7.1.5

terna
Knowledge to Empower

TERNA ENGINEERING COLLEGE

Environmental Consciousness and Sustainability

1. Alternate sources of energy

Alternate sources of energy and energy conservation are two important and interconnected concepts that can help reduce our dependence on non-renewable sources of energy and mitigate the negative impact of climate change. Institute is keen on alternate sources of energy and energy conservation methods.

Following are the measures taken in the direction of alternate energy sources

Solar Energy Generation:

Solar energy generation is the process of harnessing the energy of the sun and converting it into usable electricity. Solar energy is a renewable and sustainable energy source that can be used to power homes, businesses, and even entire communities. Here are the basic steps involved in solar energy generation:

Solar Panels: Solar panels, also known as photovoltaic (PV) panels, are the primary components used to convert sunlight into electricity. These panels are made up of layers of silicon cells that absorb sunlight and release electrons, creating a flow of electricity.

Inverter: The electricity generated by the solar panels is in the form of direct current (DC), which needs to be converted to alternating current (AC) to be used in homes and businesses. An inverter is used for this conversion.

Connection to the Grid: The AC electricity generated by the solar panels can be used to power the building where the panels are installed. Any excess electricity can be sent back to the grid for others to use, and the building can draw electricity from the grid when needed.

Monitoring: A monitoring system can be installed to track the performance of the solar panels, ensuring that they are working efficiently and providing maximum energy output.

Solar energy generation offers many benefits, including reducing greenhouse gas emissions, lowering energy costs, and increasing energy

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independence. With advancements in technology, solar energy is becoming more accessible and affordable, making it an increasingly popular alternative to traditional energy sources.

Solar Panels on the rooftop: Solar panels are installed to harness the energy of the sun and convert it into electricity. Solar panels of the capacity of **476 KWH are installed** on the rooftop of the Institute. By using renewable energy we don't only reduce our electricity consumption from the grid but it also helps indirectly in reducing the Air and land pollution created by burning coal in thermal power plants and disposing fly ash (major waste generated from thermal power plants).

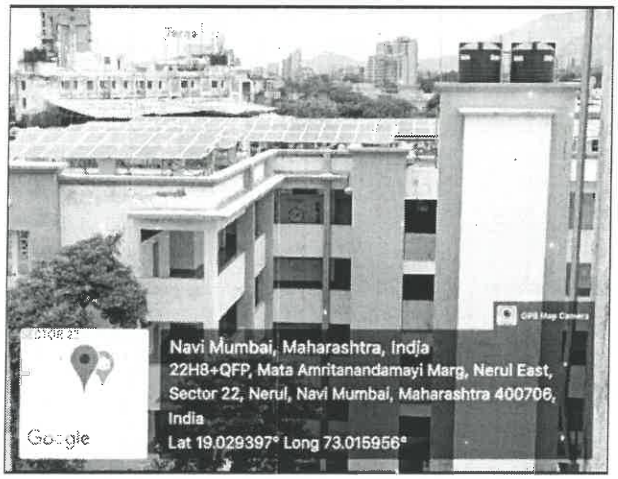

Fig. Solar roof on TEC Building

Fig. close view of solar panels on TEC Building

2. Energy Conservation Measures

Energy conservation methods include using energy-efficient appliances, turning off lights and appliances when not in use, insulating premises to reduce heating and cooling needs, and reducing energy consumption during peak hours. Energy conservation using LED bulbs and power efficient equipment is a simple yet effective way to reduce energy consumption and save money on electricity bills. Here are some ways in which LED bulbs and power-efficient equipment can help in energy conservation:

LED Bulbs: LED (Light Emitting Diode) bulbs are energy-efficient and use up to 80% less energy than traditional incandescent bulbs. This means that they require less electricity to produce the same amount of light, resulting in lower energy bills and reduced carbon emissions. They also

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last longer, meaning less frequent replacement and less waste.

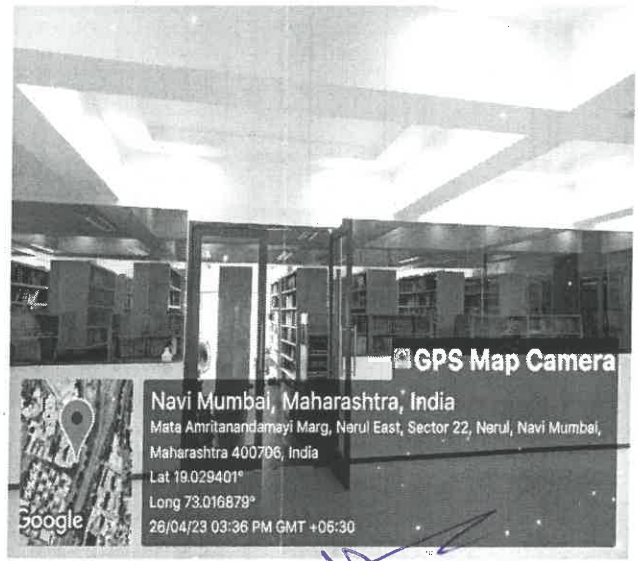
Power-efficient Equipment: Power-efficient equipment, such as refrigerators, air conditioners, and washing machines, are designed to use less energy while still providing the same level of functionality. They achieve this through the use of advanced technology and features such as timers, sensors, and variable speed motors. By replacing old, energy-hungry equipment with power-efficient models, significant energy savings can be achieved.

Energy Audits: An energy audit can be performed to identify areas where energy is being wasted and to suggest ways to improve energy efficiency. This can include replacing inefficient equipment, insulating buildings, and upgrading lighting to LED bulbs.

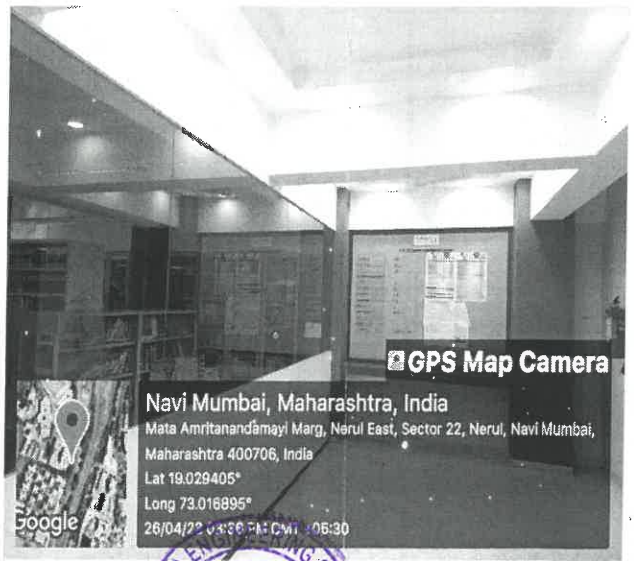
By using LED bulbs, power-efficient equipment, and implementing energy-saving practices, significant reduction in energy consumption, carbon footprint, and energy bills is possible. Therefore, Institute has taken the initiative in this and adopted these methods of energy conservation.

LED bulbs (Lights) are used in the institute building and premises. Most of the street lights have been with LED lights, remaining bulbs of Street lights & in the rooms of various hostel blocks are also being replaced whenever needed. Lights used to lit Playground area are LEDs.

Power efficient equipment: Window air conditioners installed are of BEE 2 & 3 star rating. Split air conditioners installed in buildings are of 3 & 5 star rating.



Fig, Power efficient equipment LED in Libraray



Fig, Power efficient equipment LED in office

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Fig. Power efficient equipment 5 star rated split AC

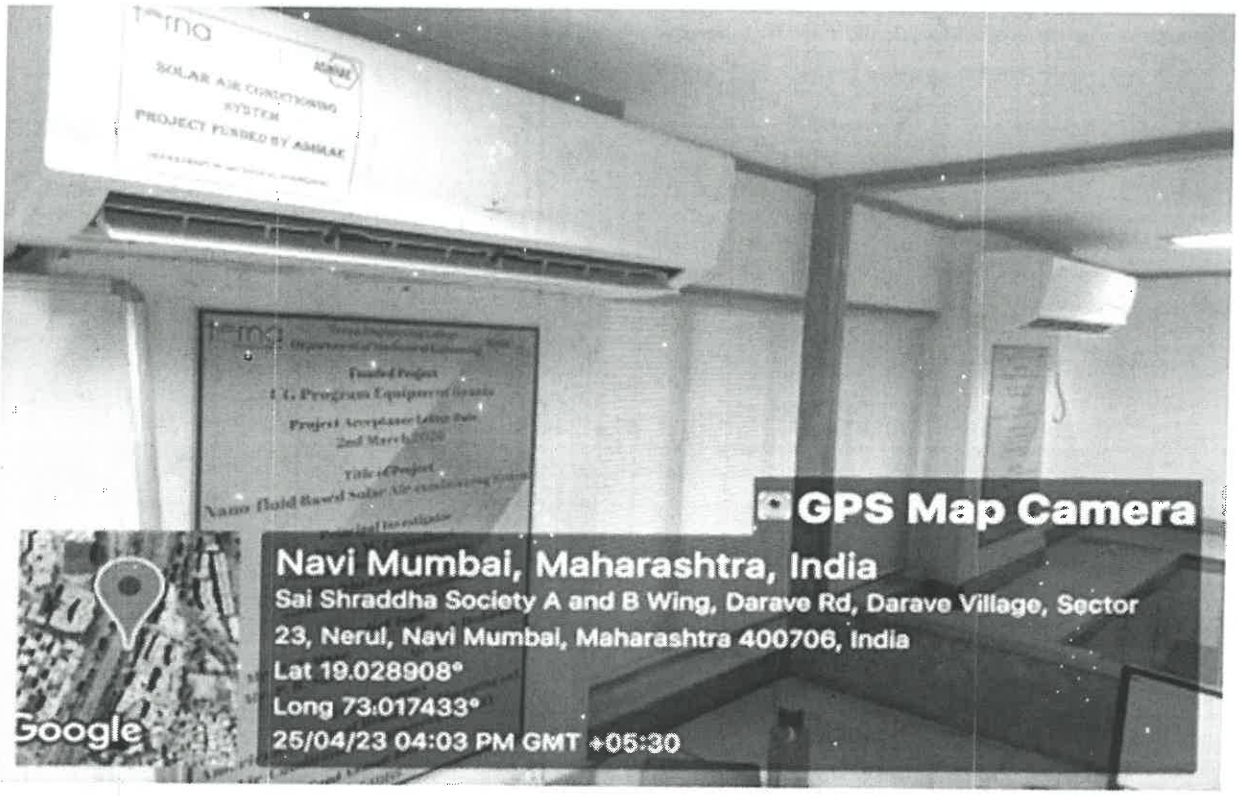

Fig. Power efficient equipment Solar split AC

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3. Management of the various types of degradable and non-degradable waste

Waste Management at Campus

TEC is conscious about waste management and takes necessary efforts towards a sustainable environment. In line with the Swatch Bharat Abhiyaan, TEC prioritizes cleanliness on campus and encourages students and staff to follow effective waste management practices which include reduction at source; segregation and implementation of 3R's i.e. REDUCE, REUSE and RECYCLE before disposal. TEC has a well-defined mechanism for waste disposal and sensitizes students and staff regularly in different ways as follows:

Solid Waste

Towards Solid Waste Management, TEC has taken the following steps:
TEC appointed Ashok Global solutions Pvt Ltd. for Housekeeping services for keeping campus clean. Solid waste is segregated at source. Organic waste is collected in **green dustbins** and non- biodegradable (Dry) waste in **blue dustbins.** The waste pickup and collection is done by housekeeping staff. The Municipality staff collects dry waste twice a day. TEC initiated a drive to REDUCE plastic usage to the minimum essential, on and off the campus.
Installed a Composting Plant where all the cafeteria organic waste and gardening waste is converted to good quality manure which is used for in-house gardening and also distributed among staff and students to promote positive practices on waste management.
Project related to handling food waste generated on campus was initiated by students.
TEC made provision for segregating dry waste as paper waste, plastic waste and metal waste which is given to vendors for recycling.

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PHONE:-022-61115454

TERNA PUBLIC CHARITABLE TRUST'S

SECTOR 22 PHASE 2 NERUL NAVI MUMBAI

ORDER NO PUR /TPCT/HK Services /2022/22 | DATE: 01 /07 /2022

TO

Work Order

M/s Alkosh Global Solutions Pvt. Ltd.
301, 3rd floor, plot no 60, Parekh Mahal, Janmabhoomi Marg, Hutatma chowk, fort Mumbai 400001
Email : contact@alkoshglobal.com
Mr. Jitendra Padhi - 9987909506

Subject: Regarding Contract/ Agreement of Housekeeping Services.

Sir,

With reference to your request letter, we intend to appoint you as Service provider for Housekeeping Services at our premises as mentioned below, with terms and conditions.

Tenure : From 01st July , 2022 to till further orders

Sr. No.	Service Offered	No. of staff	Salary per Month	unit	Total amount
1	Terna Medical College Nerul	9	16400.00	Each	147600.00
2	Terna Dental College + Audi Nerul	10	16400.00	Each	164000.00
3	Terna Hostel, Nerul	20	16400.00	Each	328000.00
4	Terna Engg. College Nerul	12	16400.00	Each	196800.00
5	Terna Phy. College Nerul	1	16400.00	Each	16400.00
6	Terna Nursing College Nerul	1	16400.00	Each	16400.00
	TOTAL	53			869200.00
	Management Fees @ 8%				69536.00
	Sub Total				938736.00
	GST @18%				168972.48
	Grand Total Rs.				1107708.48

Signed and delivered for and on behalf of
TERNA EXECUTIVE OFFICER
TERNA PUBLIC CHARITABLE TRUST

Name : Mr. pandit Pukaram
Designation: Deshmukh.

For ALKOSH GLOBAL SOLUTIONS PVT. LTD.

Signed and delivered for and on behalf of
M/s Alkosh Global Solutions Pvt. Ltd.
By its authorized Signatory

Authorised Signatory

Name : Jitendra Padhi
Designation: Asst Manager Admin

Fig. Contract/Agreement for housekeeping services

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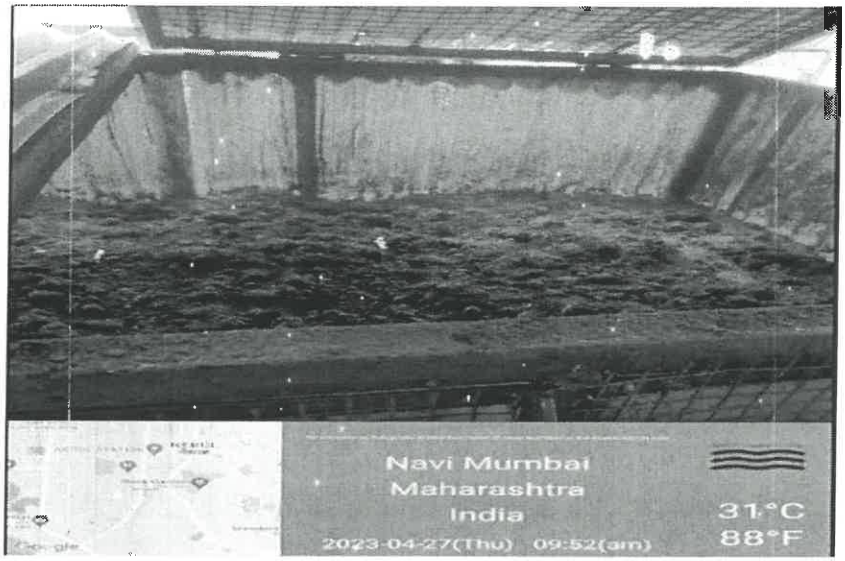

Fig. Composting Pit

Fig. Compost Prepared from compost pit in campus

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E -waste management

Institute takes efforts to minimize e-waste. Regular maintenance by technical staff and reutilization of spare parts of discarded electronic devices is a common practice.

To sensitize students and staff on careful disposal and management of electronic waste, Non-functional computers, monitors and printers are discarded on a systematic basis. Agreement is signed with Balaji vender for Scrap disposal. The Awareness programme/campaign was an initiative to sensitize an impart knowledge among the teachers and students and NGO employees about the proper management, disposal and channelization of E-waste, thereby reducing the impact of hazardous substances on the environment and encouraging environmentally sound recycling through collective efforts of all the stakeholders involved in the entire E-waste value chain.

In view of the above MAIT conducted an Awareness Training Programme on the Environmental Hazards of Electronic Waste for all the stakeholders on 5th and 6th October 2018 at Maharashtra Pollution Control Board Office in Navi Mumbai.

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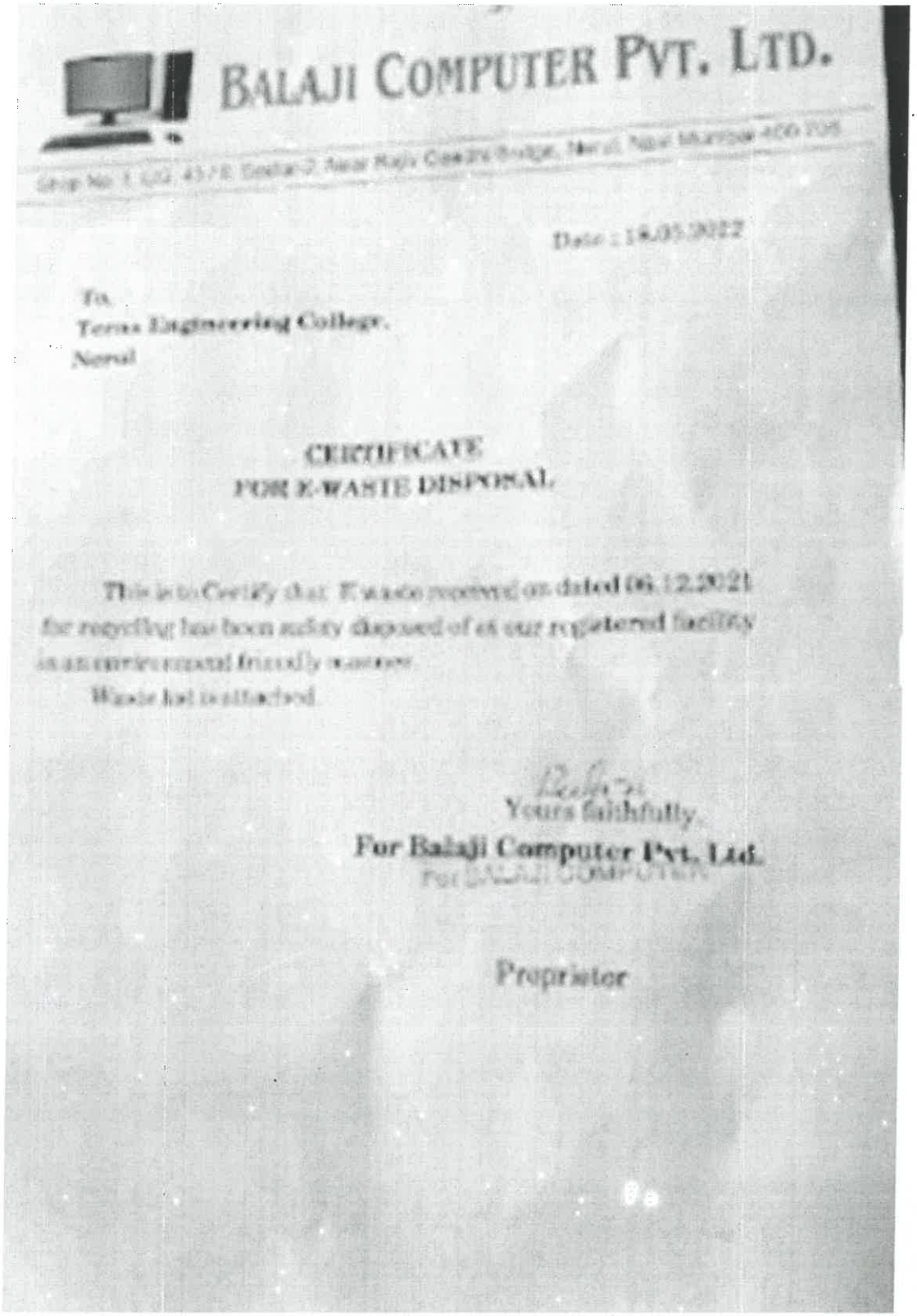

BALAJI COMPUTER PVT. LTD.

Shop No. 1, CG 45/8, Sector-2, Near Raju Centre, Nerul, Navi Mumbai-400 706

Date : 18.03.2022

To,
Terna Engineering College,
Nerul

CERTIFICATE
FOR E-WASTE DISPOSAL

This is to Certify that E waste received on dated 06.12.2021 for recycling has been safely disposed of at our registered facility in an environmental friendly manner.

Waste list is attached.

Yours faithfully,
For Balaji Computer Pvt. Ltd.
For BALAJI COMPUTER

Proprietor

Fig. Contract certificate of E-Waste Disposal

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Terna Engineering College, Nerul, Navi Mumbai

Staff Name: Mundhe R.N. / Bazale Kiran

Dept: Store / office

Designation: Store keeper / Supervisor

Date: 05/02/2018

Through Head of Dept.

To,
Principal
Terna Engg. College
Nerul, Navi Mumbai

Pay Paid cash memo No. 7186 Dt. 15/2/2018

Sub:

Respected Sir,

Balaji computer service, contractor Nerul

Signature of Applicant:

(Name: Mundhe R.N. Bazale

Encl: Quotation / Requirement / Comparative statement.

05/04/18

Fig. Application for waste paper collection

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4. Water conservation facilities available in the Institution:

a. Rain water harvesting

b. Bore well /Open well recharge

c. Maintenance of water bodies and distribution system in the campus

Rain water harvesting structures and utilization in the campus

TEC has taken sustainable initiative towards conserving water through a wide expanse of well-maintained green landscape which has been deliberately included on the campus to keep the ground porous so that rainwater can be collected through natural means to recharge the water table.

It helps in improving the quality and increasing the level of ground water. It also helps in improving the overall floral system and reduces the loss of the top layer of the soil. Rainwater harvesting practices at TEC include water table recharging.

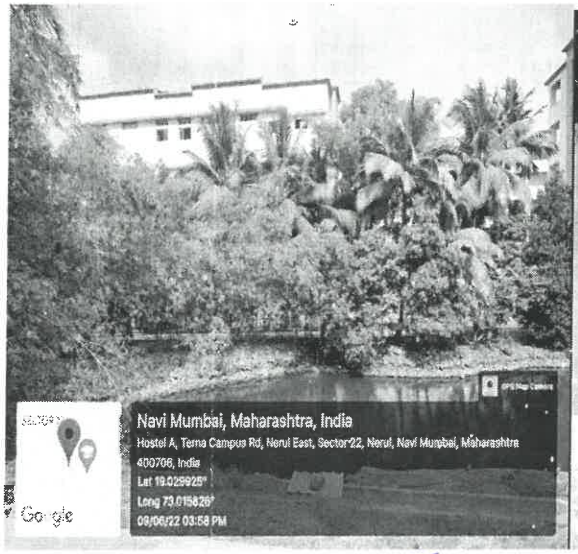

Fig. Pond in TEC campus

Fig. Rain water harvesting

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TEC focusses on water conservation, use of push taps to reduce water wastage, use of pond water for gardening.TEC students carried out project to purify pond water by using waste water techniques. These efforts have resulted in lesser usage of the NMC water supply.

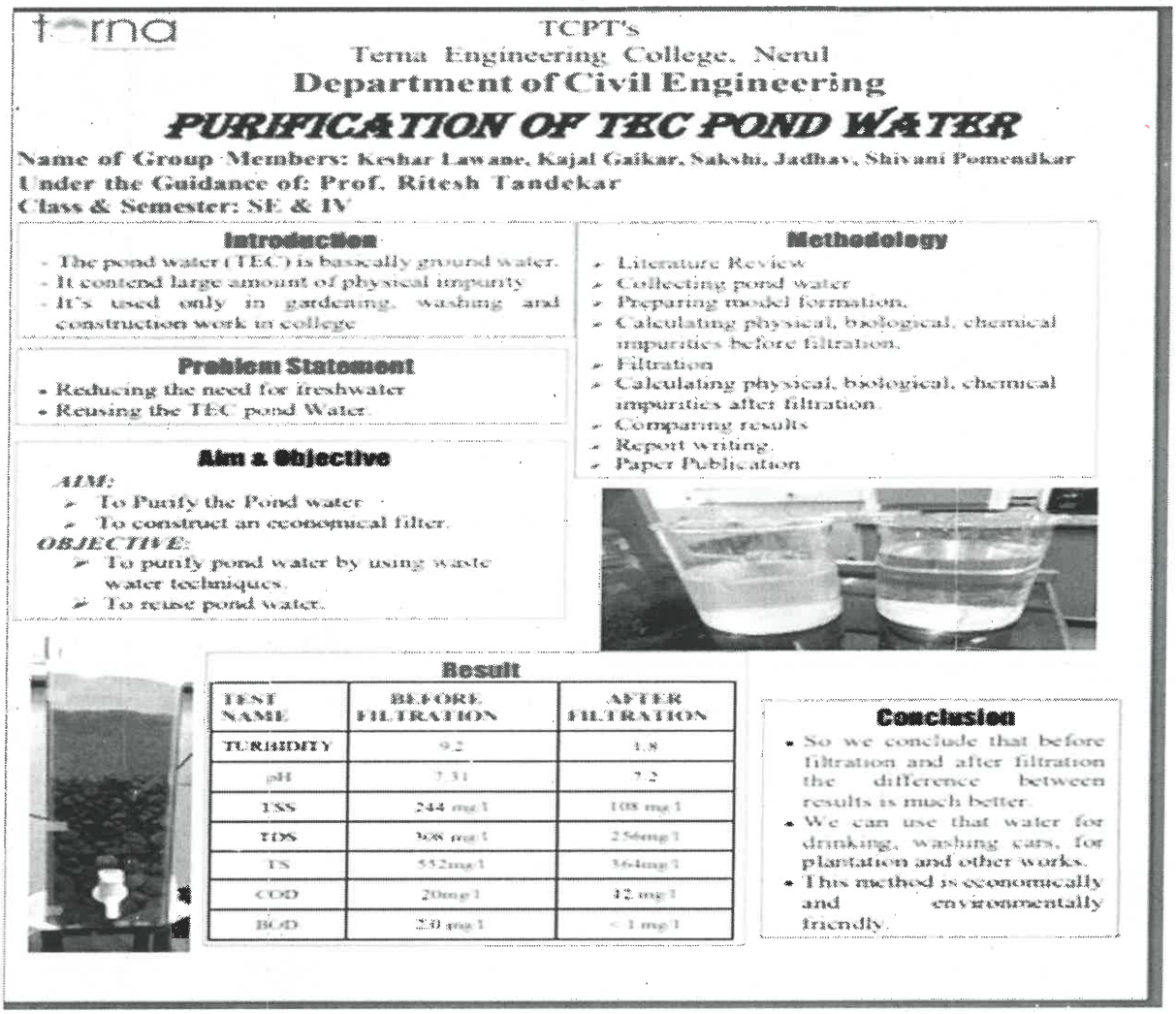

Fig. Project on pond water purification

Students and staff are sensitized on contributing towards the importance of water conservation and reducing water wastage through events to mark World Water Day and displaying presentations and posters on digital notice boards

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Bore well /Open well recharge

Bore well recharge is done with rain water .It is installed in campus near to boys hostel and rain water is collected from terrace used to regenerate water in the bore well by absorbing it.

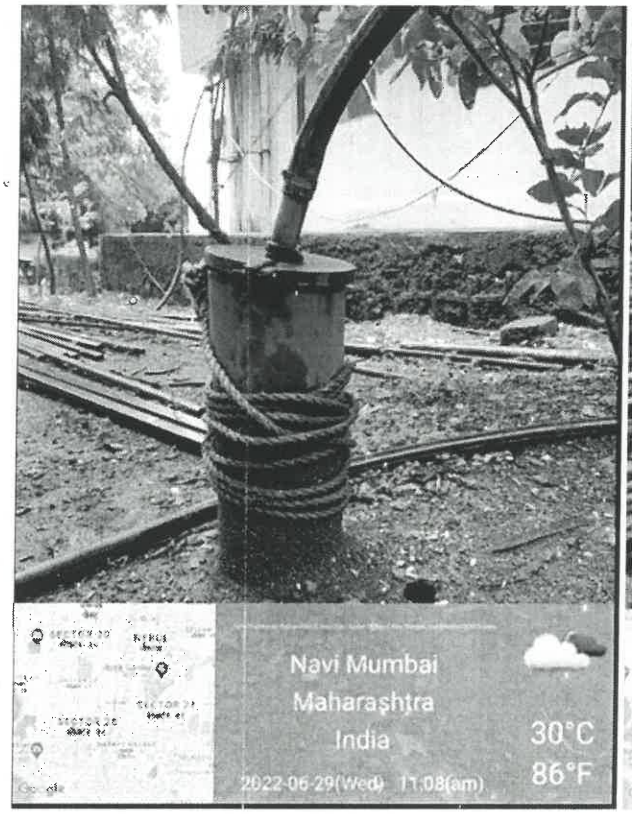

Fig. Bore well at TEC campus

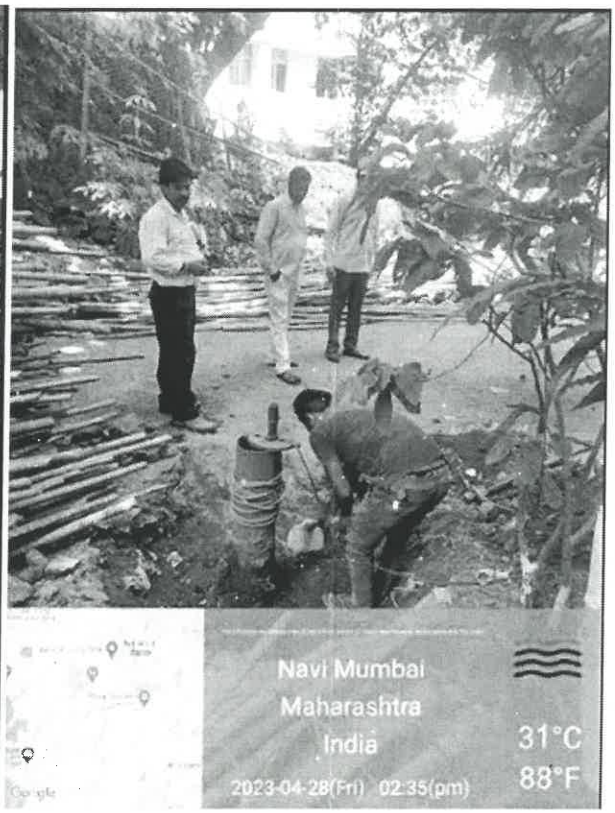

Fig. Bore well Recharging

Energy conservation

We have taken a renewable energy initiative to reduce our electricity consumption and Save Energy by installing 13 Solar panels of capacity 33 KWH on the rooftop of the TEC. By using renewable energy we don't only reduce our electricity consumption from grid but it also helps indirectly in reducing the Air and land pollution created by burning coal in thermal power plants and disposing fly ash (major waste generated from thermal power plants).LED bulbs (Lights) have been provided in all the buildings. Most of the street lights have been with LED lights, remaining bulbs of Street lights & in the rooms of various hostel blocks

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are also being replaced whenever needed. Playground lights also have LEDs.

Green practices on campus

TEC prioritizes green practices for sustainable environment and inculcates an empathetic culture towards the environment among its students and staff. The buildings on the campus are thermally, visually and acoustically comfortable. They are energy, material and water efficient. TEC has implemented green practices by digitization of academic and administrative processes, and effective waste management. Students are sensitized about green practices during their orientation programmes, Environmental Studies class, poster competitions, practical assignments and celebrations like World Water Day, Environmental Day, Swaccha Bharat Abhiyan etc. Green practices are a way of life at TEC.

1) Students, staff using Public Transport and car pooling

TEC is well connected by various modes of public transport like suburban railway, city bus services, cab services etc.
Maximum students and staff use public transport services. Nerul railway station is within the range of 1 km from college convenient students and staff. Bust stop is also next to TEC gate.
Many students avail railway concession facility. Some of the staff members use car-pooling and save fuel, and contribute towards reducing carbon emissions and conserving energy.

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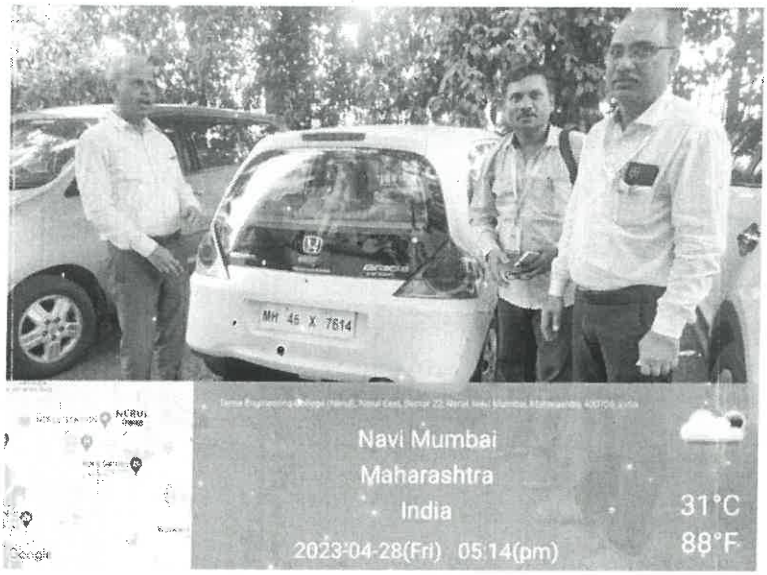

Fig. Car pooling

2) Plastic free campus campaign:

A 'No Plastic' Awareness Campaign was conducted by NSS team at TEC to share the hazards of indiscriminate use of plastic. Being conscious towards the environment, TEC prohibits the use of Styrofoam on the campus and minimizes the use of plastic.

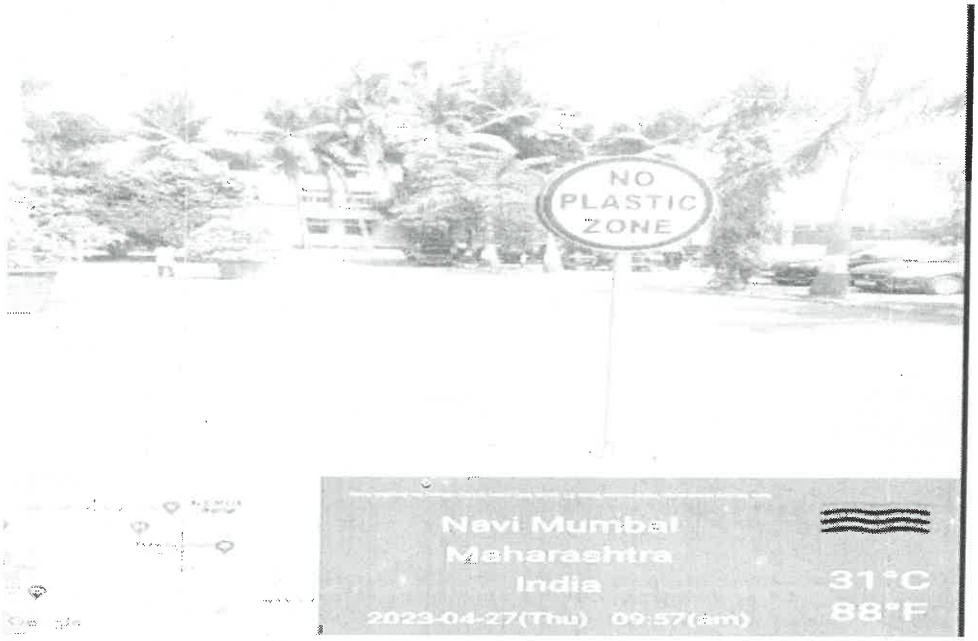

Fig. Plastic free campus initiative

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Fig. "Bottles for Change": Seminar on various aspects of Plastic Waste Management.

3) Green landscaping with trees and plants:

Green landscaping at TEC includes eco-landscaping which is designed and maintained in such a manner that it saves time, money, and energy. It contributes to reducing air, soil, and water pollution; and making healthy recreation spaces.

The TEC campus has a well-designed landscape which includes approximately 300 trees, shrubs and plants. It is maintained by water collected in pond during rainy days.

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Fig. Green campus initiative in TEC

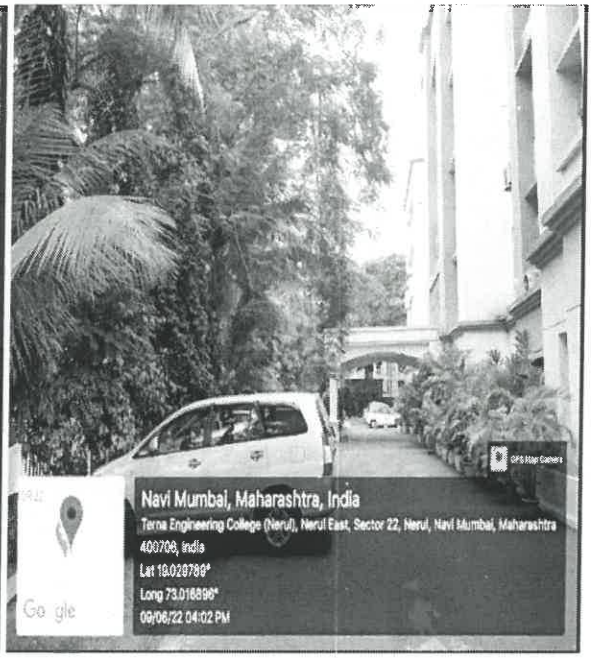

Fig. Green campus initiative in TEC entrance

Fig. Landscaping in TEC

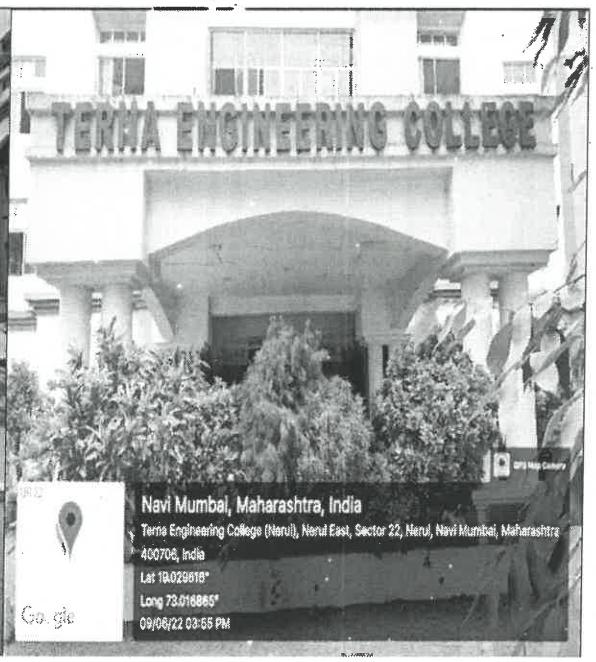

Fig. Green campus initiative in TEC

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4) Disabled-friendly, barrier free environment

The fundamental principles which have been followed at TEC are various facilities to meet disabled people's standards for safety, convenience and usability. This construction and maintenance standard are followed in all categories of buildings and facilities used by the students for making accessible to and functional. Wheel chair is available at ground floor near room no.024 for physically disabled persons as pictured below.

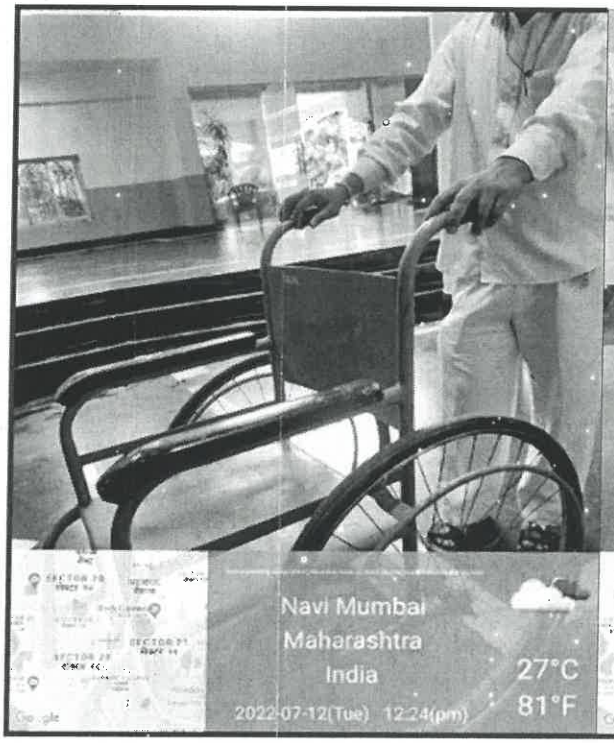

Fig. Wheel Chair in Campus

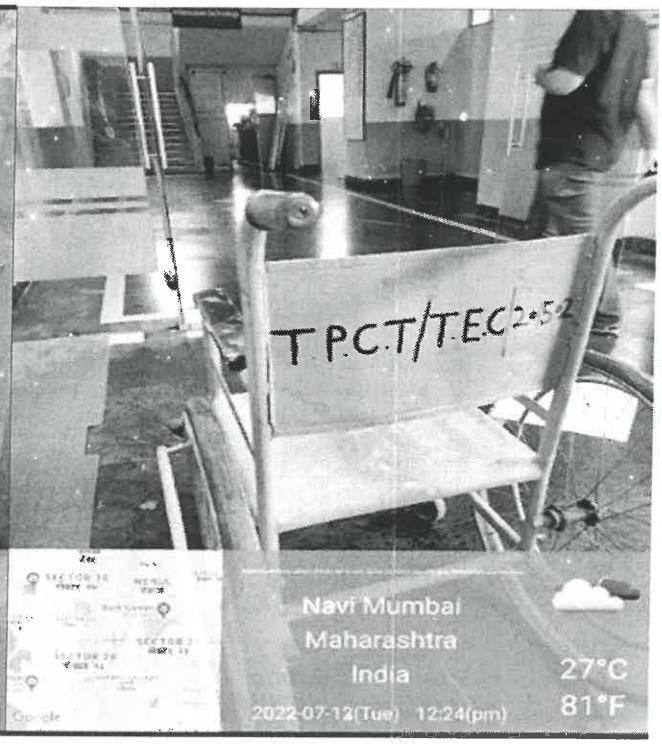

Fig. Wheel Chair available at ground floor

Ramp for physically disabled person is available. TEC provide two ramps where stairs obstruct the free passage of pedestrians, mainly wheelchair users and people with mobility problems.

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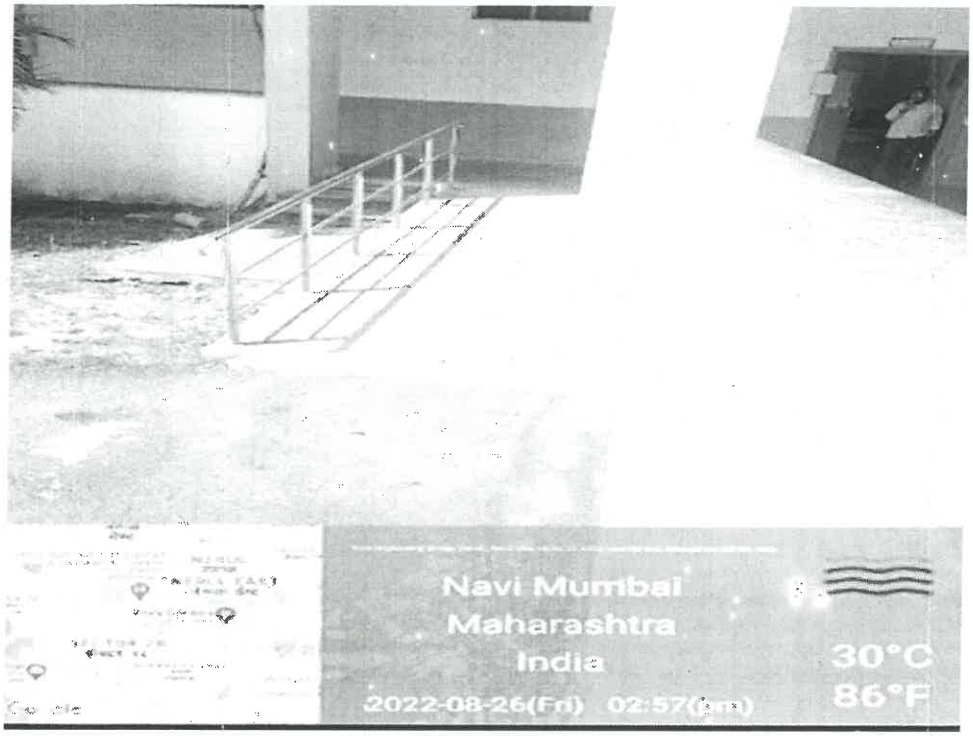

Fig. Ramp for physically disabled person

Washrooms for physically disabled persons is available on ground floor. TEC provide sufficient accessible space inside rest rooms, with all fixtures and fittings being within easy reach.

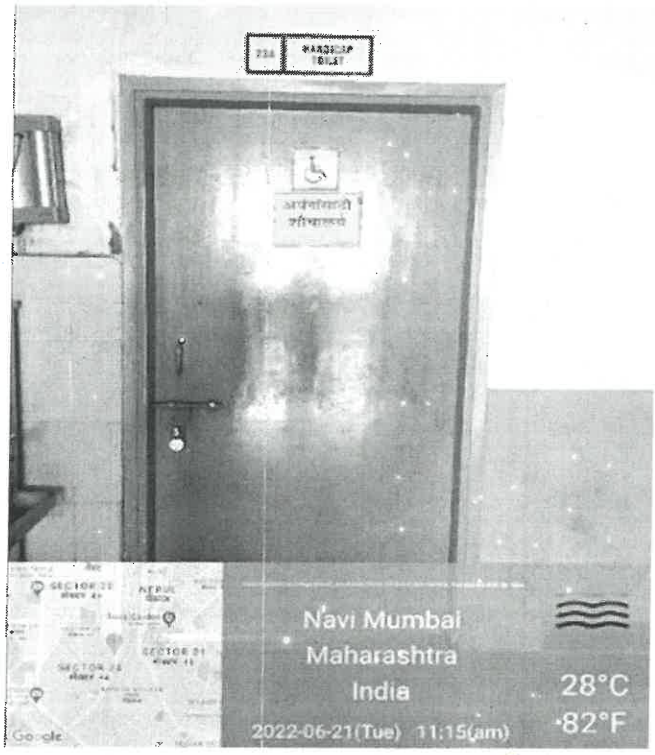

Fig. Washrooms for physically disabled persons

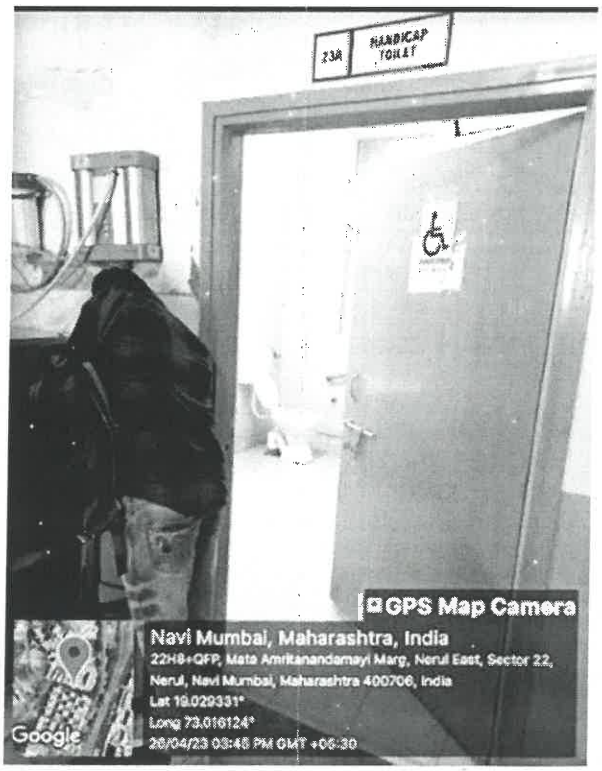

Fig. Washrooms for physically disabled persons

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Lift Facility: An elevator is installed in a building that makes it easier for people with disabilities to navigate floors. They are especially helpful for people who need assistance going up and down. In TEC building we have 4 lifts .

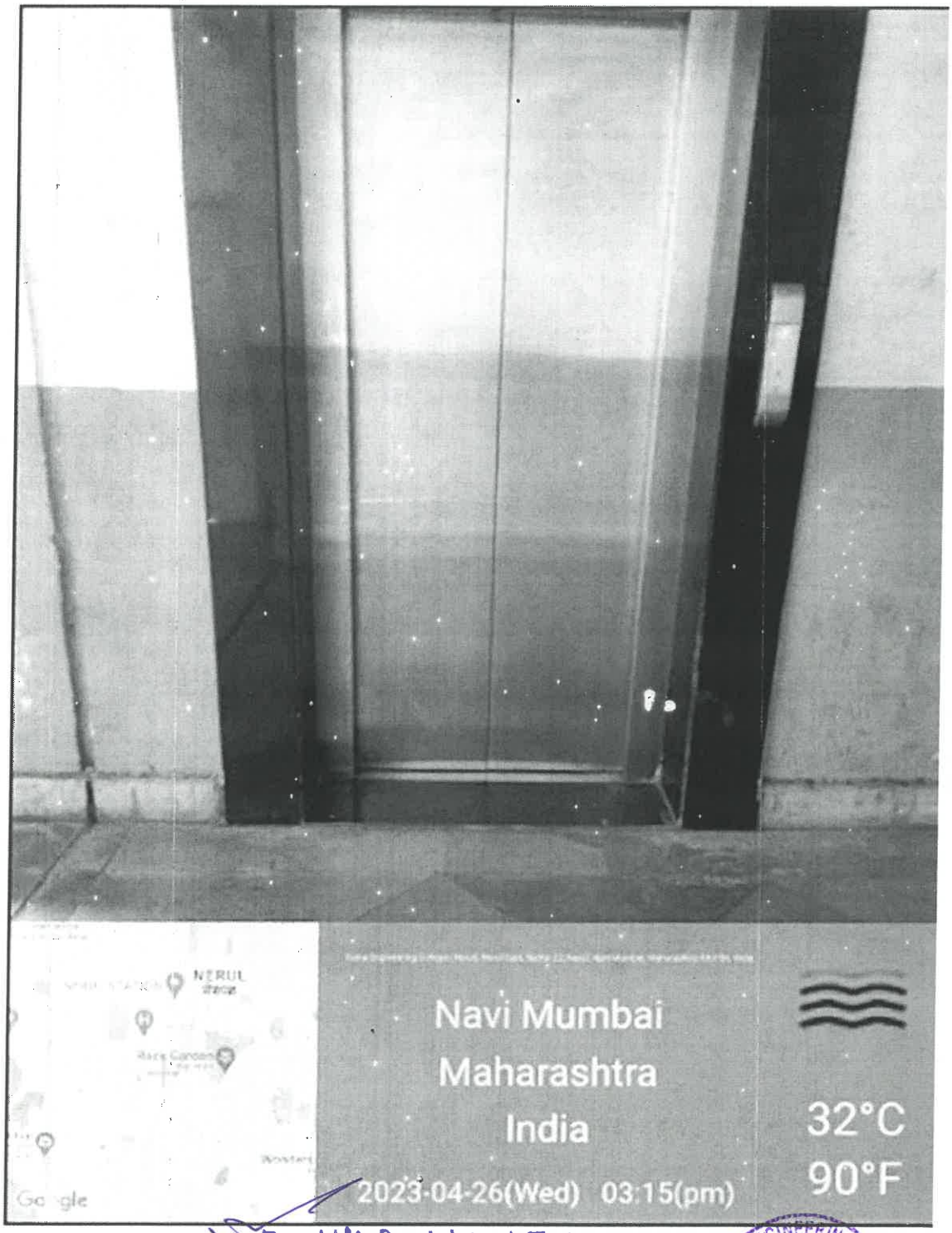

Fig. Lift facility at TEC

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Fig. Lift facility at TEC