

## Section-C

### ☒ Ventilation:-

It is the art of supplying air to a given space, and also includes the art to remove the old vitiated air from that space.

(Natural ventilation is thought of as a low energy cooling strategy which can provide year round comfort, with flexible user control, at a low capital and maintenance cost.)

### Purpose Of Ventilation:-

- 1) To provide necessary oxygen to remove oxygen deficit caused by respiration
- 2) To remove and dilute  $\text{CO}_2$  in the air
- 3) To lower down the temperature by removing hot used up air and replacing it by colder fresh air.
- 4) To reduce humidity

### Types:-

- (1) Natural Ventilation
- (2) Artificial mechanical ventilation

## D) Natural Ventilation to Control Indoor Air Quality :-

In a building without mechanical ventilation or air-conditioning, IAQ is a concern because most windows in the building may be closed, preventing the exchange of fresh air with stale air.

Controlling airflow rates becomes the ultimate consideration.

### Natural Ventilation for summertime cooling :-

For summertime cooling, important considerations are internal heat loads and external solar gains, as well as building characteristics.

The higher the airflow availability, the greater the cooling effect.

### Principles :-

The use of natural ventilation is not a new concept by any means. Before air-conditioning was invented, civilizations had to use their own innovative spirit and creativity to maintain thermal comfort.



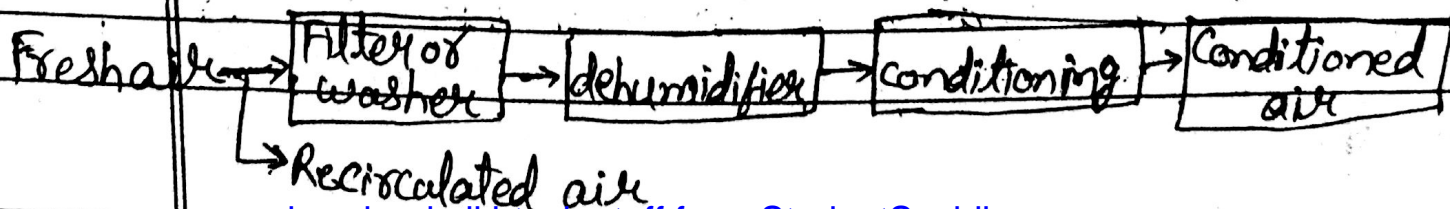
## Night Cooling / Thermal Mass :-

- Typically, outdoor temperatures are lower at night than during the day. The concept of night cooling rests on this very fact.
- Cooler night air is brought into the building space to flush out warm, stale air that accumulates during the day.
- Thermal mass can be incorporated into a building structure to absorb heat during the daytime hours.

## Air Conditioning :-

The atmosphere in modern cities contains highly polluted, smokes, fumes, dust, germs etc., which cannot be removed effectively by natural or even ordinary mechanical ventilation.

It is the process of controlling the temperature, humidity, and distribution of air in the building with simultaneously removing the dirt, bacteria and toxic matter from the air. It provides a comfortable and wholesome ventilation to the buildings.





### Cooling of Air:-

- (1) By Mechanical Refrigeration (VCR cycle)
- (b) By Water Spray Method

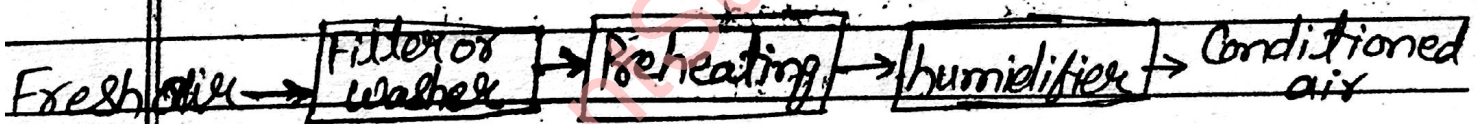
### Water Spray Method:-

Water is cooled with the help of a ice.

The cooled water is then sprayed on the hot air coming out of the filters.

The air thus gets cooled by evaporation.

This method increases the humidity of the air and thus not suitable for humid climate.



### Environmental Audit:-

It is a general term that can reflect various types of evaluations intended to identify environmental compliance and management system implementation gaps, along with related corrective actions. There are generally two different types of environmental audits:

- (i) Compliance audits and

(ii) management systems.

Compliance audit tend to be the primary type in the US or within US-based multinationals.

(i) Environmental audit Compliance Audit:-

As the name implies, these audits are intended to review the site's/company's legal compliance status in an operational context. It generally begins with determining the applicable compliance requirements against which the operations will be assessed. It may be multimedia or programmatic.

(ii) Management Systems:- (Goal of auditing)

It is useful to:

(a) Identify and control the environmental impact of its activities, products or services

(b) Improve its environmental performance continually

(c) Implement a systematic approach for setting environmental objectives and target targets.



Goals of auditing are :-

(ii)

Env Audit Process :-

