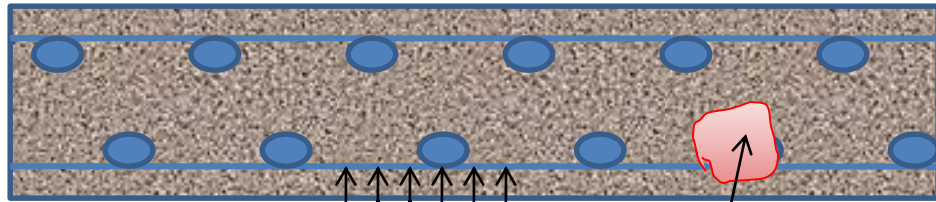
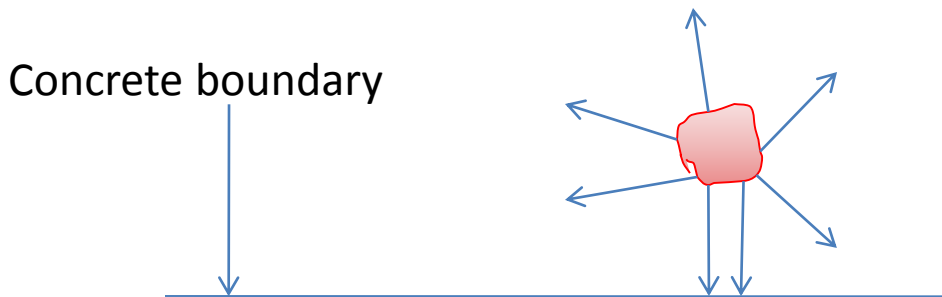


CORROSION & ITS PREVENTION

CAUSE OF CORROSION IN RC ELEMENTS



Air (O_2) enters through porous concrete + Fe = Fe_3O_4 (Rust)

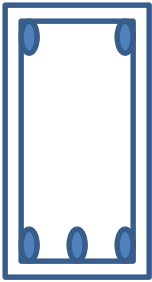


Increased volume of Fe_3O_4 exerts swelling pressure on the surrounding concrete and pushes it to fall apart. This is called **Spalling of Concrete**. This opens up concrete against weather effect so that corrosion of reinforcements is accelerated. Eventually the structural element (slab, beam, column etc.) becomes vulnerable to collapse.

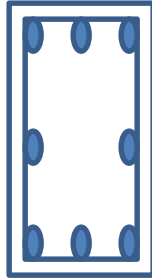
PREVENTION OF CORROSION IN RC ELEMENTS

• During construction:

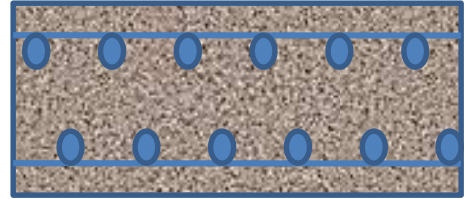
- Proper placement and compaction of concrete
- Providing adequate clear cover



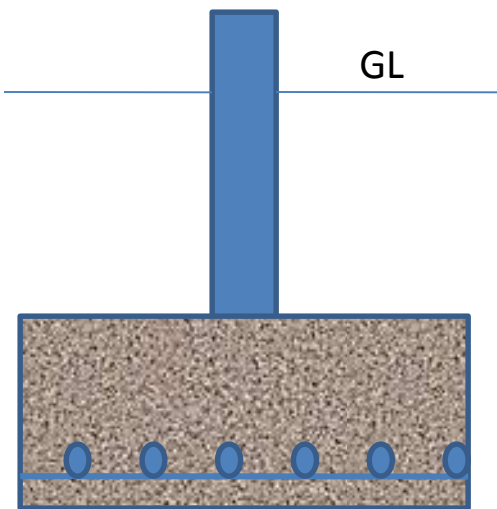
Floor beams:
37mm



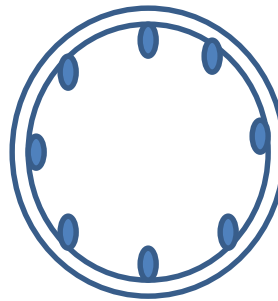
Columns:
37mm (above ground)
75 mm (below ground)



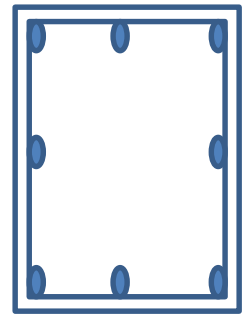
Floor slabs:
20 mm



Shallow Foundations: 75mm



Cast in-situ pile:
75mm



Precast pile: 25mm

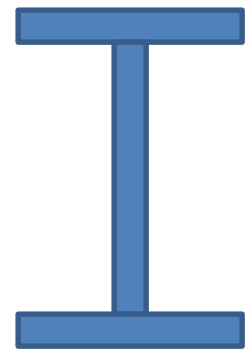
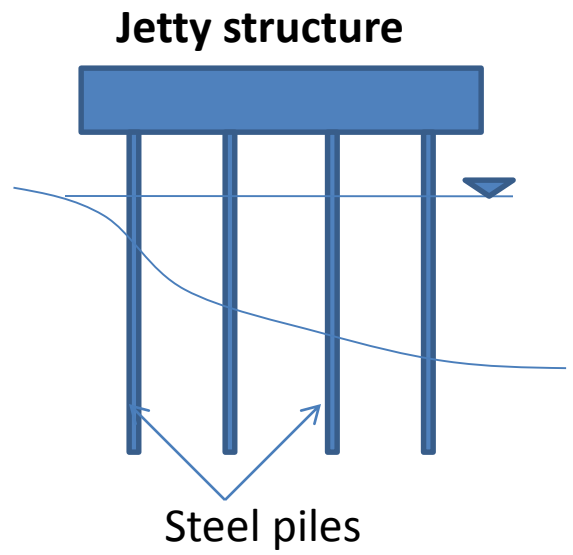
• After construction:

- Repair with Ferrocement
- Recast

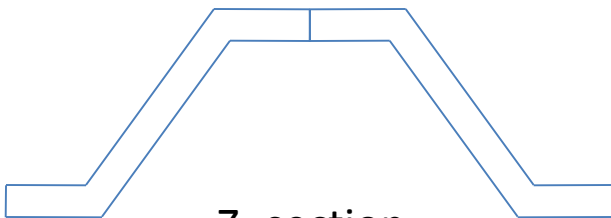
CORROSION OF STEEL MEMBERS



Sheet Piles



H- section

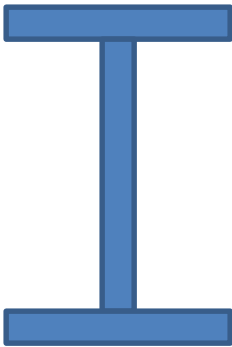


Z- section

PREVENTION OF CORROSION OF STEEL MEMBERS

- During construction:

- By coating with Enamel paints, epoxy, bitumen etc.
- Providing adequate Additional/Sacrificial Thickness



- Say, required thickness = t
- Rate of corrosion for a given environment = r mm/year
- Design life of the member = X years

Additional Thickness to be provided = $X * r$

Therefore, the thickness that should be provided in the beginning should be = $t + X * r$

