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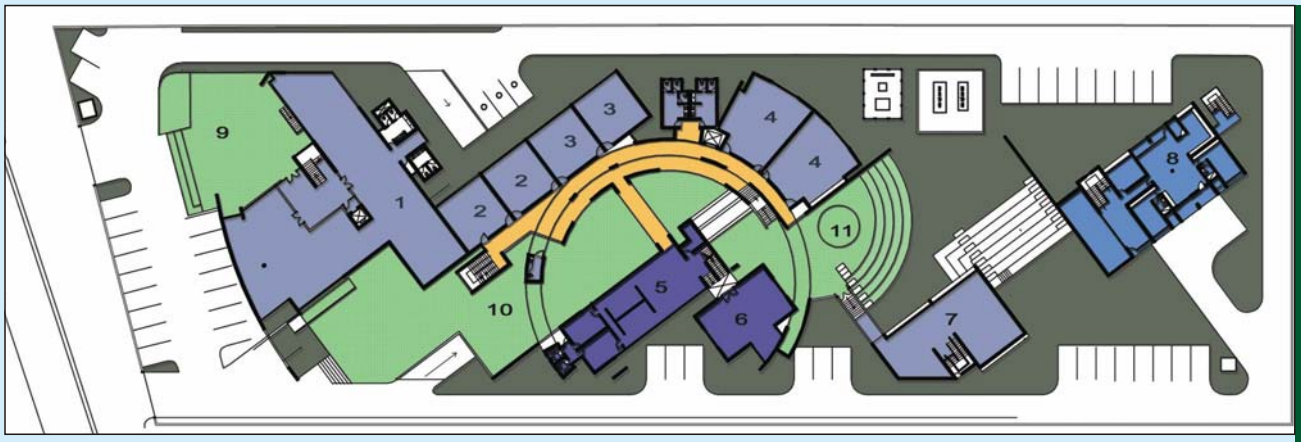
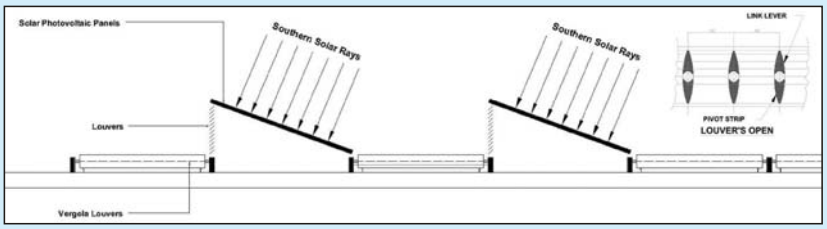
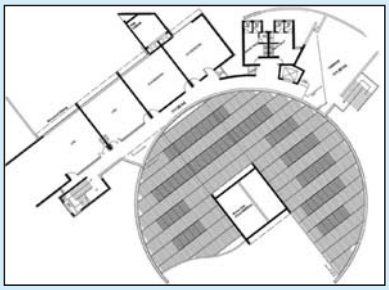


Ground floor plan

1. Office
2. Lab
3. Classroom
4. Lecture hall
5. Administration
6. Accounts
7. Dining/recreation
8. Caretaker's house
9. Entrance Lobby
10. Court
11. Open air theatre

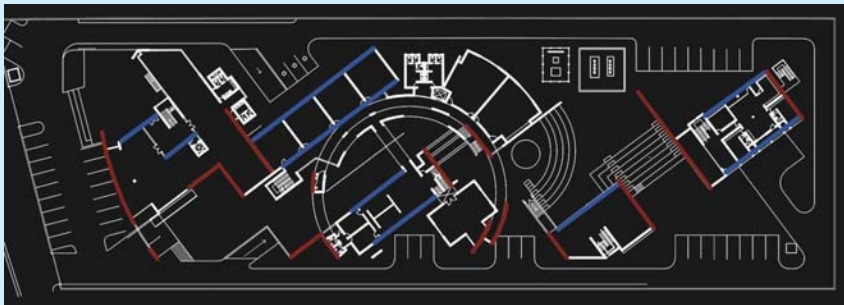
Automatic adjustable louver system

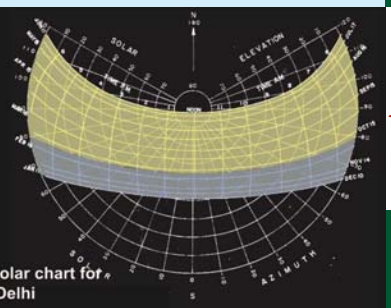




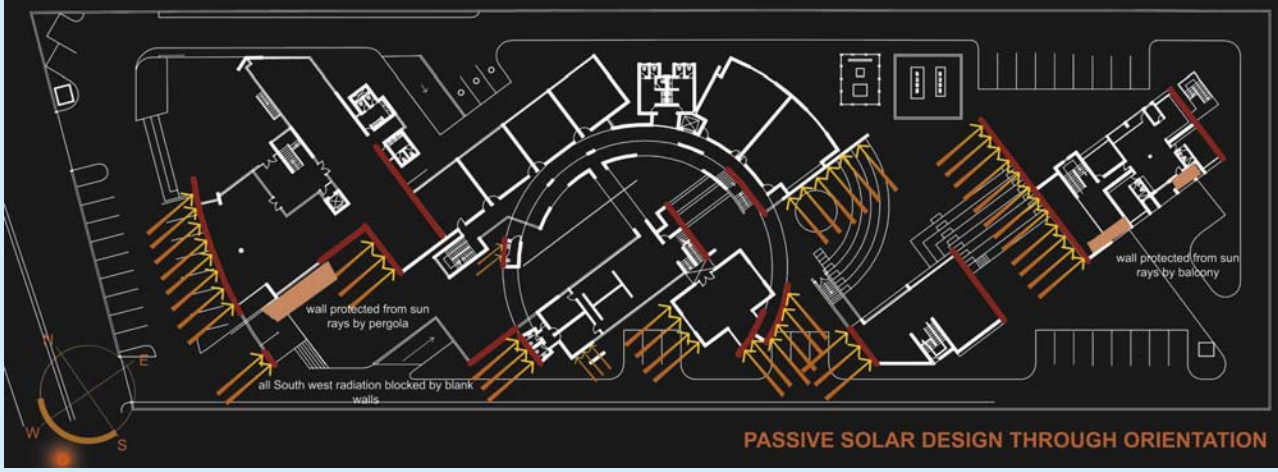
Passive solar design

- Glare-free daylight
- NS orientation
- Minimum windows on EW and S facades
- Shading devices on SW openings





The solar chart for New Delhi



PASSIVE SOLAR DESIGN THROUGH ORIENTATION

Sun

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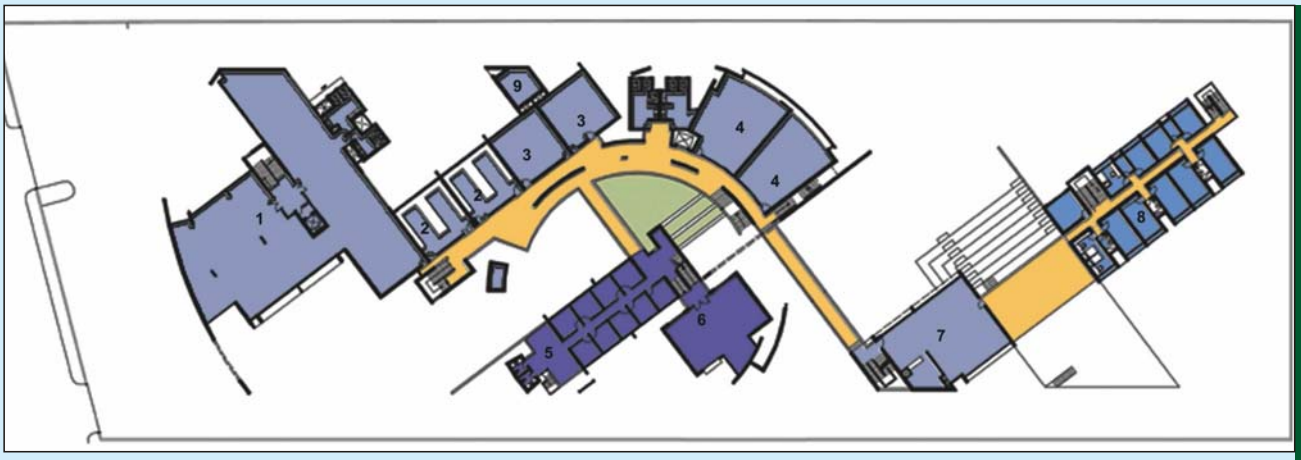
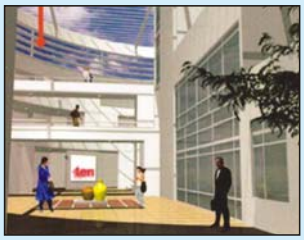


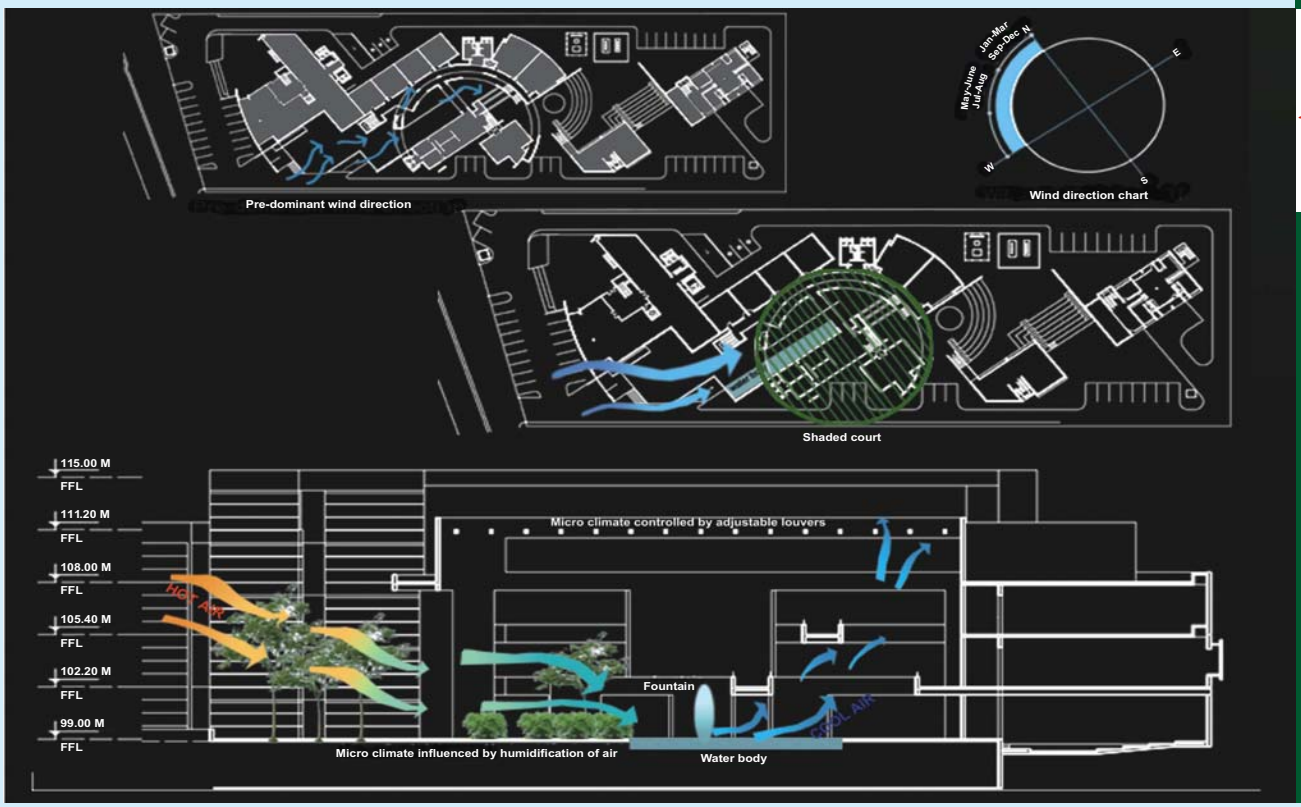
First floor plan

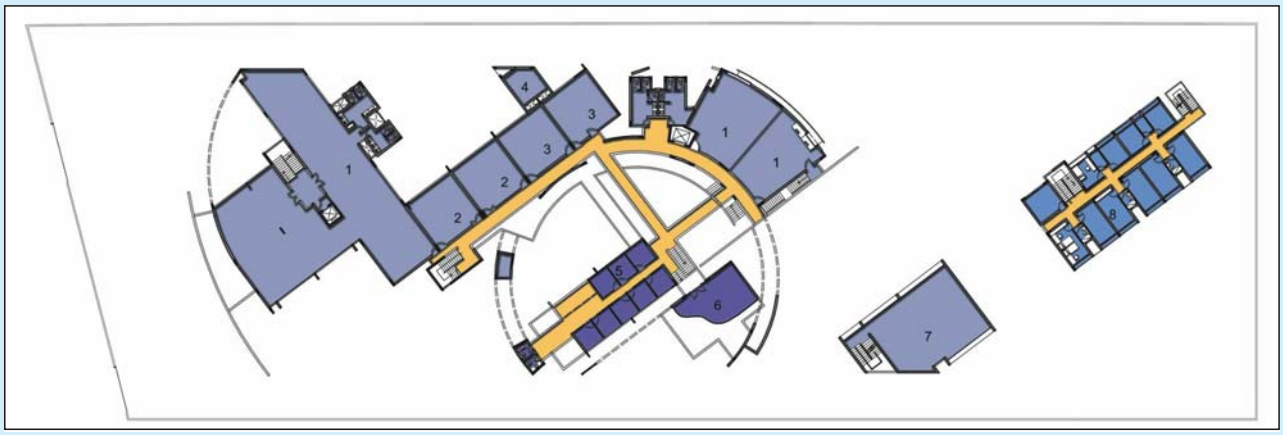
1. Office
2. Lab
3. Classroom
4. Lecture hall
5. Administration cabin
6. Accounts
7. Staff dining
8. Hostel rooms
9. Thermal mass tower



The predominant wind direction is taken into account in designing the open space. The hot air from outside moves into the central court where it passes over the water body and fountain. The air thus gets humidified and becomes cooler. This makes the central atrium area always cooler than the surrounding exterior

Air



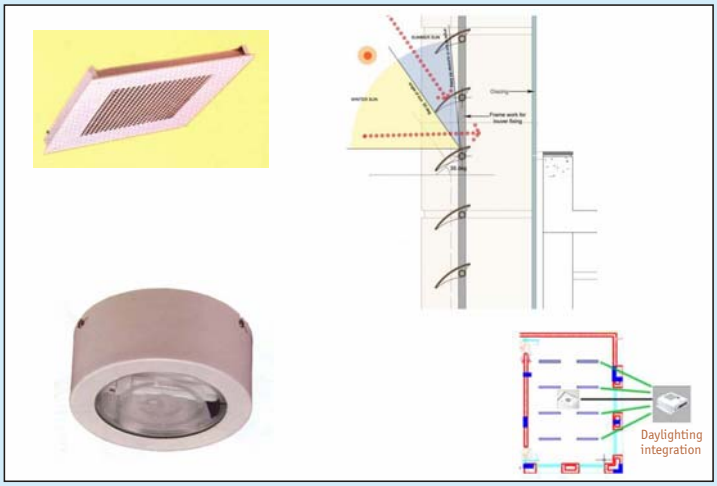


Second floor plan

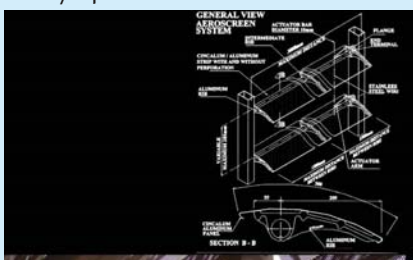
1. Office
2. Lab
3. Classroom
4. Thermal mass tower
5. Administration cabin
6. Meeting room
7. Office space
8. Hostel rooms

Energy-efficient lighting and daylight integration

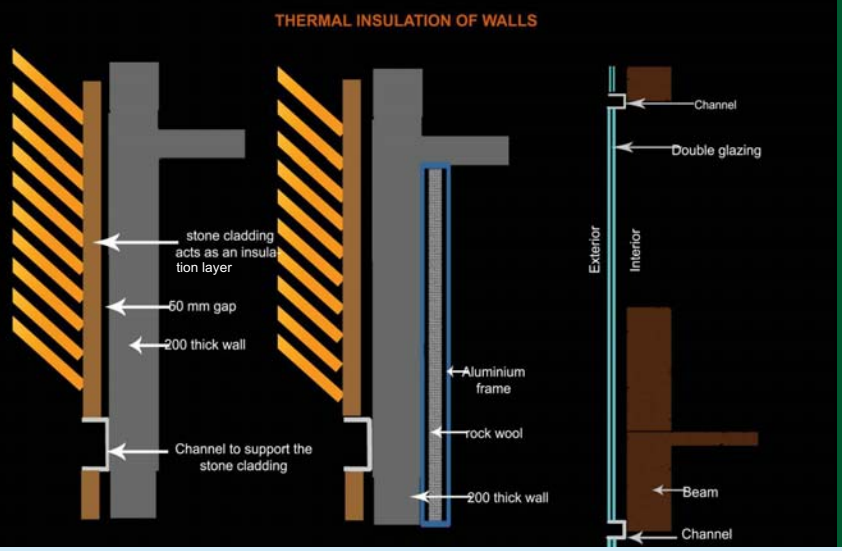
- Recess mounting luminaire fitted with 1×36, 2×36, 3×36 CFL for task lighting
- Surface mounted single/twin horizontal mounting CFL downlighter for task lighting and common areas
- High lumen output and controlled light distribution
- Fitted with mirror optics reflectors and bat-wing louvers for glare-free uniform illumination
- Energy saving electronic ballast are used
- Lighting load reduced from 2 W/sqft to 1 W/sqft



- Where daylight is available, fixtures fitted with continuous dimming electronic ballast
- These fixtures controlled by light sensors
- In areas with non-uniform illumination, occupancy sensors installed
- Overall energy-saving potential is 70%



Use of efficient double glazing window units helps significantly reduce the heat gained through window glazing in the summers and the heat lost in the winters without compromising on the daylighting integration and the levels of visual comfort. The walls that are exposed to the harsh solar rays have a stone cladding which is fixed to the wall by channels. The air gap between the wall and the stone cladding by itself acts as an insulation layer. On the facades rock wool insulation is also provided in the wall. Energy efficiency is further proposed to be enhanced by insulation in the roof slab



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Sky

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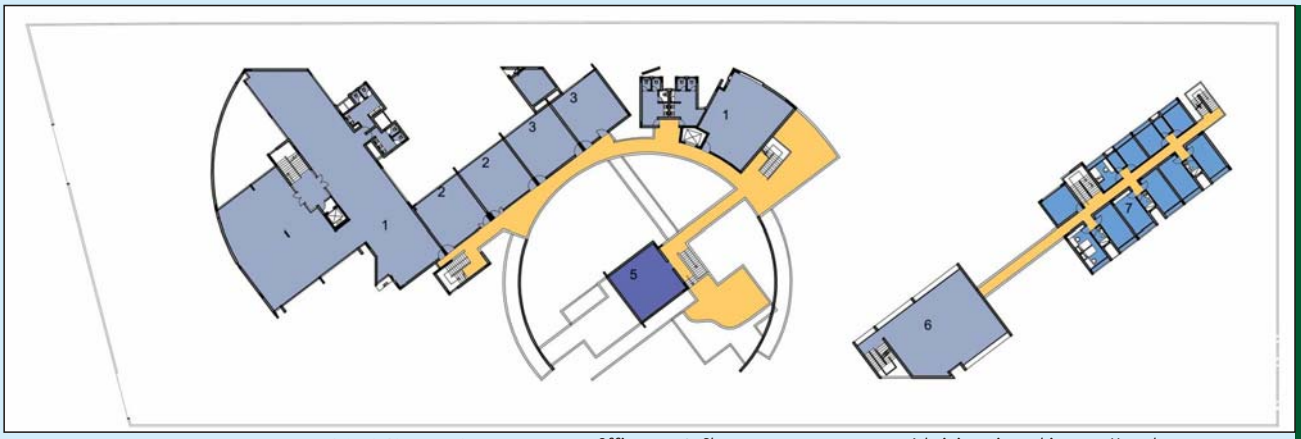
Earth and space conditioning

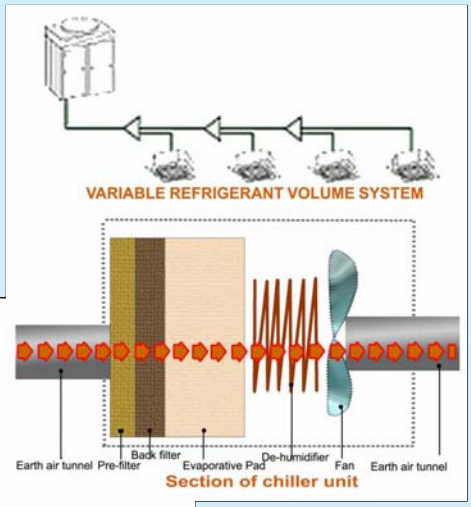


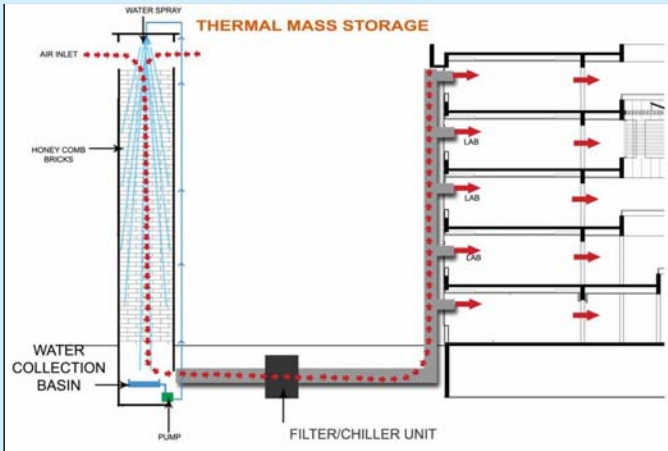
Third floor plan

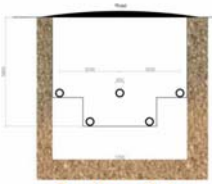
1. Office
2. Lab
3. Classroom
4. Thermal mass tower
5. Administration cabin
6. Office space
7. Hostel rooms

The campus is equipped with three types of cooling systems:
(1) variable refrigerant volume (VRV) system (2) earth air tunnel (EAT) and (3) thermal mass storage

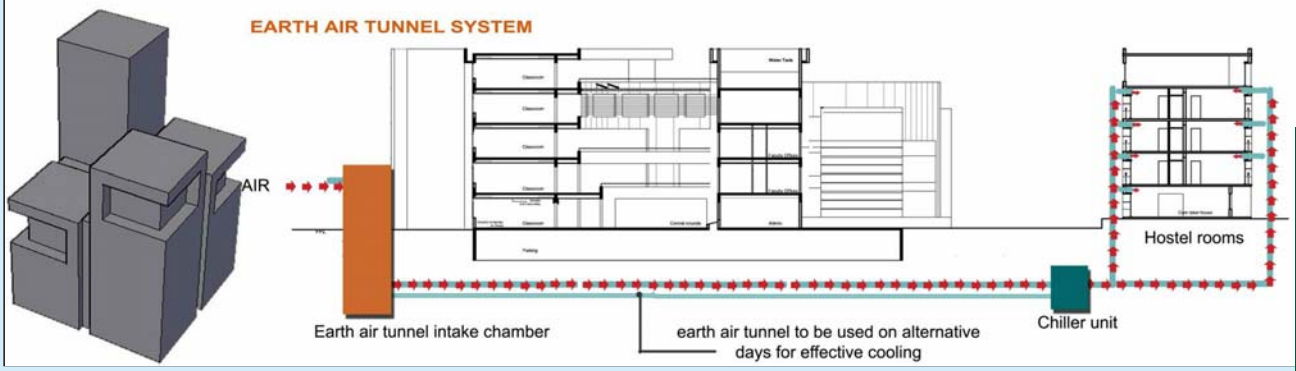
The VRV system is proposed for office block,labs, administrative block, recreation and dining areas of hostel block. This modern type of air conditioning system, which is similar to a split AC, is highly efficient under partial loading conditions and beneficial to areas with varying occupancy. It allows customized control of individual zones, eliminating the use of chilled water piping, ducting, and plant room.



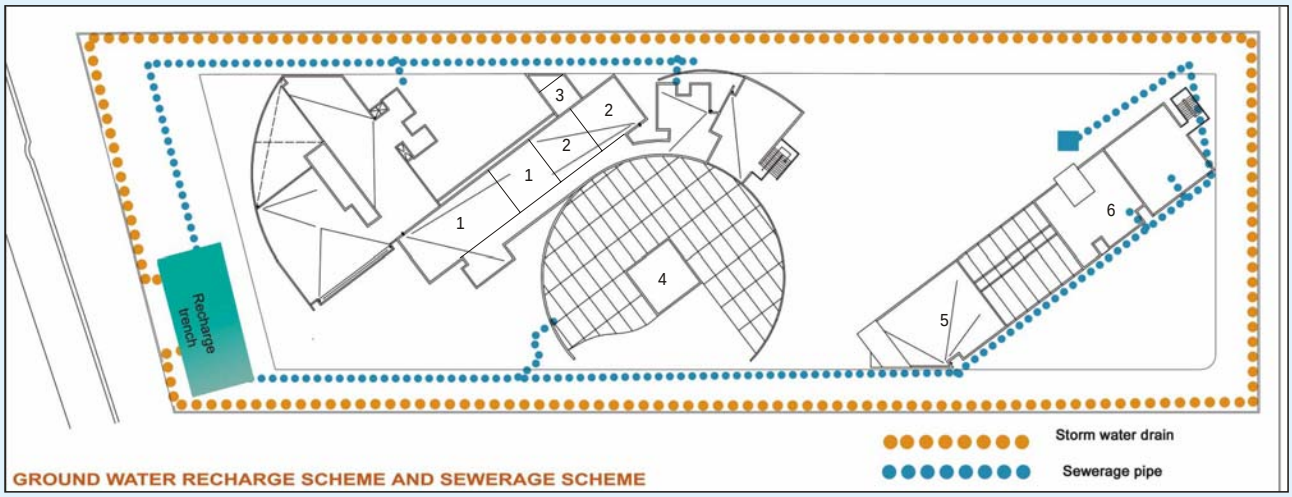




Thermal mass storage used in the classrooms involves storing energy when available and using it when required. Here, cooling of thermal mass is done during night. This cool thermal mass is used to cool air in day time. This system gives an energy saving up to 40%



The EAT used for rooms in hostel block uses the heat sink property of the earth to maintain comfortable temperatures inside the building. The air that passes through the buried pipes gets cooled in summer and heated up in winter. Depending upon the severity of the climate, supplementary systems can be used. This gives an energy saving of nearly 50% as compared to the conventional system



GROUND WATER RECHARGE SCHEME AND SEWERAGE SCHEME

Fourth floor plan

1. Office
2. Classroom
3. Thermal mass tower
4. Administration cabin
5. Office space
6. Recreation area

Water Management

- Buildings in the campus provided with low-flow fixtures such as dual flush toilets and sensor taps
- This would result in 25% savings in water use

Waste water treatment

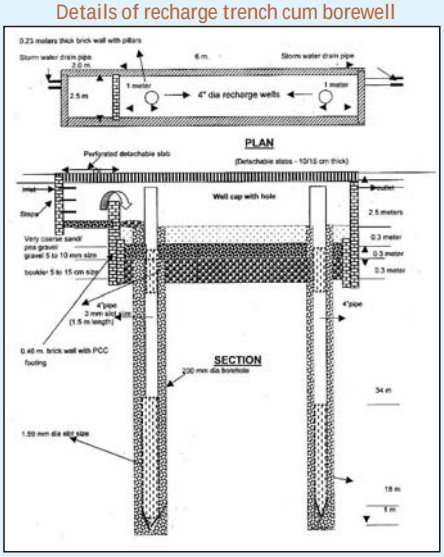
- Treatment of waste water generated from the hostel block by biological process using a combination of micro-organisms and biomedia filter
- Low area requirement for this treatment plant
- Treated water meets the prescribed standards for landscape irrigation
- Very low energy consumption for operation of the treatment plant

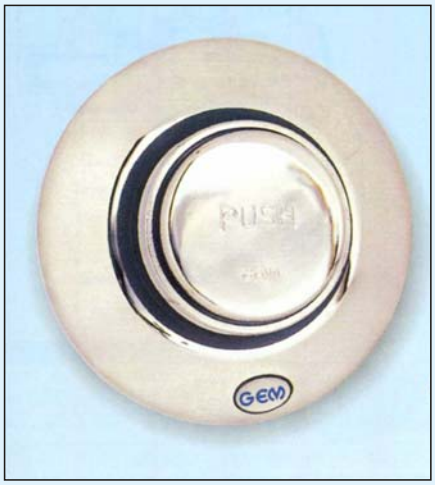
Rainwater harvesting

- Average annual rainfall for Delhi is 611 mm
- Rainwater run-off from roof and the site will be used for recharge of aquifer through CGWB-approved designs
- Enhance the sustainable yield in areas where over-development has depleted the aquifer
- Conservation and storage of excess surface water for future requirements
- Improve the quality of existing groundwater through dilution

Waste water treatment plant

Details of recharge trench cum borewell





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Water