

Chhatrapati Shivaji Maharaj Hospital and Rajiv Gandhi Medical College Kalwa

General description of the Hospital Building :

Chhatrapati Shivaji Maharaj Hospital was commissioned on 1st October 1991. The Rajiv Gandhi Medical College attached to hospital was inaugurated on 20th August 1992. The Indian Medical Council has inspected medical college and hospital in March 1998 and recognized medical college for MBBS course.

Medical College and Hospital are situated in the same premises and in same building. Hospital has 550 indoor beds distributed over 17 indoor wards. Total 14 OPDs are conducted everyday. Daily OPD attendance is on an average 350-400/days. The investigations facilities of X-ray, Pathology, Microbiology, ECG, Ultrasonography, 2-D Echo, Stress test, pulmonary function test are available in this hospital. Supportive services like laundry, boiler house, maintenance, PWD, mortuary, central medical store, kitchen facilities are available.

Indoor admissions per year are on an average 20000, daily average admissions are 55-60 patients, and average length of stay is 6 days. Total operations performed per year are 7500-8000. Total deliveries conducted per year are 3500. Total lab investigations done per year are 200000. We have 8 operation theatres located in four areas. The major operations performed per year are 3500-4500. The minor operations performed per year are 3000-3500.

All National Health Programs are implemented by this hospital. Hospital provides preventive, promotive and curative services to the citizens of Thane Corporation as well as of Thane District and nearby surrounding areas. Present working staff is 347. This includes medical as well as paramedical and administrative staff.

The hospital has its own common biomedical waste disposal facility through biomedical waste disposable plant provided by NGO. C.S.M. Hospital has planned to expand facilities of medical care in stepwise manner. Under this CT Scan facility is provided through privatization. Various diagnostic facilities like N.S.T., Endoscopy, operative microscopy, operative laparoscope's, phaco imulsification and vitrectomy facilities are added this year.

TMC has obtained electric supply at 11 kV, double feeder system from State electricity distribution authority. The required power to hospital is fed through 2 X 1000 kVA, 11 kV/0.433 kV transformers, HT switchgears and further LT distribution networks.

Eligibility of Thane Municipal Corporation for prestigious award constituted by BEE

i) Thane Municipal Corporation had initiated energy conservation measures from the year 2000-01 onwards and is pioneer in energy conservation activities in Municipal Corporation sector. It is constantly engaged in implementation of energy conservation measures for the last four consequent years.

ii) Energy saving has been achieved by encouraging & developing in-house Engineering manpower. Since, entire Engineering manpower responsible for installation and maintenance work of electrical installation was involved in energy auditing and implementation, energy conservation measures have been implemented at all the stages of work Viz. design, installation & maintenance of electrical installation.

TMC has under taken various energy efficiency and energy saving activities at Chhatrapati Shivaji Maharaj Hospital, Kalwa as mentioned below;

1) Power saving in H.T. connections by providing Automatic Power

Factor Control panels

As per the tariff of state electricity board power factor of the system should be above 0.9 . However in case of all the H.T. connections of Thane Municipal Corporation power factor was below 0.9 and on account of low power factor Thane Municipal Corporation had to pay almost Rs. 23 to 25 lakhs every year to state electricity board as a penalty charges. Since power factor was low, energy charges as well as billed demand was increased. We have provided &

maintained properly capacitor banks at all these H.T. connections and also provided Automatic power factor controllers.

Thane Municipal Corporation has earned total incentive of Rs.6.26 Lakhs from state electricity board for maintaining power factor near to unity during last three financial years.



AUTOMATIC POWER FACTOR CORRECTION PANEL

2) Optimizing use of central AC plant:

Leakages in process air / water in Central AC plant has been prevented.

In respect of Chhatrapati Shivaji Maharaj Hospital, Kalwa, it was noticed that Centralized A.C. plant (3 X 90 tons) was put into operation for 24 hours. After studying the utilization pattern, it was noticed that Centralized A.C. plant was underutilized during nightshift. During nightshift only particular section of the Hospital i.e. I.C.U. and Gynac Operation Theater was required to be provided with air-condition. Therefore five split A.Cs. were provided in these areas. During the nightshift main Centralized A.C. plant was switched off and only five split A.C. were put into operation. This has subsequently reduced the energy charges by Rs.70,000/- to Rs.80,000/- per month and investment made on providing split A.C. was recovered within four months. In addition to this maintenance cost of Centralized A.C. Plant and manpower required is reduced..

3) Solar assisted water heating system

TMC has taken initiative for popularizing the use of solar energy in Municipal Corporation area. TMC has already made mandatory installation of solar assisted water heating system in all new functional buildings.

Thane Municipal Corporation has commissioned solar water heating system of capacity 17750 L.P.D. at Chhatrapati Shivaji Maharaj Hospital, Kalwa. The equivalent energy required for heating this capacity of water would be 2.59 lacs Units per year. This has resulted into saving of energy charges to the tune of Rs.8.29 lacs per annum. The project cost of the same is Rs 16.0 lacs. MEDA was Consultant for designing & implementation of this project.



SOLAR WATER HEATING SYSTEM (TOTAL 19050 LPD)





4) Installation of Energy saver control panel for area lighting ;

The need of lighting level differs for different hours of the nighttime. Higher lighting level is required from sunset to say 11.00 pm & thereafter during remaining night time comparatively less lighting level is required due to reduction in vehicular & pedestrian traffic. In conventional system prevailing in Thane Municipal Corporation, Electromechanical timers (L & T make TSQ 100 or equivalent) along with 3 phase contactors of suitable ratings were provided in streetlight panels for switching ON/OFF streetlights.

We have provided Energy saving panel with Almanac timer and facility of voltage reduction at late night say at 10.00 PM . This has resulted in 30% energy saving in area lighting.

5) Installation of FRP fan for cooling tower:

The casting fan of cooling tower of Central AC plant was replaced by FRP fan. Due to this air flow has been increased and power saving of 25 % has been achieved.

6) Production of Methane gas from Bio degradable waste :

Thane Municipal Corporation has commissioned 20 T capacity Methane gas from biodegradable waste through private participation.

This plants produces 1.83 lakh kg Methane gas per annum. The equivalent amount of this generated methane gas would be around Rs. 76.5.00 lakhs per annum. This gas is being utilized for various heating applications in hospitals, crematorium etc. resulting into reduction in conventional fuel i.e., Diesel.



METHANE GAS PLANT FROM BIODEGRADABLE WASTE



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7) Installation of Energy Efficient luminary

Thane Municipal Corporation has modified 1950 no. of conventional tube lights with energy efficient Tri phosphor tube lights. Existing conventional ballast and tube lights have been replaced with electronic ballast and Tri phosphor tube lights. This has resulted in increased illumination. The power saving achieved is @ 30% as a result of this modifications.

8) V V F D for water pumping & motors for Central AC plant :

Thane Municipal Corporation has installed variable voltage variable frequency drive for water pumps & motors of central AC plants. This has resulted into 25% energy saving .

9) Solar based Central AC plant :

Thane Municipal Corporation intends to install Solar power based Central AC Plant(2 X90 T). The project report has been submitted to MEDA (Maharashtra Energy Development Agency, a State Govt. undertaking) for technical scrutiny and getting subsidy from MoNES. This will be the first project of it's kind in India and perhaps in the world.

10) Energy Audit of Hospital

Thane Municipal Corporation has carried out energy audit of Chhatrapati Shivaji Maharaj Hospital through M/s Energetic Consultant , Thane , (MEDA approved Energy Auditor) as a part of joint effort of MEDA & IIEC (International Institute of Energy Conservation) for conservation of energy.

11) Carbon Credit

Implementation of most of the projects based on non-conventional power sources prima fascia appears to be economically non viable as compared to projects based on conventional power. As it is well known fact that utilization of non-conventional power sources is environmentally friendly and as per "Kuoto Protocol" such projects are eligible for financial assistance popularly called as "Carbon Trading". After getting this financial assistance through

Carbon Trading such type of projects based on utilization of non-conventional power would be economical viable. This will help in coming up of more & more projects based on non-conventional power sources.

- 12) It is pertinent to note that connected electrical load at Chhatrapati Shivaji Maharaj Hospital has increased substantially during the period Oct,03-Sept,04 & Oct,04-Sept,05 as a result of extensions in various medical facilities to cater for growing population of the city.
- 13) The first prize in "State Level award for Excellence in Energy conservation and Management for the year 2004" has been awarded to Thane Municipal Corporation. State Govt. undertaking Maharashtra Energy Development Agency (MEDA). MEDA has constituted this award to recognise the efforts made by various sectors in achieving the excellence in efficient use of energy and it's conservation.