



DEWATS FOR PMI NEW OFFICE BUILDING, NAGPUR, MAHARASHTRA

PROJECT BRIEF

PMI (Production Modeling India) is an Operations Consulting Firm, founded in 2006, as the Indian arm of PMC (Production Modeling Corporation), which has been providing Operations Improvement services to its clients for over 32 years. Over the last 6 years, PMI has successfully completed a number of Industrial Engineering and Simulation projects in India and around the world for various industry sectors including Automotive, Auto Component, Two Wheeler, Steel and Service.

PMI shifted its Nagpur office to a location (to Plot No. 1 & 2, at Mouza Isasani, Taluka Hingna, Dist. Nagpur) where there is no sewer line. They selected DEWATS because it is a cost-effective, eco-friendly, small and compact solution.

PROJECT OUTCOMES

- Efficient management of wastewater collected from the office building
- To meet the regulatory norms of PCB for wastewater treatment and reuse.
- To protect the environment from direct pollution

SYSTEM IN BRIEF

Domestic wastewater from the office building is conveyed to the treatment unit through the internal Conveyance network. The treatment system consists of 3 modules:

1. **Settler** - a sedimentation tank for retaining articles by settling over a specific time frame
2. **The Anaerobic Baffle Reactor** - ensures anaerobic degradation of suspended and dissolved solids by mixing fresh wastewater with an active sludge blanket
3. **The Anaerobic Filter** - comprises of filter bed for treatment of dissolved organic matter. Wastewater comes in contact with active bacterial mass which grows on filter material.

SALIENT FEATURES

Source: Toilets, Urinals, Wash-basin

Design capacity: 6 m³/d

No of users: 150

Peak flow: 6

Influent quality: BOD: 330mg/l
COD: 660mg/l

Effluent Quality (after secondary treatment):
BOD: 26mg/l
COD: 75mg/l

Efficiency: BOD – 92% (Expected)
COD – 89% (Expected)

PROJECT SPECIFICATIONS:

Funding Agency: PMI, Nagpur

Implementing Agency: PMI, Nagpur

Supporting Agency: CDD Regional Office, Nagpur

Construction Period: 10 months

Construction start date: May 2018

Construction end date: February 2019

Current status: Commissioned

Construction Cost: Rs. 4,00,000

Operation Cost: Rs. 20,000 p.a.

MODULES ADOPTED

Settler:

Volume: 12.48 m³

Area of construction: 5.2 m²

Anaerobic Baffled Reactor

Volume: 13.44 m³

Area of Construction: 5.6 m²

No. of chambers: 3

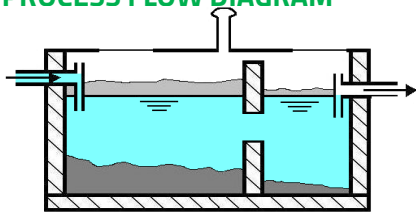
Anaerobic Filter

Volume: 12 m³

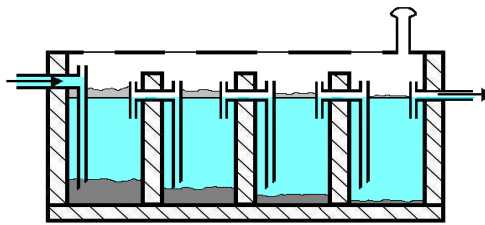
Area of Construction: 5 m²

No. of chambers: 2

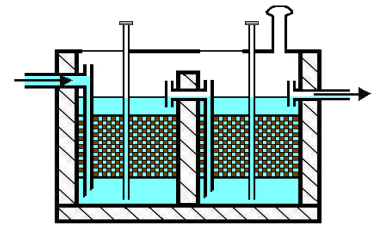
PROCESS FLOW DIAGRAM



Settler



Anaerobic Baffle Reactor (ABR)



Anaerobic Filter (AF)

OPERATION AND MAINTENANCE

- The wastewater treatment plant is operated and maintained by the client.
- A regular schedule is followed for maintenance, like periodic check, removal of sludge in baffled reactor and other required tanks.
- The filter media in the Anaerobic Filter will be washed once in 5-7 years.

REUSE OPTIONS

- After secondary treatment, the treated wastewater is discharged into the open Nallah

LEARNINGS

- Incorporating of DEWATS with existing landscape is important for maximum utilization of super surface area.
- Decentralized treatment proved to be the suitable solution for the new developments happening outside of the city limit area.

PHOTOS

