio-spatial complexity and system of reservoirs with which those of the building interacts. It is indeed when dealing with the compact, rectangular site - confined by adjoining houses on the longer boundaries - that this project unearthed the constraints that generate the needed impetus to innovate

Building Details

Type of Building

Private residence

Type of project

New building project

Site Area

126 m²

Number of Floors

3

Gross floor area

250 m²

Net floor area

207 m²

Non Air-conditioned area

142 m²

Total Cost

EURO 85,000

Cost per m²

EURO 340

Year of completion

2012

Year of occupancy

2012

Project Team

Organisation

Arch. Narein Perera - Private Practice

General contractor

RCC structure - NESA Builders. Timber Works - Dilum Fernando. Steel Works - Shantha

Structural Engineer

Eng. Keerthi Ratnayake

Architech

Archt. Dr. Narein Perera

Architect's profile

Narein Perera runs a small practice, which prides itself in the degree of innovation and holistic applicability of its architectural solutions. A Senior Lecturer at the Department of Architecture, University of Moratuwa, with a teaching and research focus on climate sensitive design at both, building and urban scales, for which he holds a PhD, strives to apply 'lessons-learnt' in his practice. The practice, now over ten years old, has been quite successful over the years, winning recognition for design, both locally and internationally. On the international `stage, he was awarded the 'Architecture Asia Award for Emerging Architects' as a part of the Asian Congress of Architects sessions in Malaysia, 2014. In his home country of Sri Lanka, he was the recipient of the 'Young Architect of the Year' in 2010 and Sri Lanka Institute of Architects, awards for Design excellence in 2007 and 2011.

Electrical engineer

Eng. Sanjaya Ramanayake

Other (Please specify)

CQS. Sunanda Gnanasiri Quantity Surveyor

Environmental Consultant

Archt. Dr. Narein Perera

Climate Analysis

Describe the local climate

Colombo has tropical monsoon climate and has sunny days throughout the year. The city temperatures varies between 24-31 C throughout the year. During the monsoon season, Colombo gets heavy rainfalls. Usually April to May and September to November records highest rainfall figures to Colombo city. And the biggest problem with city of Colombo is the high humidity content. Cross ventilation and the shading is the best solution

Design Approach

Concept

The conceptual approach embraces simple form making, thus a contrast to the chaotic urban environment. The 'bird cage' was envisioned as an envelope that protects, yet allows maximum freedom within it.

Site integration

The outcome is a house which synthesizes aesthetic simplicity with intelligent pragmatism and becomes a kind of prototype that can be used with a moderate degree of change and adeptness in similar kinds of compact, urban plots. For example, the clever introduction of an elevated garden space, which is experienced from all three levels of the building, can be seen as an attempt to overcome the area limitations of the ground plane and establish a spatial continuum across inside and outside, thereby blurring the boundaries of an otherwise condensed space. The terraces, together with the open spaces on the ground floor, reclaim over 70% of the plot as open to sky, garden space.

Building design

Passive features of this scheme, features the galvanized iron 'cage' that ties the whole composition together. Unlike the conventional solid enclosures with small openings protected with grille work, this distinctive interpretation of a 'skeletal cuboid volume' provides a transparent and permeable skin, defining the building form (both internally and externally) and protecting the interior and inhabitants from the adverse effects that the urban context and environment can generate. It is a 'brise-soleil', a vegetated skin, a visual screen and essentially, a security layer that protects the inhabitants from unsolicited activities which often occur in the immediate context of this locality. For the interior, the 'cage' forms and defines the habitable volumes, creating variety in the spatial flow, the comfort, and the utility. The internal spaces open out to a triple height volume, which accommodates the formal living area at its ground plane and serves as a 'ventilation stack' allowing a free flow of air across space and through the permeable envelope.

Special Feature

Natural Lighting

The residence is designed for natural light and ventilation. A shaded envelope, that filters daylight and connected open spaces encourage cross and stack ventilation. The shade screen cage incorporates both horizontal and vertical elements.

Water efficiency

Minimal run-off from a minimal built area. The planted roof terraces are use and slow the rainwater.

Passive heating/cooling

Air conditioned spaces are limited only to the bed rooms. This more so for insulation for sound from the busy neighbourhood, than for thermal comfort. the bedrooms are afforded maximum insulation with turfed terraces above, that are in turn shaded by the cage. possibilities for cross ventilation and whole house stack ventilation enhances cooling possibilities.

Cost effective features

The lightweight internal structure, surface and finish are envisioned as a single entity - timber planes. Therefore, the need for finishes that become an extra layer is avoided.

Eco-friendly features

Timber as a primary material choice for living spaces.

Other features

The galvanised iron steel cage is treated for longevity, with marine grade coatings. A disadvantage is that it even repels the footholds of climbing plants, deemed essential for the whole. The shade screen structure although slender, reducing cost and enhancing transparency, was designed to carry extensive planting.

Energy systems

Interior Lighting

All luminaires include LED lamps

Exterior Lighting

All luminaires include LED lamps. Controls : Sensor switches for selected lamps only

Ceiling Fans

Type / Number per rm: KDK(557W)/ 1 per room

Air-conditioning

Split type ACs for bedrooms only

Lift

n/a

Energy efficient systems

Controls : Sensor switches for selected lamps only

Energy efficient systems

n/a
