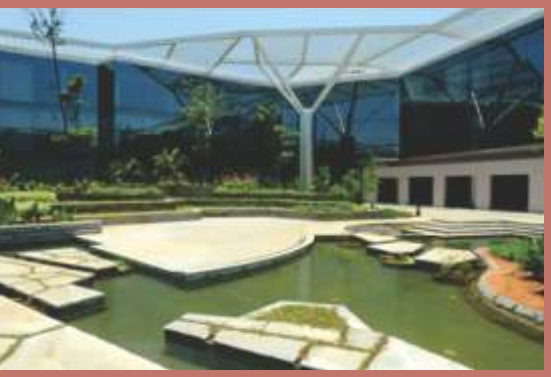
# STERLING

## ENGINEERING CONSULTANCY SERVICES PRIVATE LIMITED

Newsletter Issue : 10 | September 2013

**Chennai Special Issue**

## Happy Engineers Day !



INSIDE

## ITC Grand Chola, Chennai

### Project Description

This ornate, palatial tribute to Southern India's greatest empires – the Imperial Cholas – overlooks verdant foliage in the heart of Chennai. The ITC Grand Chola has 522 rooms and 78 luxuriously appointed serviced apartments. Its 600 spacious guest rooms, suites and luxury serviced apartments, are the epitome of Indian grace and style, expertly appointed with thoughtful amenities.

The building comprises of three basements, ground floor, first floor, first mezzanine floor and nine upper floors. The building was initially divided in to six parts by introducing expansion joints in both directions. The plan Dimensions of the hotel are 181.5 m x 92 m at Basement 1, 2, 3 and Ground Level. The lowest basement is at 11.8 m depth from the ground level. Basement 2 and 1have floor heights of 4 and 4.2 m respectively and are used for car parking and services. The Ground Floor has grand entrances and lobbies for the hotel, serviced apartments and retail areas as well as some restaurants. The spa and health club are on the first floor. The Second Floor has one of the largest Banquet Halls - 100 m long and 28 m wide with a clear height of 9.05 m after finishes. Three open to sky swimming pools are located at the fifth floor level. Part of the building area stops at this level. The Swimming pool plant room is located under the deck slab which is adorned by landscaped terraces. The terrace mainly acts as the M & E area. The cooling Towers, Antennas, solar panels, service piping O/H water tank etc. are housed under the architectural domes and pyramids. Pool for the Presidential Suite is also located at terrace level.

### Appropriate Structural System

The brief from the ITC management was to go for a structural system that facilitated speedy construction. There was in fact a guideline decision, that after finalization of the column grids, the structural design would immediately commence without further waiting for inputs from architects. The architectural design would follow subsequently, which would suit the structural drawings already issued for construction. This firm and "fast track" instruction from ITC to architects was instrumental in developing a very disciplined and optimum structural system very fast and enabled Sterling to command a lead over the construction schedule unlike other projects.

Sterling came up with an elegant yet simple structural framework involving flat plate and columns/shear walls that was instantly accepted by the pre-selected contractor M/s Larsen and Toubro. The columns and shear walls were connected to each other with flat slabs acting as in-plane rigid diaphragms /plates for each of the floors. Peripheral column-beam framing tied the structure into a box like configuration.

Flat plate floors delighted the services consultants, architects and interior designers too, as it provided immense flexibility and offered larger headroom for accommodating services and for achieving unusually high clear heights below false ceilings.

In order to repeat the form work as much as possible, and to save time in fabricating newer sizes, it was decided to use the same sizes of columns in two zones. Thus the column sizes were restricted to two groups – one set of sizes for the foundation to fifth floor level and another for all upper levels. The reduction in load from foundation to terraces was suitably considered in the decreasing concrete grades and successively lowered reinforcement percentages in the columns and shear walls.

The minimum Grade of Concrete in all RCC structural members was pegged at M:40 in view of the large column grids and heavy loads and the requirement of keeping the structural sizes to minimum to achieve low material volume to built-up area ratio to achieve fast construction. For Columns and Shear walls High Performance Concrete (HPC) of M:60 M:50, M:40 grade concrete was used, as per the load carrying requirements. High grade concrete also enabled early de-shuttering of slabs. Pumpable and flowing concrete of Grade M:20 was used in filling, plum concrete, leveling courses and other non-structural items. This decision was taken to save time in placing concrete. Backfilling behind retaining walls was carried out with CLSM (Controlled Low Strength Material) which could be pumped in place with concrete pumps. This material would set within two hours and exerted no lateral pressure on the retaining walls when set. Reinforcement used was a mix of 415 and 500 grades. Structural steel was used in the roof structure of banquet hall and exhibition hall at 4thslab level to support the swimming pool at 5th floor level. The girders were made up of structural steel plates, over laid by cast in situ R.C.C slab. The girders were supported on brackets without transferring bending moments to the columns. Composite action was considered for the design of secondary beams.

**Special Considerations**

Basic Wind Velocity for Chennai at 50 m/s was duly considered in the analysis. Although the recommended earthquake Zone for Chennai is III, ITC issued a guideline that required the structure to be designed for parameters corresponding to earthquake Zone IV.

A well designed under-raft drainage system eliminated the need to design the basement stitched raft for any uplift. The retaining walls were designed only for the lateral pressure due to saturated soil and surcharge. As a result, the quantities of raft and retaining walls were reduced substantially, although the excavation depth reached almost 13 m below the ground level.

The founding stratum was extremely hard and strong rock providing very high bearing capacity. However, due to limitations of concrete bearing stresses, an upper limiting value of 300 T/sq.m was considered for design of the spread footings. Here too, the quantities of the footings were very minimal.

Highlights of the structural complexities were the 28 m long steel girders for banquet hall roof carrying very heavy loads of swimming pools and landscaped terraces at the 5thfloor, transfer of columns of presidential suit above auditorium, the grand staircase in the lobby, the entrance canopies and the domes and pyramids on the terrace.

The entire wing over the auditorium was conceptualized as a virendeel girder, avoiding the necessity of having a conventional deep transfer girder at the ceiling of the auditorium. This innovative scheme was instrumental in saving an entire floor of guest rooms, which otherwise would have not been available for revenue generation. Elaborate temporary support system was designed, which was dismantled only when all floor were constructed providing the planned virendeel action involving floor beams and the columns.

Facade supporting system was another special scope that was successfully completed by Sterling. The challenge lay in providing a simple-to-fabricate and erect framing system that would support the intricate stone and GRC/FRP facade elements unobtrusively. Sterling engineers developed an engineering solution that transformed the bare shell into a palatial space which would blend with the architectural intent.

**Analysis and Design**

The analysis was carried out when the ETABS Version 8.11 was in vogue, which was the then most advanced analysis engine available. Dynamic analysis was performed for various load combinations including for non-orthogonal directions and temperature loads. SAFE was used to analyse the raft and all flat plates at all levels.

**Construction**

The excavation of the hard rock presented extreme challenge. Among various techniques that were evaluated by interacting with topmost excavation contractors in the country, a method that involved chain saw cutting of rock was selected. In this method, large blocks of rock are cut with diamond tipped knuckles of a rotating chain saw. The blocks are then cut into further smaller blocks that can be transported away. The excavation activity took almost six months to scoop out about 2,25,000 cu.m of hard material.

Under-raft drainage system was installed with perforated pipes and geotextile wrapping, leading the collected water to sumps designed for accommodating large volumes of water.

While the RCC work was simplified, the task of erecting long span roof girders and secondary beams over the banquet hall roof was tough. Special erection tower with rail mounted trolleys were installed to raise fully fabricated girders weighing 35 T each and slide them into position at the 5thfloor on the brackets. This specialized procedure using mobile cranes, erection tower, rail foundation, electro-mechanically operated trolleys and the corresponding temporary enabling structures were conceptualized by Sterling. Our engineers stood watching the successful erection of these girders in quick succession without any untoward incident.

**STERLING TEAM**


Abhijit Gundaye


Jayant Mistry

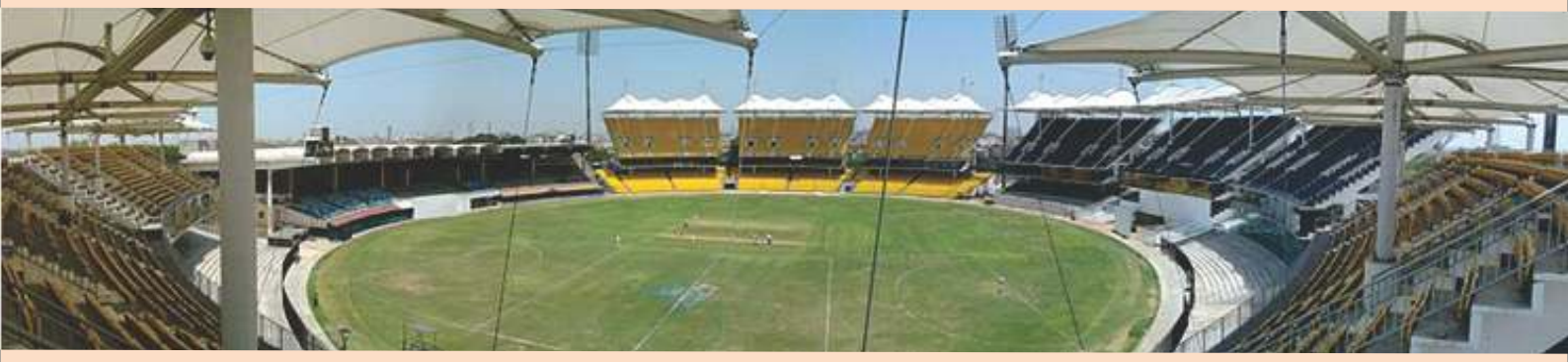

Gajanan Kadam


Kiran Sontakke

## Awards

ITC Grand Chola received the award "ICI Outstanding Concrete Structure for the Year 2012" from Indian Concrete Institute. Irrespective of any awards or accolades, it was rewarding in itself, to know that Sterling was behind the creation of one of the best hotels in the world, contributing to the realization of the grand vision of the promoters, of bringing alive the memories of the lost empire and rejuvenating the spirit of bygone era using contemporary technologies and plenty of originality.

## Chepauk Stadium Reconstruction *Abhijit Gundaye / Jayant Mistry / Gajanan Kadam*

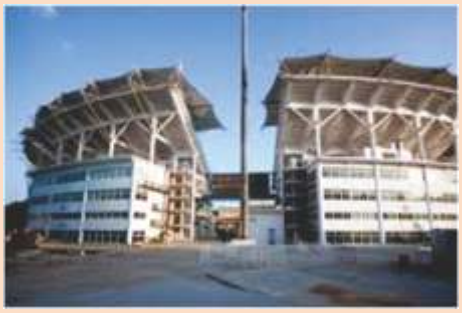


In June 2009, decision to start reconstruction work of M.A. Chidambaram Stadium or popularly known as Chepauk Stadium at Chennai, for setting up state-of-art facilities and an increased spectator capacity of 45,000 over the then existing 36,000 was taken by Tamilnadu Cricket Association. The project comprises three new reinforced concrete stands (designated G, H and I) accommodating 10,000 spectators and 24 hospitality boxes under translucent PTFE membrane roofs.

Natraj & Venkat Architects (NVA) in Chennai and Hopkins Architects in London, were contracted by the TNCA to upgrade the stadium before the 2011 ICC World Cup and bring the swing back, for which the stadium is notable. Sterling was appointed as structural consultant for the project. Ganesh Builders, a known reputed local contractor carried out the construction with more than satisfactory quality work in spite of facing stiff deadlines.

After the 2011 ICC World Cup, work resumed to complete six more stands – A, B, C, D, E and F was completed in March 2012 before the next IPL season as Phases II and III.

Staircases



Structural Anatomy – Rear View

The stadium will cost around Rs. 200 crores when work is fully complete, planned in four phases. Huge pillars that often blocked the view in the old stadium have been replaced by the light state-of-the-art roof called Quad Conical Geometric Form which is held together by cables imported from China. The designer was Bird Air, an American firm, while Taiyo Membrane from Australia have carried out the installation work. Presently, the stadium sports as many as nine new stands. These consist of three tiers with the middle one, fully air-conditioned, being the hospitality box. The media box can seat 200 press persons. The media conference hall can accommodate around 300 persons. The stands are at a gradient of 36 degrees, which is not too steep by international standards. The renovation lets the sea breeze in to get the ground's traditional swing back - all this while adhering to the principles of vaastuin design. The plan is to create a series of 12 stands atop a lower bowl of terracing, so the breeze can flow through the horizontal gap between the terrace and the stands.

For Sterling, this was an opportunity to return to sports field, its speciality till not too many years ago, and to provide an elegant structural system involving beautiful spectator stands with only two columns that framed 30 m spanning spinal transfer girders to support the spectator stands, press boxes and the fabric roof, complying with the new ICC guidelines for most stringent cricket facility standards.

## Mahindra World City *Deepak Nerurkar*

The Mahindra World City is spread over 32 acres of land with detached bungalows, residential apartments, commercial buildings, Guest House facility and a Club House.

There are 100 bungalows of five different types with ground and one upper floor of about 3500sq.ft. There are 7 apartment buildings which have a ground and 3 upper floors with parking in the basement. There are floating columns that support the upper floors as the architectural layout was unsymmetrical.

There are a wide variety of commercial structures like, Restaurants, Shops, Multi-Purpose Hall, Office Building and a centrally placed steel canopy. These structures are designed using RCC columns, flat slab with drop panel construction with peripheral beams connecting the peripheral columns. Approximate slab spans are 8m x 9m. The 18 m height steel canopy is 64 m x 38m in plan and partly covered with fabrics supported on 8 columns – which are 800 mm diameter hollow pipes.

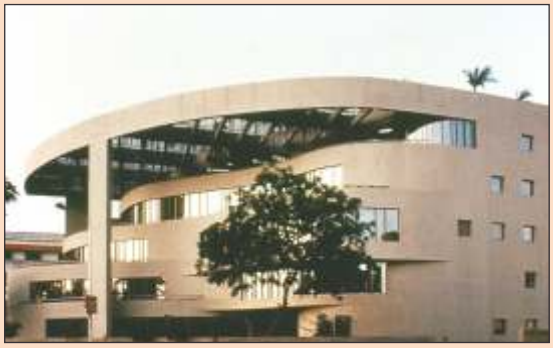
## Mahindra Automobile Research Facility – Courtyard *Amit Shinde / Ravindra Ravande / Rasika*

In the year 2010, Architect Charles Correa – commissioned us for designing a courtyard structure for Mahindra Automobile Research Laboratory at Chennai. The interesting part was that, we were not the principal structural consultants for the project, which was a complex of automobile design sheds and administration buildings.

These buildings were quite industrial and their design was solely governed by the functional necessities of activities as prosaic as the research and production of metallic objects and greasy parts of internal combustion engines. However, the architect tactfully created a courtyard in the midst of the laboratory and administration buildings creating a serene and beautiful enclosed space. Sterling was appointed for the design of this interesting organic pergola in the courtyard.

The Ground and two storied buildings surrounding the courtyard have a slightly reflective glass facade. With four circular columns, clad with seamless stainless steel tubes and branching supports to the organically shaped pergola above, the effect of the light and shadows is absolutely stunning. Obviously, we had a challenging time translating the architect's organic plan into a geometrical pattern that met his approval. The challenge also lay in supporting the pergola only on four columns and occasionally on a suitable spot on the adjacent building roof. Simple fabrication and erection procedures had to be laid down by us to encourage a reluctant contractor, who did not see a profitable business in non-repetitive precision sculptural work within the rates he had agreed! With meticulous detailing, avoiding any ugly connections, proportioning the members appropriately and simplifying erection procedures, this small but interesting project was quite satisfying for a change, in an otherwise routine life full of dynamic analyses, RCDC, code interpretations and value engineering exercises.

## DOWN MEMORY LANE



## MRF Headquarters *Kamal Hadker*

Developing an extraordinary concept design is generally regarded as an architect's prerogative. However, in the case of this prestigious office building constructed nearly 25 years ago, we had the unique opportunity of working very closely with an eminent architect like Charles Correa right from the Concept design Stage.

Several different design options were developed in detail, study models prepared and discarded before selecting the final design.

There are several interesting and structurally challenging features in this building.

The front curved façade keeps receding on every floor. It resembles the pattern created by waves on the seashore. The ribbon-like terraces of varying width are utilized for landscaping on every floor. Finally, all these areas are covered at terrace level by a huge concrete pergola supported on a single, 18 m tall, free standing column. This impressive feature makes this building a unique structure.

The large atrium created in the center of the building - linked through a casual pattern of connecting stairs - permits visual communication between all the floors. This artistic atrium space is finally covered at terrace level by a skylight – where "V" shaped RC beams form rainwater gutters and support square pyramidal skylights between them.

A visit to this extraordinary building is a delight for every structural engineer !

## Botanic *Manish Negandhi and Chandrashekhar Pawar*

On contrary to what one may understand of the term "Botanic", the project "BOTANIC" refers to a residential development located in a quiet area known as Nandanam Extension in Chennai. This was one of the few developments, wherein the client wished to provide a furnished apartment to the end user. Hence a lot of co-ordination was involved to accommodate the requirements of all the services and disciplines.

The building consists of a Stilt level and 4 residential floors. The Stilt area is used for parking and to house the services. Two lavish flats per floor are planned from first to third floor. Fourth floor houses a duplex flat with a private terrace. Due to restriction of the overall height of the structure, the floor to floor height had to be restricted to 3.1 m. Within this height, solid slab design approach had to be adopted to allow space for the centralized AC ducts. Main columns had to be kept recessed to achieve a driveway at the ground floor. The floor to floor height at the stilt level was restricted to 2.85 m. The Architects wanted to highlight the floating effect along the sides of the building. Hence, flat wide beams were proposed to meet the structural requirements adhering to the architectural theme. In spite of being a low rise structure, it had to be supported on piles approximately 25 m long due to non-availability of firm founding stratum.

## Chennai Classic Mall *Munish*

This is also called Phoenix Market city and was built between 2008 and 2012, this massive development comprises of mainly retail shopping, multiplex, banquets, auditoriums, theatres, service apartments, residential and MLCP spread over 24 Lakh sq.ft. The project architects were Benoy from Hong Kong.

A huge banquet area is housed between basement– level 2 and level 1. Most of the Retail shopping is located from ground floor up to second floor and the theatres are located between third and fourth floor. There are a total of 8 slabs above banquet hall. Above the fifth floor, residential blocks are planned floating on transfer girders.

Theatres which have an 11 screen multiplex have entry and exits on the third floor level and occupy the same floor. The theatre is an RCC framed structure, with 3 levels consisting of theatre level, Raker level and projection level. The floor heights of Theatre level are at +1.5m from second floor and Raker and projection level is at + 6.45m from theatre level. Structural steel girders are used to float the columns to accommodate the multiplex.

South west portion of building is dedicated to car parking with MLCP extending right from basement-3 to terrace. There are total of 12 slabs in this portion. To optimise car parks grid spacing in E-W direction is made larger than N-S direction.

## Prestige Cyber Tower *Prashanth*

One of the iconic projects of Prestige Group, this building was built in 2007 along Old Mahabalipuram Road (OMR), in Chennai. The architects are RSP India and the building comprises of two blocks namely Office and a multi-level car park. The office block has 2 Basements, a Ground floor and 11 upper floors whereas the MLCP block has 2 Basements, Ground and 9 upper floors. The builtup area is around 4.5 Lakh sq ft.

Since the site was close to the coastal area, the main challenge was to arrest the subsoil water. The water table was just 1m below ground level. Shoring piles were used during excavation around the basement area to prevent damage to the neighboring properties. A solid raft of 900mm thickness was laid with 2 meter thick inverted foundations. The column grid used is 10.2mx10.2m. Flat slab system was adopted for super structure. The building had to be set back by 2.1m at ground floor and 11$^{th}$ floor level along two facades hence linear columns of 500mm width were introduced from foundation level to support this feature.

## Raheja Towers *Druvraj*

This office complex on Mount Road in the heart of Chennai was built in 1998. The Raheja group developed this large 4,75,000sqft commercial building for which the architectural design was made by Thomas Associates. The structure consists of 1 Basement + Ground + 10 Upper floors.

The structural system is primarily flat slabs with peripheral beams. It has four wings Alpha, Beta, Delta and Sigma, each with a different area, which look like the letter 'X' in plan and are connected to a central lift core with an atrium. The basement is used for parking and the upper floors are planned for office use.

## Holiday Inn Hotel For Brigade Hospitality *Ravi Shankar and Naveen B*

This star hotel is planned to cater to the needs of the business world. There are 2 basements, ground floor, mezzanine, first, second, third, service and eight upper floors. The hotel project is designed by RKA architects, Delhi for Brigade Group.

The parking area in planned in the basements and ground floor levels. The 1$^{st}$ and 2$^{nd}$ floor is dedicated to retail areas. The swimming pool, gym, health club, restaurants etc are all planned on the 3$^{rd}$ floor.

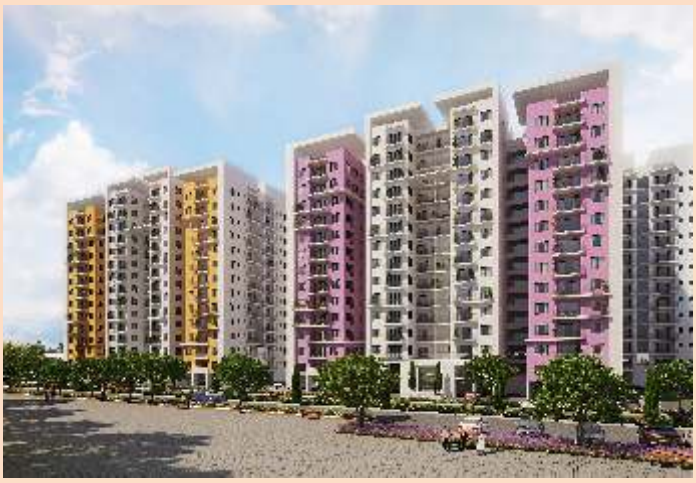
The major structural challenge was to provide column free space for the rooms in the typical floor level. The service floor is used structurally to float upper hotel rooms. The transfer girders are provided for the transition from rectangular columns to linear columns for the typical floor rooms. Typical floor structural system is provided to have maximum flexibility for services and expected changes.


The 19 numbers of transfer girders are provided, ranging from 2.1 m to 2.375 m deep in structural steel to support the 8 floors above.

In typical floor the floating columns picked up from transfer floor/services floor are used to support structural system of the rooms. Since Chennai falls in zone III of seismology graph of India a ductile detailing has been done as per IS13920.

# Projects Under Construction In Chennai

## PBEL City *Nilesh Karmalkar*

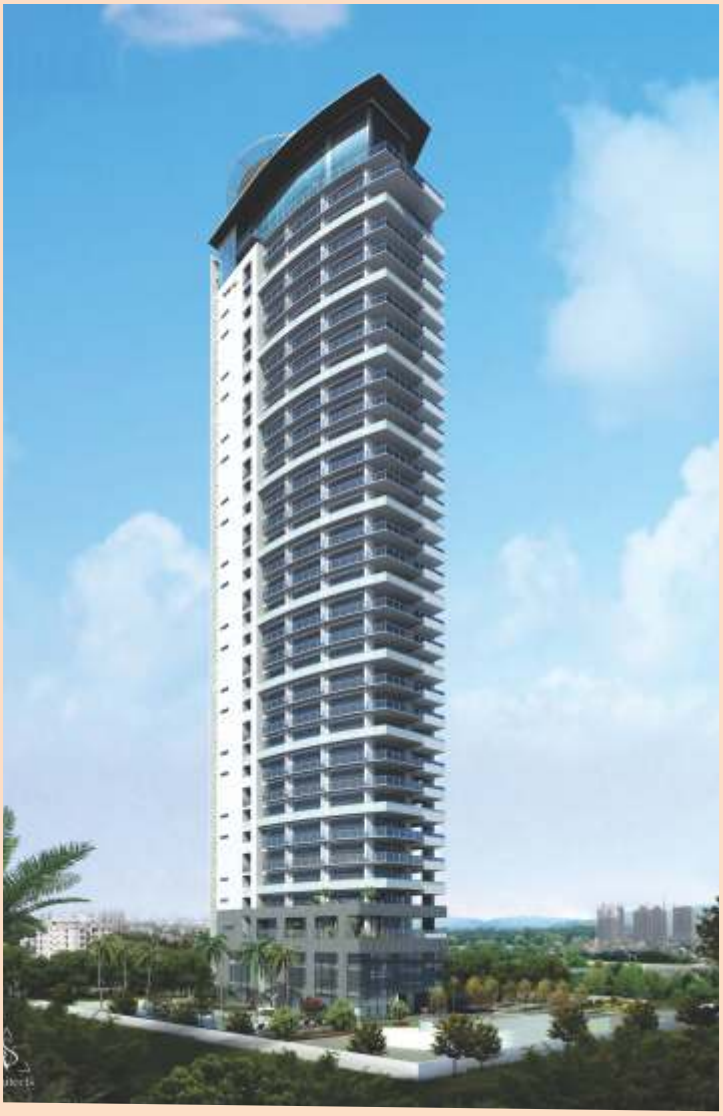


Sterling had successfully completed the PBEL Phase I housing project in Hyderabad which received the award for the "Best Concrete Structure of Andhra-Pradesh". Hence this is now our second project with this internationally renowned developer - PBEL and their Indian partner based in Hyderabad.

This project, planned over 44 acres is located at the outskirts of Chennai on Old Mahabalipuram Road. The entire project includes Mass Housing as well as commercial development. Phase I of the project comprises of 4 Residential towers, 3 Duplex apartment buildings,16 Premium Villas, 25Town-houses and a Club-house with T-20 size Cricket Ground.

The Residential Towers are Stilt and 14 Storeyed high. The structural scheme for the tower is a dual system of shear walls and rigid beam column frames to efficiently resist the lateral loads like Earthquake and Wind. As this project is situated along the coastal line of Chennai and due to close proximity of old salt pans, very high and careful structural protection system is adopted.

Substructure is protected with Coal Tar Epoxy paint along with Corrosion Inhibiting Admixture into Concrete. Superstructure will be protected with temporary Anti-Carbonation paint immediately after curing. These measures will highly enhance the durability of the structure considering the anticipated exposure conditions during its service.



## ABOV *Amit Surlekar / Yogesh Rangari*

"ABOV" derived from the English word "Above", means "Standing Tall – Above all". As the name suggests, this is a super-premium high rise residential building 132m high, built on a 1.66 acre of land parcel, which will soon become the tallest tower of Tamil Nadu and the 28th tallest building in India! Built to International Standards, this 38 storied skyscraper will have a single"Luxury Home" per floor admeasuring 6200 sq.ft. of built-up area, making it a prominent landmark of Chennai City.

The "Boat" shaped footprint, asymmetric shear core and high aspect ratio of 9 (along Y) were the main structural challenges. Not-disturbing high value interior spaces, long dead walls were introduced in bedrooms (in Y – direction) which acted as RCC shear walls to control the large sway under lateral loads.

Torsion arising due to asymmetric nature of plan was negated by providing strong ring beams connecting the large columns located on the perimeter of the boat shaped plan. Flat plate slabs supported on columns in the living room give a free hand to interior designers to design the ceiling spaces.

Chennai being among the windy cities of India, wind tunnel test were carried out and the results showed that the acceleration and deflections were within codal limits. Presently, the construction is in full swing and has reached up to the 1st Apartment level.

## Ramanujan IT City *Sanjay Shirke*

This is a large ultra-modern IT facility is spread over 25 acres of land, divided mainly into Processing Zone (PZ) and Non-processing Zone (NPZ). It has 3.4 million sq. ft. of office space with high quality infrastructure and extensive amenities for working and recreational facilities. The structural scheme selected was that of PT flat slabs supported on RCC shear core and columns with peripheral beams. The floor system was finalized after comparing number of floor plate options including, composite floor with steel beams, RCC flat slab with/ without drop panels, PT flat slab with / without drop panels, RCC slab beam floor etc. An article describing the complete project in detail was published in our Newsletter no 7.

## Prestige Palladium *Ramesh B.*

Prestige Palladium is a commercial office building strategically located in the heart of Chennai's Central Business District designed by architects RSP India for Prestige Group. The Commercial Building consists of 2 Basements + Ground floor + 13 Upper floors. Basements are used for parking and office spaces are planned on all upper floors.

The building has RCC columns + flat slab with drop panel construction with peripheral beams connecting the columns with the slabs acting in a plane as rigid diaphragms on each of the floors. The special features of this project are the circular ramps, Pile foundations, the striking entrance supported by a single column and elevation feature walls in four corners which are utilized as shear walls.

## NEWS AND EVENTS

From 19th to 21st August, Mr. Nagendra Kumar attended an International Conference on **Sustainable Construction Materials & Technologies** in Kyoto, Japan. He also took this opportunity to visit the Shimizu Technology Centre, where he saw -

- Buildings where vibration isolations were done with bearing and vibrations are monitored round the clock online.
- Buoyancy of water head is used to counter certain self-weight of structure which is hermitically sealed
- Wind tunnel testing lab
- And a very interesting concrete material testing lab where he witnessed crushing of concrete cylinder whose strength was M:200 (200 N/sq.mm)

Eminent Architect Charles Correa made a surprise visit to our office in BKC! He spent some time talking to Sterling engineers about the close relationship between architecture and structural design.

Our Engineer, Ms. Bipasa Roy had participated in the "World 10K Marathon" organized by TATA Consultancy Services in Bangalore and she has won the medal and certificate of finisher.

**Congratulations on this achievement!**

# "I Do Not Want A Raise!" Mokshagundam Vishveshwariah – The Matchless Dreamer and Doer

*Complied by - Dr. Deepali Hadker*

As we celebrate Engineer's Day there is so much we can learn from the life of Dr. Vishveshwariah. He lived almost a hundred years ago, but his principles and values are relevant even today. Let us see how we can implement his teachings in our lives. We are already living in difficult times and market conditions are tough. How do we, as engineers, deal with these difficult situations? Some of the most important learnings have been captured here from the life of this great genius.

Born on 15 September1861, this notable engineer, scholar and statesman from Andhra earned his Bachelor of Arts from Central College, Bangalore and then studied civil engineering at the prestigious College of Engineering, Pune.

Vishveshwariah took up a job with the Public Works Department of Mumbai and was invited to join the Indian Irrigation Commission. He implemented an extremely intricate system of irrigation in the Deccan area. He also designed and patented a system of automatic weir water floodgates that were first installed in 1903 at the Khadakvasla Reservoir near Pune. These gates were employed to raise the flood supply level of storage in the reservoir to the highest level likely to be attained by a flood without causing any damage to the dam. The same system was installed at the Tigra Dam in Gwalior and the Krishna Raja Sagara Dam in Karnataka. In 1906-07, the Government of India sent him to Eden, Africa to study water supply and drainage system and the project prepared by him was implemented in Eden successfully!

Another important project he implemented was the design of a flood protection system for the city of Hyderabad. He was also instrumental in developing a system to protect Visakhapatnam port from sea erosion. A true civil engineer, Dr. Vishveshwariah also supervised the construction of the KRS Dam across the Cauvery River from concept to inauguration. This dam created the biggest reservoir in Asia when it was built. He was rightly called the "Father of modern Mysore state". He was instrumental in charting out the plan for road construction between Tirumala and Tirupati.

What we can learn from him is his sincerity, time management and dedication to a cause. He was knighted as a Commander of the British Indian Empire by King George V for his myriad contributions to the public good and hence he was fondly called Sir. M. V. As the Diwan of Mysore, from 1912 to 1918, he made many contributions to uplift and improve the level of education, availability of food and employment in the state. Would any salary be too high for such a genius? The Maharaja's secretary suggested that Sir. M. V.'s salary be raised but when Dr. Vishveshwariah came to know about it, he wrote to the Maharaja saying that- he did not want a raise! Visvesvaraya was dedicated to hard work and was a man of spotless honesty. The Diwan was the highest officer in Mysore State but he never misused his power or position. He refused to favor any relatives. Once, a friend wrote to him asking for a house for some days to recover from an illness. He thought the Dewan would give him a Government Guest House, free of rent. The Dewan gave him a Government House; but as long as the friend stayed there, the Dewan himself paid a rent of Rs. 250 a month!

During his period of service he was responsible for the founding of the Mysore Soap Factory, the Parasitoids Laboratory, the Visvesvaraya Iron and Steel Ltd in Bhadravathi, the Sri Jayachamarajendra Polytechnic Institute, the Bangalore Agricultural University, State Bank of Mysore, Century Club, Mysore Chambers of Commerce and numerous other industrial ventures. He encouraged private investment in industry. In 1918 he decided to give up the Dewanship. He had to give the Maharaja his resignation letter. He went to the palace in the Government car but returned in his own car! Such was his principled attitude and sincerity.

He was the Chairman of the Bhadravati Factory which was in trouble. At that time, the Government had not decided his salary and in fact, took some years to do so; the Government owed him more than a hundred thousand rupees! But he did not complain or demand any money. Instead he said, "Start an institute where young boys can learn some profession." The Institute was about to start and the Government wanted to name it after Vishveshwariah. But he said, "Name it after the Maharaja of Mysore". This is the famous Sri Jayachamaraja Polytechnic Institute of Bangalore! This is an excellent example of how one can attach oneself to a higher goal and work for the betterment of society. He never put his needs before those of the nation.

He was never late by a minute and was very particular about his clothes - even when he was 95, people who went to see him were surprised to see how carefully and neatly he dressed. Whenever he had to make a speech he would think about what he was going to say, write the speech, get it typed and weigh every word and revise it at least four or five times. Do we know many such people who are so humble after achieving so much success in their lives?

In 1952, at the age of 92, he went to Patna for the design of a bridge across the Ganga. The sun was cruel and the heat unbearable. The Government had arranged to have him carried in a chair. Sir. M. V. did not use the chair; he got off the car and walked briskly. The Government had also arranged for his stay in the Guest House but he stayed in the railway coach and went on with his work – such was the simplicity he practiced.

Sir. M. V. was a visionary and wanted education to spread to the masses and for people to give up blind beliefs. He promoted the fullest use of science and technology. He was instrumental in founding the Government Engineering College at Bangalore in 1917, one of the first engineering institutes in India. This institution was later named the University Visvesvaraya College of Engineering after its founder. It remains one of the reputed institutes of engineering in Karnataka. He also commissioned several new railway lines in Mysore state. He knew that being modern did not mean giving up everything that was old and forgetting our culture. He was extremely modest. Even at the age of 95, he rose to receive a visitor; he got up again when the visitor was leaving!

The life and teachings of Sir. M. V will always continue to inspire us – let us implement his teachings and follow his principals which will indeed be the best "guru dakshina" that we can offer!

**HAPPY ENGINEERS DAY!**

## Relevance of Academics in Professional Career *Rohan Hadgal*

We acquire the basics in learning through Academics. If the basic grounding in Mathematics, Science and Languages is strong, we can be successful because mastering these subjects allows us to calculate, innovate and to communicate. School and college days are regarded as the best days of life, so is the case with me.

It is a common saying that, "Whatever we learn in academics is different from what we do in actual practice". But after having worked at Sterling for eight months, what I feel is that we learn the basic knowledge in college and then learn to apply the same in practice with some modifications.

The real challenge lies in transitioning out of student life and adjusting successfully to the role of a professional. Universities have its limitations in terms of mentally preparing the students for the transition from student life to a professional life. But like every challenge in life it can be easily dealt with by being positive, proactive and keeping an open mind.

To achieve success in our career, it is important to get involved in the work and have a strong passion towards it. Success is not getting a grade or a degree, if that was the case, then why aren't all the graduates uniformly successful?

Professionalism encompasses dependability, motivation, initiative and being a self-starter. The life at work will test our ability to be a team player, to collaborate with individuals from different cultures and backgrounds, to interact with diverse personalities and to work on projects with strict deadlines. Our ability to manage time will play a crucial role in determining our success. To conclude, the relevance of academics is vast in my professional career. And, whether it is academics or professional life, the key to success is hard work.

## Mangal Murti moraya! Ganapati bappa moraya!

A Ganapati Painting Competition was organized in August this year. There was an over whelming response with more than 25 entries from all our branches. Our engineers, draftsman as well as administration staff participated with enthusiasm and showed that there was tremendous artistic talent in our company! The participants submitted their entries on A4 size papers. These drawings were then sent to Mr. Anand Bhat – who was the JUDGE. For those who do not know him, he is the graphic artist for the newsletters that are made for Sterling. He judged the entries keeping in mind the drawing proportions, colour schemes and composition of the pictures! The judging was complete and we have the winners – which are displayed on Page 12 of this issue. There were also six consolation prizes which have been displayed on Page 12. The tremendous talent and artistic ability of our staff members added to the joy of this festive season! Congratulations to all participants! Keep up the great work!

## Editorial *Dr. Deepali Hadker*

Welcome to yet another special issue of our newsletter! As we celebrate **Engineers Day** on the 15th of September, we cannot help but remember the innumerable contributions of late **Dr. Mokshagundam Visvesvaraya**, the Gem of India and recipient of the Indian Republic's highest honor in 1955 - the Bharat Ratna! Sir M. V. as he was popularly known as, was an eminent engineer, responsible for the construction of the Krishna Raj Sagar dam in Mysore and the Chief designer of the flood protection system for the city of Hyderabad. On engineer's day, how can we pay our respects to the true "guru" of civil engineers? It is said that the best "Guru Dakshina" that one can offer is to practice the Guru's teachings with full faith and devotion. After reading about the long and successful life of Sir M. V. one realizes that there are indeed many outstanding qualities and traits in this magnanimous personality which we can adapt in our daily lives. Sir. M. V. was not only a great engineer but an outstanding human being, honest to the core practicing "simple living and high thinking". You will read about his contribution as a selfless patriot in the article - "I do not want a raise"!

Our newsletter this time is showcasing many of our successful projects in the grand historic city of Chennai. An amazing blend of culture, tradition and architecture, this city boasts of giant leaps in architecture, art, technology and education...a true image of our Indian culture. We are proud to present some of Chennai's iconic projects in this issue – the majestic ITC Grand Chola, the sprawling Ramanujan IT Park, the ABOV Skyscraper – the tallest residential building in Chennai, the expansive Chennai Classic Mall and the magnificent Chepauk Stadium a venue for thousands of cricket fans! There are many other projects too which not only reinforce the idea of the significance of structural engineer but demonstrate the constant endeavor of Sterling to "push the envelope"..... **Enjoy our 10th issue!**

## Ganapati Painting Competition - August 2013

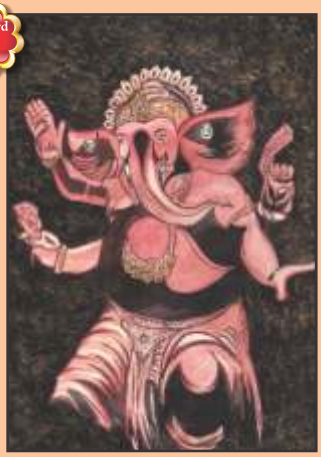
1st PRIZE

Bipasa Roy

2nd PRIZE

Ketan Chaudhary

3rd PRIZE



Chetan Shinde

### Consolation Prizes

Madhura Chavan

Nayan Sawant

Suhas Patil

Sumeet Zagade

Anand Raut

Amit Zagade

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