

CHILDREN'S EDUCATION SOCIETY (Regd.)

Administrative Office:

1st Phase, JP Nagar, Bengaluru – 560 078

☎: 080-61754501 – 502 Fax: 080-2654 8658

THE OXFORD COLLEGE OF ENGINEERING

(Recognized by the Govt. of Karnataka, Affiliated to Visvesvaraya Technological University, Belagavi,

Approved by A.I.C.T.E. New Delhi & Recognized by UGC Under Section 2(f),

Accredited by NBA, New Delhi, NAAC 'A' Grade with score of 3.24 & Diamond Rating by QS I Guage)

Bommanahalli, Hosur Road, Bangalore – 560068. ☎: 080 -61754601/602

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Geo tagged Photographs of Water Conservation Facilities

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Principal

PRINCIPAL

The Oxford College of Engineering,
Bommanahalli, Hosur Road
Bengaluru-560 068



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Geo Tagged Photos for Rainwater Harvesting

Rainwater harvesting is “the accumulation and deposition of rainwater for reuse on-site, rather than allowing it to runoff.”

A more appropriate meaning of rainwater harvesting might be the collection of rainwater from a surface that allows for the rainwater to be stored and used at a later time.

In a typical rainwater harvesting situation, rainwater is collected from an impervious surface such as the roof of a building and then stored inside of a tank. Rainwater can be harvested and stored for many uses including landscape irrigation, potable and non-potable indoor use, and storm water management. Harvested rainwater can be particularly useful when no other source of water supply is available, or if the available supply is inadequate or of poor quality.

Rainwater Harvesting is Popular for two reasons:

- a. Its superior water quality and a desire to reduce the use and
- b. Dependence on municipally treated water for all of our daily uses. Rainwater has long been valued for its purity and softness.

It is free from salts, minerals, and other natural and man-made contaminants. In addition, rainwater harvesting is valued as a water conservation tool since it allows you to use rainwater instead of municipally treated water. This, in turn, reduces the amount of water a municipality has to treat and deliver to their service area.

1. Rainwater is essentially FREE; once the capital cost of the collection system infrastructure is paid for, you will harvest free water.
2. It is socially acceptable and environmentally responsible since it promotes self-sufficiency and helps conserve water.
3. It reduces your municipal water consumption and thus your water bill.
4. It can be used as a main source of water or as a back-up source to wells and municipal water. It can also be very helpful in times of emergencies.
5. It provides you with total control over your water supply.

So, in College campus of Oxford College of Engineering, the Rain water harvesting is provided at two premises i.e within the campus near New building and Girls hostel.



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Rainwater Harvesting



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Construction of Tanks and Bunds

Water tanks are used to provide storage of water for use in many major applications such as drinking water, irrigation agriculture, fire suppression, agricultural farming, both for plants and livestock, food preparation as well as many other uses. Water tank parameters include the general design of the tank, and choice of construction materials, linings. Various materials are used for making a water tank: plastics, fiberglass, concrete, stone, steel (welded or bolted, carbon, or stainless). A Water Storage Tank is a container or a mini-reservoir that is used to store the water in a measured quantity. The collected water in the tank serves many applications for both domestic and commercial purposes. Overhead Water Storage Tank is usual Water storage tank as its name stands for itself these tanks are placed over the head that is built on a certain height. The tank may be built of any material but the idea is to achieve maximum efficiency by placing a tank in some elevated distance. The water from the ground level is filled inside the tank through pumping. It is achieved with the high-power motor pumps that send the water to storage with high pressure. Water tanks are an efficient way to help to store clean water. The material used for the overhead tank is RCC material.

RCC Tank features are given below: -

- Composed of reinforcement bars and concrete
- Mostly rectangular shaped tanks are constructed and preferred
- Suitable for all types of building.
- Temperature of water inside tank is maintained
- High storage capacity in circular shaped than rectangular
- Strength and durability are more with comparison to plastic tanks
- Construction of rectangular tank is less tedious than circular shaped tank
- While constructing rectangular tank, the longer side should not be greater than twice the shorter
- RCC tanks are fire resistant.
- Cannot be replaced easily.
- After construction, they should be cured sufficiently to avoid water absorption and then is allowed to use
- Cracks may be developed in structure (0.1 mm width of crack may be acceptable)
- Waterproofing is necessary to avoid leakage



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Maintenance of Overhead Water Storage Tank

Following a few simple maintenance steps for your overhead water tank you can get some effective results like rust free, corrosion free, more importantly, you can clean it to keep dirt free which can ensure your water source is fresh as it is used in some basic domestic purposes like cooking, drinking, bathing etc. If any slight damage, you can identify at the earliest and sort it out, which eventually increases the life of your tank.

Features of Overhead Water Storage Tank

Our Overhead Water storage tanks have some special attributes that can be used in the best

Way to obtain a cost-effective result:

1. Made of 100% virgin & food grade material
2. Easy to fit
3. Temperature resistance
4. Capacity range from 200 L to 10,000L

The capacity for water tank for new building, Old building and Girl's Hostel are considered as 12,000 L



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Overhead Tank in the New building



Over head tank in the Old building



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Over head tank in the Girls hostel



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Waste water Recycling

Wastewater that isn't treated and recycled is often released into our large water bodies. Untreated wastewater does not naturally decompose. Recycling wastewater is the only way to avoid future water shortages and decrease the damage of water pollution in the environment.

Recycling prevents the emissions of many greenhouse gases and water pollutants, and saves energy. Using recovered material generates less solid waste. Recycling helps to reduce the pollution caused by the extraction and processing of virgin materials.

Carbon filtering removes remaining contaminants and impurities by chemical absorption onto activated carbon. Filtration through sand (calcium carbonate) or fabric filters is the most common method used in municipal wastewater treatment. There are three main stages of the wastewater treatment process, known as primary, secondary and tertiary water treatment.

Recycling helps to Reduce energy usage, reduce the consumption of fresh raw materials, reduce air pollution and water pollution (from landfilling) by reducing the need for "conventional" waste disposal and also reduces greenhouse gas emissions.

Advantages of Waste water recycling:

- ▶ Reducing environmental impact.
- ▶ Reduce demands and stress on freshwater supply
- ▶ Eliminating the need to transport water
- ▶ Improving sustainability
- ▶ Avoiding expensive non-compliance fees

The reason why recycling is so important is that it prevents pollution, reduces the need to harvest new raw materials, saves energy, reduce greenhouse gas emissions, saves money, reduces the amount of waste that ends up in landfills, and allows products to be used to their fullest extent.

Most wastewater undergoes secondary treatment as well as primary treatment. The most common method is to sprinkle or trickle the water over a bed of sand or gravel. As the water filters downward, it is put into contact with oxygen and microorganisms, which work together to break down the organic matter in the water.



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Through the treatment of wastewater, the amount of waste that is usually released into the environment is reduced thus improving environment's health. By doing so, the government in turn reduces the health risks associated with environmental pollution, and reduces the water loss induced through water pollution.



S.T. PLANT



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Collection of waste in settling tank





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Recycling of waste water process



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Filter unit RWS

Water is the basic necessity of life. Filtered water is required to maintain health and hygiene. Filtered water results in better taste and smell by removing germs, chemicals and bacterial contaminants. Water purification system like Reverse Osmosis Technology helps to balance the pH of drinking water. Filter Water Unit is installed in the college for the purpose of providing good health and hygiene to all the staff and students.

Filter Water Unit is installed on the roof top of the old building. Drinking water facility is provided in all the floor of the building.



Filter Unit RWS



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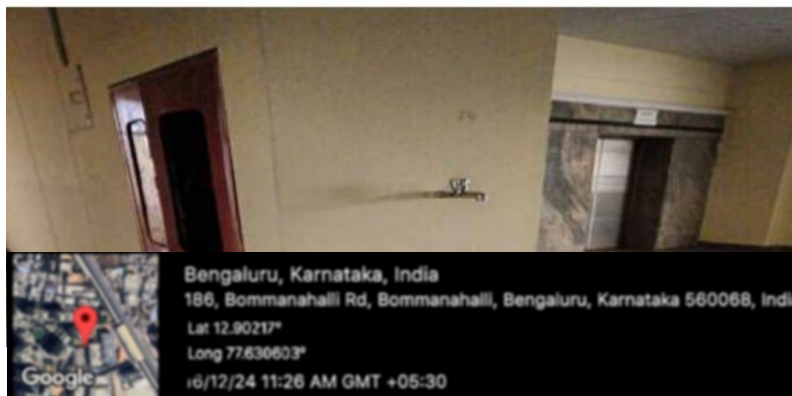
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Drinking water facility in all the floors of the building



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Maintenance of water bodies and distribution system in the campus

1) The institute ensures regular check of leaky taps and pipes; hence water wastage is minimized. Gardens are watered using recycled sewage water and sprinkler irrigation system is used to savewater.

2) Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge.

3) Reclaimed or recycled water (also called waste water reuse or water reclamation) is the process of converting waste water into water that can be reused for other purpose.

4) Recycling also helps to prevent pollution, especially in an industrial context. Many machines and appliances produce wastewater that carries some pollutants.

5) Wastewater treatment and water recycling prevents the water from contaminating our rivers, lakes and groundwater.

6) Maintenance of water bodies and distribution system in the campus is carried out by the recycled water from domestic effluents of 40KLD are distributed for gardening and toilet flushing after treatment.

- The sewage treatment plant has been constructed for more than 8years.
- From last 5 years the quantity of wastewater recycling has been carried with daily process by collecting waste water system from entire the college campus including hostels, dental college, old building and new building of the college.
- So daily process of recycling and maintenance of the water bodies is carried.

In the below images, the details related to S.T.P is given where its work and distribution is considered.



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Distribution of the recycled waste water to each block in the college campus



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**Control panel for the distribution and maintenance of
water bodies in the campus.**



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Control panel for the distribution and maintenance of water bodies in the campus.


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