

STERLING

ENGINEERING CONSULTANCY SERVICES PRIVATE LIMITED

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Bangalore Special Issue



Featured Article

The Success Story of Sterling Bangalore

Information Technology Parks

Across a 1000 kms

Projects Under Construction

Events at Sterling

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The Success Story of Sterling Bangalore

N N Nagendrakumar, Resident Director



When the President of India, Shri V. V. Giri decided to develop the tallest building in India in late 60s, he chose Bangalore – the capital of his home state. The municipal corporation of the city announced a national design competition. The brief was to build a 300 feet high building which was to be called - Public Utility Building. I am proud to say that Hadker Prabhu and Associates were the common structural consultants to three winning entries! Subsequently, Mumbai based architects Karim Noorani and Co. assisted by our Managing Director – Mr. Kamal Hadker were awarded the work in early 70s. The rest, as they say, is history and we now see an elegant and structurally innovative building which remained the tallest building in Bangalore for the next 25 years! (See our newsletter issue no 3 for structural details of this project)



Public Utility Bldg

In 1976, I graduated from the University of Mysore and then went on to complete my Master's Degree from the Indian Institute of Technology Mumbai in 1978. Soon thereafter, I joined the consultancy firm - Hadker Prabhu and Associates in Mumbai. During these two and a half years, as a young engineer, I got the opportunity to work on a variety of projects like - Industrial Structures for Mukund Iron and Steel Works, the prestigious residential **Pratibha Tower** as well as the **Indraprasatha Stadium Complex** (now known as Indira Gandhi Indoor Stadium) for the Asian Games in 1982 in New Delhi.

As I was desirous of returning to my hometown, Bangalore, Mr. Hadker asked me if I would be interested in setting up a branch office of Sterling in Bangalore. I readily accepted this offer and we started the practice with a modest staff of six to seven people at High Point 4, next to the famous Chalukya Hotel. While designing **Brigade Tower** for Mr. Jaishankar, in 1989, we made a wise decision of booking an office space in the same tower and soon moved there, on the 13th floor, where the office functions even today.



Brigade Tower

One of the first large corporate projects we undertook was at **Brookfield** with an area of 1 lakh sq. ft. and the architects for this development were Zachariah and Thomas. This was then the largest project in Bangalore and the first major project to be completed by us. Soon, we had the opportunity to design the first high-rise building - **Manipal Centre**- a Ground and 15 storeyed building. As early as 1984, we designed the **Raheja Towers** – Bangalore's first commercial building with flat slab construction. This was a Ground and 19 storeyed building that had flat slabs with spans ranging from 7 m to 14 m. During the subsequent period of a few years, we had the opportunity to design flat slabs of varying spans. Finally, the spans of 10.8 m to 11 m became standard grids for all **IT buildings**.

Another prominent landmark we designed was the **Golden Enclave** for India Builders. This ten lakhs sq. ft. mixed-use development had a Ground and 9 storeyed residential tower as well as a commercial development fully connected by a basement.



Leela Palace Hotel

Our structural engineering practice was well established by now and we gained greater confidence in our abilities with every project. As new opportunities came, we offered innovative solutions and soon we had several satisfied clients who kept coming back to us for their next ventures. I do remember that one of the most challenging jobs was the structural design of - **Leela Palace Hotel** where not only was the structure challenging but it required tremendous co-ordination with several consultants handling electrical, mechanical, plumbing, interior and landscape designs. To add to these challenges, we had to deal with innumerable changes brought about during the construction of this extraordinary five star luxury hotel.



Similarly, we did many more challenging projects in association with leading architectural firms like Thomas and Associates, Venkataraman Associates, RSP etc. in Bangalore.

Some of the significant projects we completed for developers like Prestige were **Prestige Meridian I and II** – 13 floors, **Prestige Towers** – 13 floors and **St. John's wood** -11 floors etc. Several residential apartments with multiple blocks were completed by us at **Divyasree Elan**- 12 floors, **Brigade Metropolis** – 20 floors and **Godrej Woodsman Estate**-18 floors. With the IT boom in Bangalore, the scale of projects increased and we soon found ourselves expanding the practice. There are more than **25 software parks** we designed and they have been listed separately in this issue. Our Clientele included **Wipro, Infosys, Intel, RMZ Corp, RGA Software (Pritech)** and many more.

Manipal Centre



An exciting opportunity came by when we were asked to design several Mass Housing projects. These were - **Mass Housing Project for Karnatak Housing Board** in Yelahankar, the **Mass Housing for the National Games Village**, in Koramangala and a **Township for Titan** in Hosur, where we used pre-engineered steel formwork and achieved almost 7 days per floor cycle. Developers like Salarpuria Group, Mantri Developers, RMZ Corp., SJR Group etc., were also coming up with landmark projects in the city and we completed **Mantri Paradise, Mantri Classic, Salarpuria Splendor, Techpoint, Infozone, RMZ Futura, RMZ NXT, RMZ Centennia and RMZ Titanium**. Similarly we completed residential apartments like **Brigade Metropolis, Skyline City-Bangalore** and an office building called - **The Summit**.

Golden Enclave



There were also a number of projects we did outside Banaglore like - **Willington Enclave** at Cochin, **Raheja Towers** at Madras and Coimbatore, **Sterling Square** Corporate office for SmithKline Beecham and Industrial Projects like the **Factory Building for B.F.W., Schneider Electric, TDPS** etc.

Our association with giant developers like Prestige spans more than 25 years. We completed the "**Acropolis**" – a large residential project with complex architectural features. We also designed the formidable - **Forum Mall** with its 11 screen multiplex, Shopping Centre and commercial complex. Even today, after almost 9 years since its opening, it remains a leading mall in the city.

Prestige Towers



We are presently engaged in the completion of the impressive **Chennai Market City Mall** in Vellacheri. This gigantic mall – developed by Ruias and their partners in Mumbai - has a length of almost 200 meters with only two expansion joints. The architectural spaces and volumes created by Benoy - Hong Kong based architects - are quite challenging for any structural designer. In 2010, we completed the **North South University** in Dhaka, Bangladesh. This was awarded to us after winning an International Competition. The large sprawling campus has all the amenities of an international university with administrative buildings, auditoriums, large indoor sports facilities and lecture halls. Structural challenges included the design of 3 level basements in extremely difficult sub-soil conditions. Mr. Mustaq Habib, Mr. Abhay Ghate, Mr. Joshi were closely associated with me for the finalization of the structural system.

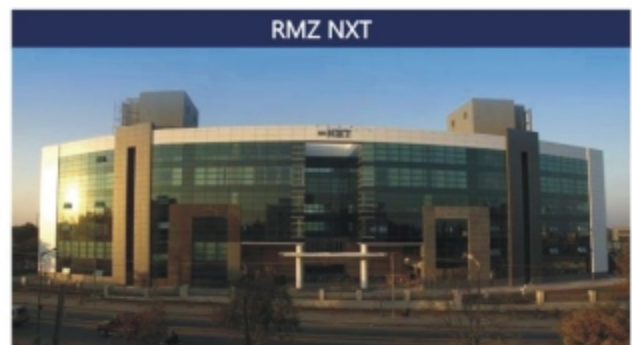
This success story has been possible because of the close knit communication between us and experienced engineers in Mumbai and Pune offices. As our Head Office in Mumbai, continues to work with architects and engineers of International repute, we get the benefit of the latest technical knowhow and can pass it on to our Clients in Bangalore. With such a rich and diverse experience in structural design, we are now even better poised to take on bigger and more complex challenges in future. 🌸🌸🌸



Information Technology Parks

Designed at Sterling Bangalore

Prestige Dot Com at Residency Road	Intel BGA 1 at Airport Road
Prestige Intel at Airport Road	Intel Srr 1 & 2 at Outer Ring Road
GE India Technology Centre	Maruthi Infotech at Airport Road
Texas Instruments	Motorola at CV Raman Nagar
Infosys Park VI	People Soft at Whitefield
Infosys Technologies Main Corporate Office	Progeon at Electronics City
Infosys Convention Centre	RMZ Titanium at Airport Road
Wipro Corporate Complex	RMZ – NXT Software Park
Wipro Software Facilities and Learning Centre at Electronic City E.C III	RMZ – Centennial Software Park
Brigade Software Park	Salapura Hall Mark at Sarjapura Road
Software Technology Park for Texas Instruments at Airport Road	Salapura Infozone at Electronics City
Bagmane Lake View at C.V. Raman Nagar	Salapura Symbiosys Bannerghatta Road
Infosys park VI at Electronic City	Surya Sapphire and Surya Wave at Electronics City





Across a 1000 kms

Girish Dravid



Bangalore is a strategic location for any business for conducting its activities in South India. Since 1982, with incessant efforts and hard work, our Director Mr. Nagendrakumar has established the Sterling brand firmly in Southern states of Karnataka, Tamil Nadu, Kerala and Andhra Pradesh. The expanse of the work carried out by Mr. Nagendrakumar and his expert technical team is showcased throughout this issue.

While the Bangalore office built the capacity and capability of handling the projects in numbers and with volume, Mumbai offices were already dealing with many complicated and large size projects over the years, when India experienced a developmental surge in the last one and a half decade. Many a times the work was distributed between the offices at Bangalore and Mumbai to capitalize on the advantage of the location of a particular office. There have been many instances of the teamwork that went into the execution of projects from the offices in the two cities. Two important projects that involved such a team work were both in Bangalore.

Work on UB City, commenced in 2004. Prestige Developers of Bangalore undertook the construction of the mixed use complex at Vittal Mallya Road in Bangalore, for the UB Group of Companies. The structure consisted of four commercial towers, which had common basements. The basements, ground floor and a podium accommodated the parking requirements. The Ground, first and second floors housed a mall, restaurants and an amphitheatre. The parking area including the basements and three floors was 55,000sq.m. Total built up area of all four towers admeasured 80,000sq.m. Out of the four towers, three of them are 20 storied and one tower is 13 storied. Thomas Associates were appointed as the architects of the Project.

A strong analysis and design team consisting of four individual design groups was formed in Mumbai to take care of the four towers – Comet, Canberra, Concord and UB Tower. The Bangalore team - equipped with the knowledge of local soil conditions, acquainted with the prevalent construction practices, already familiar with the client and the architects - contributed with important inputs from the inception of the project and well into the design development. Mr. Srivathsa in Bangalore helped in a big way with almost daily site visits, clearing RFIs, offering clarifications on drawings and conveying the general design intentions to the construction team. Mr. Devang Sutaria used to shuttle every week from Mumbai to Bangalore for design co-ordination. Some of the highlights of this project included advancing the lift cores ahead of floors, use of precast staircases to take them out of critical path, use of high performance concrete. Other engineering ideas such as differential construction to address the drastic variation in soil bearing capacity of soil, maintaining shrinkage strips to safeguard against thermal effects during construction, mock up studies etc., were implemented.

UB City ushered in an era of high rise buildings in Bangalore. In this path breaking and land mark project, Sterling exercised its power of delivering the expert services for a large and complicated project with exceptional dexterity by combining the resources of its two remote offices. For Sterling, this was an example set for some future projects handled successfully in joint efforts by our engineers in the two cities. Now, after seven years and many collaborative ventures, we are together once again for the same set of client, architect, developer, contractor – L&T, in Bangalore. A high end residential project in the plot next to that of UB City is being developed by Prestige Developers on behalf of UB Group with Thomas Associates as the architects and ourselves as the structural consultants. Our structural expert services on this building with many structural complications is being jointly offered by Bangalore and Mumbai offices in the same manner as in the UB City.

As a mark of the rising skyline of Bangalore city, the new project is much taller than UB City, reaching a height of 105 m with thirty six stories to be constructed over two basements. Grand entrance lobbies, four parking levels above ground accessed by two ramps, three residential blocks arranged to form a three sided courtyard which is covered at every sixth floor, amenities like swimming pools, club house, badminton court, assembly places etc. planned in the multi-level courtyard, private lawn and swimming pool around his roof top duplex villa for the owner, capped with a helipad are some of the high points of the architectural planning. Structurally extremely challenging, this project involves many engineering solutions that have emerged out of exposure of the Sterling team to many similar assignments in the past. Extensive use of composite construction – columns and girders – has enabled us to limit the cross sections to aesthetically pleasing proportions. The change of use from the lower floors – used for parking, to the upper residential floors necessitated transfer of loads through transfer girders at the fifth floor level. Another transfer level is required at the thirty fourth level where the roof top villa covers the three building blocks and the courtyard together, and projects even further.



UB City, Bangalore

While the analysis, design and production of drawings is being handled by the Mumbai BKC office, the on-site co-ordination, inputs based on local experience, RFI clarifications, logistic support, resolution of some important conflicts between design assumptions and site situations are being tackled by the Bangalore team. Mr. Srivathsa is again at it as efficiently as before.

With the assurance of the synergy between the offices in the cities located at different latitudes, Sterling is confident of taking up assignments by sharing work across its five offices, using experience and resources available and satisfying its clients by providing the best of its expertise with adroitness that is a product of the feeling that the fellows working across 1000 km have the same zeal, passion, work ethos and abilities to perform in order to deliver something more than promised, a theme with which Sterling has been working as its unwritten motto. 🌸🌸🌸



The Forum Mall

This was one of the earliest Malls to come up in Bangalore at Hosur Main Road. The Basement houses parking and services. Ground floor to Second floor accommodates all shopping activities as well as the Food Court. The 3rd & 4th floor has 11 screen multiplex theaters. A large multilevel car park is an additional feature with Basement + Ground + 6 floor parking with in and out ramps. While the basement and ground floor has beam slab arrangement system the 1st and 2nd floor have flat slabs with drop panels. The ceiling of 2nd floor which forms floor of multiplex had several structural complications such as floating columns, steel and RCC girders as column grids were not matching. The Central atrium is a long column free structure connected with structural steel bridges housing escalators. The Entrance canopy with elevational glazing of that height was also a structural challenge.

Recently Completed Projects

This is a SEZ development of IT and ITES services developed by RGA Facilities. The architects are Thomas Associates. The development is in two phases. The 1st Phase consists of four building interconnected with two basements housing parking and services. The 2nd Phase has 5 buildings also connected by a two level basements. This could be one of the largest basements built in Bangalore. There are two basements a ground and 9 Upper floors. The structural system is primarily flat slabs with peripheral beams with core located such that each block could be divided in two portions which can be leased out separately. The lateral loads are resisted by the core and the column strips of flat slab and peripheral frame. The inter-connecting basement roof has podium slab with access ramps and fire tender path. Building no. 8 has an oval shape in plan and projects out progressively on each floor and the foot print gets enlarged. This was a structural challenge and 3D modeling with progressive analysis was carried out to find out stresses during construction.



Pritech-2



Office Complex For Wipro Technologies

The building is divided in two phases Phase 2A and 2B. It houses corporate offices, library, gym and car parking facilities for Wipro. The building structure comprises of RCC column + flat slab with drop panels construction with peripheral beams connecting the peripheral columns, proper spicing is envisaged by taking workstation, bridge and car parking space into consideration. Building is primarily 3 bays in shorter direction and which make building slender in shorter direction and hence extra precaution will be considered to stabilize structure by providing full length shear wall at ends of building and other

appropriate location as required. The 3 blocks are without expansion joint and care is taken by providing shrinkage strip of 300 to 450mm. The structural steel canopy in the form of slice of cheese with circular holes of different diameters is an interesting architectural feature. This is supported by circular columns in steel with different inclinations.



Projects Under Construction

The Bangalore golf club is one of the oldest clubs in India and has a history to match it. The new club house is being constructed on a raised podium above an existing treatment plant. The structural system thus had to be designed with large spans so as not to disturb the existing buildings of the functioning treatment plant. Also most of the structure of the upper floor was to be floated due to this constraint. The building has climatologically designed sections i.e. the building recedes on the north and eastern sides to allow better light into the building and has projections on southern and western sides to protect the lower floors from direct sunlight. Facilities like reception, waiting lounge, restaurant, and shops are provided on the ground floor. An interesting feature is the skylight with metal plates as structural members which not only bring in natural light from top but also adds interest to the internal spaces. The aesthetically curved façade presents the viewer with a constantly changing perspective.



Bangalore Golf Club



Salarpuria Sattva Gold Summit

Located near Bangalore International Airport, Gold Summit is the tallest residential building in Bangalore. The structure is almost 90% complete. There are 4 Towers, with one common basement and podium which



accommodates a swimming pool, amphitheater, sand pit, children's play area etc. Tower A has 32 residential floors and Tower B has 26 residential floors. Structural challenges included the design of connecting slabs between Towers A and B across seven floor levels. These connecting slabs have private terraces with landscaping. There is a Pent House on the top as well as a Helipad above Towers A and B.

Set in HMT Township, this eye catching building is designed as a mixed-use tower. Similar to a Rubix cube, the building's facade has blocks which turn at an angle after every third floor. Three floor plates are grouped together to form a block. This block is then rotated by 45 degrees in plan. Due to this column spacing and locations had to be such that they suit all the groups of floor plates. Hence large cantilevers were provided to support the floor plates. The central core of the tower block is used as lateral supporting system consisting of shear walls suitably picked in coordination with other architectural and services requirements. Lifts and staircase walls are used as shear walls of varying thicknesses. The building has R.C.C columns and flat slabs with drop panels and peripheral beam structure.



Brigade Rubix



Editorial by Dr. Deepali Hadker

This issue of our newsletter is dedicated to Sterling’s Bangalore branch. Mr. Nagendra Kumar’s article captures the brief history of how it all began and the three successful decades that have gone by leaving behind several landmark projects on the skyline of this beautiful garden city. People in every workplace talk about building the team, working as a team, and “my team” but few understand how to create the experience of team work or how to develop an effective team. In the article presented by Mr. Girish David, he describes what it is like to belong to a team, in the broadest sense, when you are an organisation like

Sterling with offices in Mumbai, Pune and Bangalore, where projects are often shared by teams in different locations - the outcome of such a team can be positive only if all members feel that they are a part of something larger than themselves, a higher, organizational goal.

We are, as always, strongly led by our CMD, Mr. Kamal Hadker to maintain a team oriented environment and contribute to the overall success of projects regardless of whether they are in Mumbai or Bangalore offices, “We must respond as ONE organization” he says. At Sterling we work with fellow members of the organization to produce results to accomplish the overall objectives and deliverables to Clients. The bigger picture drives our actions.

I hope you enjoy this issue which highlights our journey in Bangalore.



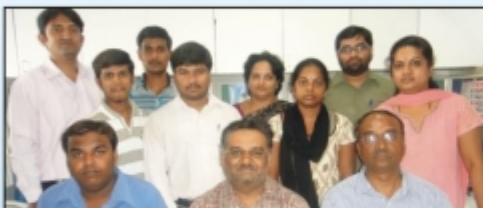
Sterling Family in Bangalore



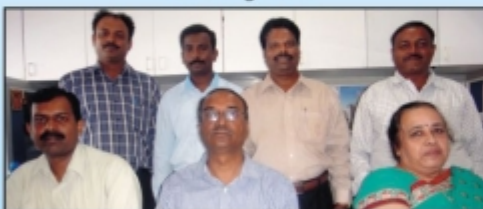
Design Engineers



Quality Assurance and Quantity Surveyors



Drafting Team



Administrative Team in Bangalore



Mr. Nagendra Kumar at Instruct

Recent events at Sterling Bangalore

- Sunil - our engineer in Bangalore, is attending a course on Design and Construction of Steel Structures organised by Instruct.
- Mr. Nagendra Kumar was invited to deliver a lecture on Latest Development and Green products for waterproofing of building on 24th and 25th Aug 2012 organized by Instruct.

Celebrations at Sterling !

- Our site engineer - Nagaraj D.G tied the knot with Ms. Padmini on 12th Aug 2012. We wish the young couple many happy years together !

Welcomes and Goodbyes

- We welcome Ms. Bipasa Roy, Mr. Sandeep, Mr. Sanjay Rao, and Mr. Raghavendra the new entrants in Bangalore office

Welcome to the family and we hope you enjoy your work

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