

Green Milestones



L&T was awarded for prime contribution towards Green Building Construction (4.5 million sq.ft of registered green building footprint) during the GreenCo Summit 2013



HQ Campus was awarded the Energy Efficiency Excellence Award for achieving excellence in energy management at the 14th National Award for Excellence in Energy Management



CII's National Award for Excellence in Water Management for HQ Campus

27 acres of Green Premise Breathing Sustainability in every square inch

L&T's Construction Division's Headquarters at Manapakkam in Chennai is acknowledged as an 'Outstanding Corporate Green Campus'. Spread over 27 acres, amidst scenic eco-friendly surroundings with ample greenery, almost every concrete structure here has won prestigious awards for excellence in construction and has green features which add to its aesthetic value. Today, the campus accommodates 1.4 lakh sq.m of built up area and has a significant tree carbon sequestering capacity.





Engineering Design and Research Centre of L&T Construction at Chennai

Engineering Design and Research Centre (EDRC)

LEED-EB Silver Rated Green Building

The Engineering Design and Research Centre (EDRC), titled the Tree of Knowledge, is triangular in shape and rises like the branches of a tree from the floor. With a built up area of 8686 sq.m in the ground plus four floors, the EDRC building is designed as two symmetrical wings one on either side of a service core.

The floor form is rotated at consecutive levels to form terraces, which are landscaped creating gardens in the sky. The geometry and dimensions of the floor plant facilitate adequate light to reach the inner most recesses of the floor. All architectural forms are astutely blended into the structure, lending the building it uniqueness.

EDRC is the recipient of the 2002 Federation Internationale du Beton (fib) award for an Outstanding Concrete Structure. EDRC was also awarded the LEED Silver rating by the US Green Building Council in the Existing Building category for design, construction and operation of Green Buildings. EDRC is the second building in India and the second one in Chennai to get this rating under LEED EB category.

Green Initiatives

- Building Automation system to monitor water and energy performance
- Building system monitoring by means of temperature, humidity and CO2 sensors
- Double glazing
- Over deck insulation
- High performance CFC free chillers
- Energy efficient light fixtures
- Recycled water for irrigation

Technology Centre II

LEED-NC v2.1 Certified Green Building

Built on a 1.5 lakh sq.ft area, the Technology Centre II (TCII) is a state-of-the-art structure with a unique design of expanding floor plate. The building has been organized with a central core, containing service facilities with an organization of plan providing for large column-free office space. All the common facilities are organized on the ground floor to provide a secure office space on the upper floors. The first to fourth floor is detailed for housing modular office facilities. The terrace houses the service backbone facilities like chiller plant, lift machine room, pump rooms and water tank. Soft and hard landscaping has been provided around the building to enhance the aesthetics.

The innovative and exclusive structural system comprises post-tensioned expanded polystyrene embedded flat slabs for the main office areas, supported by central reinforced concrete core and peripheral reinforced concrete shear walls/columns resting on pile foundation. The building is designed for seismic zone-III with ductile detailing as per the latest Indian codes of practice and other relevant Indian standards.

The service systems have been designed as per the total load requirement. The entire building has been provided with centralized air-conditioning, designed

for a total tonnage of 648 TR and air-cooled type screw chillers have been used. The entire building is provided with automatic analogue addressable fire detection and alarm system and has a 100% power back-up. As a result of its unique structural system, the building has the flexibility to undergo any modifications in its functional requirements as and when need arises even after 50 years.

Green Efficiency

- Roof with high Albedo and having a U-value of 0.22 Btu/hr-sqft°F
- High performance glazing. The overall Window-Wall-Ratio (WWR) for the building is 28% Non CFC based refrigerant used in chillers
- Automated flow/flush fixtures
- Water metering
- Storm water control
- Outdoor and indoor air delivery monitoring

Technology Centre II of L&T Construction at Chennai





Technology Centre III of L&T Construction at Chennai

Technology Centre III

IGBC LEED Silver Rated Building

The Technology Centre III (TC III) is another innovative and pioneering technology in construction, one more star ship in the firmament of Green buildings. Located towards the rear end of the campus, the building is designed as an eight storied twin tower with common basement comprising of 30,000 sq.ft. for each tower.

The total built up area comprises 8, 31,000 sq.ft which includes 5, 50,000 sq.ft of office area plus 2, 81,000 sq.ft of basement. The three basements caters to parking of 703 cars and 932 two wheelers. The ground floor houses the canteen, recruitment and training center, business center, recreational areas. The eighth floor is exclusive for the corporate office /suites and has skywalk.

TC III is the recipient of Silver rating by the Indian Green Building Council for new construction. TC III was also awarded the 'Ultratech Award for Outstanding Concrete Structure of Tamil Nadu 2011'

Green Highlights

- Sensor controlled automated flow and flush fixtures
- Pervious pavers for storm water quality control
- 100% covered parking
- Reserved parking spaces for car pools
- High performance glazing
- Ozone depletion free chiller refrigerants installed
- Water metering
- Outdoor and indoor air delivery monitoring



Technology Centre I of L&T Construction at Chennai

Technology Development Centres

Other facilities established for technology development within the campus includes the Technology Centre – I (TC I) and the Toubro Construction Technology Centre (TCTC).

Technology Centre – I (TC I) is a state-of-the-art three storied structure built on a 5840 sq.ft of area to facilitate offshore development centre for overseas clients. The building is lifted about the ground and rests on core shafts resting on deep well foundation. The Toubro Construction Technology Centre (TCTC) is an elegant, rectangular three storied structure having a built-up area of. 94,000 sq.ft with flexible interiors

Toubro Construction Technology Centre of L&T Construction at Chennai





L&T Construction Division's Headquarters at Chennai (fib Award 1994)

Administrative Office Building (CRR Centre)

The Headquarters building popularly known as the CRR Centre is a striking feature in design which won the Federation Internationale due Beton (fib) award in 1994. The square shaped building is lifted above the ground and floats on four principal core shafts resting on deep well foundations. This leaves the entrance completely unobstructed.

Each pillar is designed to carry a maximum load of 5000t and supports an inverted four-sided hollow pyramid on which rise four superstructures – each a 21.6m square, overlapping one another by a quarter of its length. Post-tensioned by a maze of cables, each pyramid base cantilevers out by 10 m, supporting its own weight as also that of the upper floors. Each floor is made up of precast concrete waffle slabs offering maximum flexibility.



Experience Centre

Marking the 60th year of L&T Construction in 2004, the Holck-Larsen Centre is a corporate museum dedicated to the memory of L&T's founding father and Chairman Emeritus, Henning Holck-Larsen. The two storied elliptical structure with a built-up area of 12,000 sq.ft (1,115 sq.m), is a one of its kind museum in the country.

Designed as an oval glass enclosure, the building has a 6.1m high spider glazing system with 12mm thick toughened glass all around (to facilitate viewing of the display gallery during the day and night). A huge oval concrete roof terminates the two-floor building. It is treated as a penthouse with a terrace garden, a lobby and a well-appointed auditorium. A freestanding staircase connects the ground, first floor and terrace.

A unique feature of its landscape comprises two large water bodies with cascades and parasol-shaped structures around the periphery which acts as both seating arrangements and as effective rain water harvesting structures. The Corporate museum won the PRSI Golden Jubilee Award in 2008 at Mauritius for 'Live Interactive and Innovative PR Initiative' from the Public Relations Society of India (PRSI), New Delhi.



A view of the unique landscaping comprising of water bodies around the Experience Centre



A section of the display at the Experience Centre

Experience Centre - a one of its kind corporate museum in the country





Convention Centre of L&T Construction at Chennai

Convention Centre

The Convention Centre is a multi-purpose complex which was awarded the ICI-McBauchemie Award by the Indian Concrete Institute in 1997. The three-block complex comprises the 27 m dia, main building at the centre. The other two blocks on either side to north and south are of 16 m dia each and stilt elevated.

The conical roof, comprising truncated cone segments, is finished with curved terracotta tiles. Landscaping with water bodies and fountains along the road that runs around the building adds to the aesthetics of the entire complex. Serving as staff-VIP dining halls, convention and business development centres, the complex also serves as a training centre with a capacity to host training programmes for close to 800 employees.



Green Features in the Campus

Green Cover

The green cover balance in the campus is given prime importance with the sustenance of rich and flourishing plant diversity. The Chennai campus has 40645 sq.m of green cover comprising of 873 trees with a good count of 62 species. From the ecological point of view, this amount of diversity in flora is considered a significant contributor in sequestration of atmospheric CO₂, thereby reducing the impact on global warming.



A view of the green cover in the campus

The carbon sequestered in the campus is 17.34 tonnes per year and is a significant 262.12 tonnes till date.



14,099,796 KWH of Green Power

The entire campus has grid-connected solar PV system on its roof tops which approximately produces 664958 units of electricity per annum. Solar street lighting is also provided within the campus. L&T has set up a wind farm of 8.7 MW in the districts of Tirupur and Tirunelveli in Tamil Nadu. The project generates about 20.8 MWH of electricity annually and 13.4 MWH is consumed at Chennai HQ Campus.

Solid Waste Management

The campus has an efficient waste segregation and recycling system in place. Presently card board and paper wastes are segregated from the bin centers and diverted to local haulers at the rate of Rs. 1250 per MT for papers and Rs. 1150 per MT for card boards. A state-of-the-art Biogas plant processes the daily generated organic waste (1500 kg per day) and produces electricity thereby reducing the GHG emissions. The plant generates 100- 120 cum of gas on a daily basis producing 125-150 KW of power in a day and has the capacity to generate 45.6-54.8 MW of power in a year. The annual cost savings on power achieved is close to Rs. 4 lakhs. In addition to the power savings, the plant also produces 100 kg of manure per day which is a source of income.



A view of the rain water harvesting systems implemented in the campus



Solar panels installed at the rooftops



Mini weather station



Efficient waste segregation and recycling system

Water Efficiency

The campus has an efficient water monitoring and conserving system in place. The water efficiency features installed include 2 sewage treatment plants of 400 KLD and 200 KLD capacities that ensure close to 53964 cum of annual water savings, 10 reverse osmosis plants and automated sprinkling systems for irrigation of trees and plants. The campus consumes 310 KLD of potable water which is monitored through flow metres connected to the water management system across all buildings.

Rainwater harvesting systems have been implemented targeting anti-pollution drives against ground and surface water pollution in the campus. The harvesting system has a capacity of accumulating 558 cum of rain water through 67 recharge points comprising of pits, wells and trenches. The volume of rain water harvested is 2.5 times the volume of rainfall runoff generated out of an average rainfall per day.

Mini Weather Station

As a part of its research and development initiatives, the Centre for Excellence and Futuristic Development (CEFD) commissioned a mini weather station in the campus. The data logging mini weather station is a high performance system. The station enables measuring the ambient air temperature, relative humidity, wind velocity, wind direction and rain fall intensity. The data generated provides a picture of microclimatic variations in and around the HQ campus as compared to the meteorological data. It also enhances capabilities in carrying out campus sustainability initiatives with higher precision. The system is also being used to evaluate and analyze the micro climatic conditions in Manapakkam and its vicinity areas.

Nursery

L&T has been partnering with ISHA Foundation in an inspiring ecological drive towards creating additional green cover in its campuses, project sites and neighbourhood through Project GreenHands Campaign.

In the last 5 years, with the support of our green volunteers, more than 2,00,000 saplings have been nurtured and planted in various public places - like schools, colleges, hospitals and local townships.

Reinforcing the green campaign, the Janmotsav & Vanmotsav programme, a green birthday initiative for all L&T-ites to plant a sapling from the Green Hands Nursery was launched. A dedicated team of more than 30 gardeners contribute to the green concept right from the nursery stage, nurturing more than 3000 saplings at any point of time, ensuring the seasonal changes and making the campus proud of its green as of its concrete.

Battery Operated Vehicles

3 battery operated vehicles are used inside the campus. Two of these vehicles are exclusively put to use for facilitating people movement and the third one is for canteen usage. The vehicles run an average of 25 km per day.

Environmental gains :

- Zero greenhouse gas emission during operation
- Better mileage
- Quite to drive
- Durable and minimum maintenance



Mr. K.V. Rangaswami, Advisor to Chairman,
inaugurating Project GreenHands



L&T Nursery



Battery operated vehicle facilitating commutation
inside the campus



Members of the Green Cell

**With the support
of L&T's green
volunteers, more than
2,00,000 saplings
have been nurtured
and planted in various
public places**



Children of L&T-ites engaged in green activity

Green Cell

A green cell has been established with an aim to introduce and implement sustainability programmes exclusively within the campus. Volunteers and leads from each building work on reducing the water consumption, developing the green cover, improving the rain water harvesting, managing solid waste, renewable power and emission control and other green initiatives.

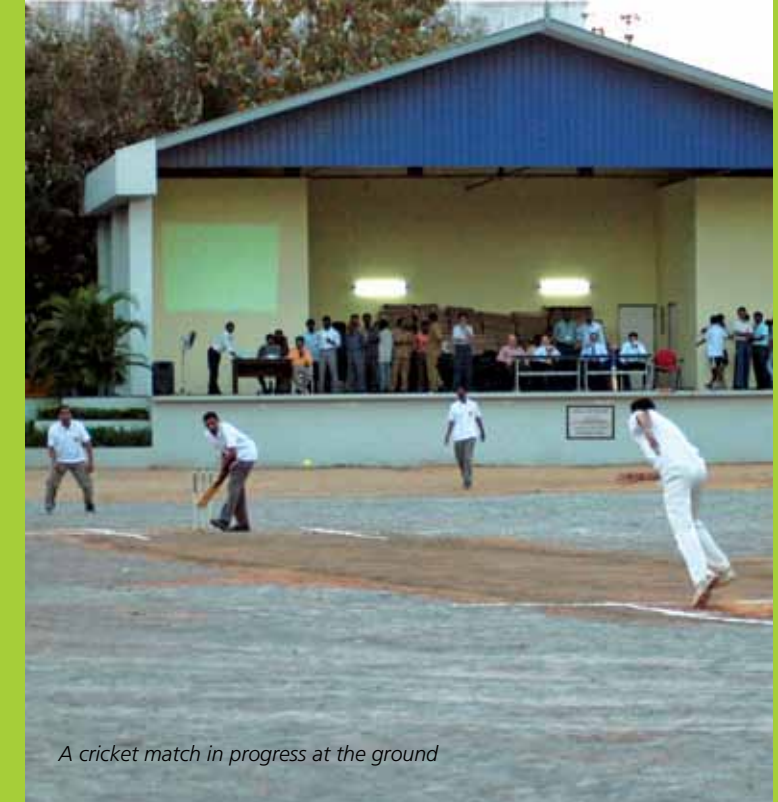
Self-sustained Campus

Medical Centre

A Medical Centre with comprehensive diagnostic facilities is established in the campus. The centre provides employees and their families with specialized medical consultation along with an attached laboratory for diagnosis. Ultra Sound, echo and X-Ray facilities are also available in-house. A physiotherapy room is attached to the medical centre for specialized treatment. The centre is managed by a doctor and a team of paramedical staff. A well-equipped pharmacy caters to the needs of all the staff.

Floodlight Ground

A quality floodlit ground is the hub for all major recreation activities engaged in the campus. The ground has a quality cricket pitch and is the venue for all sporting melas providing employees the right work life balance to refresh, revive and rejuvenate.



A cricket match in progress at the ground



L&T Medical Centre



State-of-the-art gymnasium



Day Care Centre

Hi-tech Recreation Facility

A lot of thought and planning has gone into the creation of interesting recreation facilities in the campus. Unwinding after a hard day's work is more fun in the campus. The state-of-the-art recreation facility is a ground plus two storied structure with a total built up area of 519 sq.m. The ground floor houses the spacious air conditioned gym which is packed with all modern facilities ranging from multi gym units, treadmills, dumbbell workout areas, multipurpose benches and lot more.

The first floor caters to the indoor games. A carom room accommodating 6 units, a club office-cum-store room, chess room accommodating 3 units and a table tennis room with 3 boards are all part of this floor. A shuttle court with all facilities like locker, service desk, storage spaces and seating facility is in the third floor.

The complete play area is finished with vinyl sports, vitrified tile flooring, MDF partition with graphics and wall paper and an open ceiling with open cell/multi-colour painting. The building has been installed with energy efficient lighting and mechanical systems.



Day Care Centre

PRAYAS (an NGO run by the spouses of employees) manages a Day Care Centre for children of L&T employees in the Manapakkam Campus. Over 60 children (8 months and above) are raised in this place all through the day by well-trained care takers.