

AS343	Water Supply and Sanitation	HRS 3-0-0	CR-3
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Objective

To provide knowledge and understanding of the fundamentals of water supply and sanitation infrastructure required for buildings and urban areas, so as to enable them to comprehend the subject thoroughly and integrate the learning into architectural design. Students to be encouraged to explore technologies for recycling and reuse of water and solid waste.

Module1 WATER SUPPLY

General idea of sources of water supply: qualitative and quantitative aspects, Water requirements for different types of buildings, water saving practices
 Water treatment and distribution systems- Domestic water supply systems, sump, overhead storage tank, pipe size, pipe fittings.
 Special installation Cold water and hot water supply in multistoried buildings.
 Material, types of fixtures and fitting for a contemporary bathroom- taps -quarter turn, half turn, ceramic, foam flow etc, hot water mixer, hand shower, types of valves etc. provision for fire fighting and code requirements.
 Rainwater harvesting to include roof top harvesting, type of spouts, sizes of rainwater pipes and typical detail of a water harvesting pit

Site visits - Water treatment plant. Multistoried apartments for studying water supply and submission of report.

Module 2 SANITATION

Principles of drainage, surface drainage, shape and sizes of drains and sewers, storm water over flow chambers, methods of laying and construction of drains and sewers
 Traps: shapes, sizes, types, materials and function, Inspection chambers - sizes and construction, intercepting chamber, cast iron manholes
 Ventilation of House drainage: Anti siphon pipe, system of plumbing - single stack , one pipe system, one pipe partially ventilating system and two pipe system, grey water recycling and dual plumbing
 Types of fixtures and materials: Sinks, shower tray, shower temple, bath tub, Jacuzzi, water closets, flushing cisterns, urinals, sinks , wash basins, bidet, low flow fixtures, etc.

Module 3 SANITATION

Design of Septic tank, Oxidation pond, Dispersion trench and soak pits Treatment system- Root zone treatment system, Decentralized Wastewater Treatment Systems (DEWATS), Soil Bio technology, packaged Bio-Reactor System

Module 4 SOLID WASTE DISPOSAL

Approaches for solid waste management, Solid wastes collection and removal from buildings. On-site processing and disposal methods, guidelines for municipal solid waste management, e-waste management

Disposal of Wastes: Sanitary land filling, Composting, Vermi-compost, Incineration, Pyrolysis

B.Arch Detail Syllabus For Admission Batch 2016-17

Module -5

Application of above studies in building projects, preparation of layouts and details

Site visits - Sewage treatment plant.

References

1. Birdie, B. S. (1996). Water supply and Sanitary Engineering. Dhanpat Rai and Sons.
2. National Building Code of India. (2005).
3. Punmia, B. C., Jain, A. K. and Jain, A. K. (1995). Water Supply Engineering. New Delhi: Laxmi Publications.
4. Punmia, B. C., Jain, A. K. and Jain, A.K. (1998). Waste Water Engineering. New Delhi: Laxmi Publications.
5. Rangwala, S. C. (2005). Water Supply and Sanitary Engineering. Charoter Publishing.
6. Handbook Water Supply and drainage with Special Emphasis on Plumbing. Bureau of Indian Standards, New Delhi.