

## 4.2 SEGREGATION AND BLEEDING

### Bleeding

The tendency of water to rise to the surface of freshly laid concrete is known as bleeding. Bleeding is generally occurred due to higher water cement ratio. It is defined as some of the water is come out to the surface of the concrete.

### Steps adopted to control bleeding

- By adding more cement
- By using more finely ground cement
- By using little air entraining agent
- By increasing finer part of fine aggregate
- By properly designing the mix and using minimum quantity of water.

### Causes of Bleeding

- Improper mixing
- Improper mix design
- Highly wet mix
- Heavy compaction (or) vibration

### Segregation

The tendency of separation of coarse aggregate grains from the concrete mass is called segregation. *Aggregates and cement paste are separated* due to higher water cement ratio or poor mix proportions. It is also seriously affecting the quality of the concrete.

### Causes of Segregation

- Improper mixing of concrete
- Improper mix design
- Dropping of concrete from heights
- Discharging concrete against obstacles
- Passing the concrete along the chute, when changing its direction
- Concrete discharge from a badly designed mixer or from a mixer of damaged blades
- During the conveyance of concrete, hauling
- Excessive vibration to high wet mix
- Improper finishing of concrete surface

### **Reduction of Segregation**

- By using exact proportion (or) mix
- By using air – entraining agents
- Preventing the flow of concrete
- Reducing the continuous vibration for long time
- By using of workability agents
- Reducing the height of drop of concrete